

Law, Agency Costs and Project Finance*

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December 2008

Abstract

We investigate Project Finance as a private response to inefficiencies created by weak legal protection of outside investors. In the context of large investment projects, Project Finance offers a contractual and organizational substitute for investor protection laws by making cash flows *verifiable*, thereby enhancing debt capacity. Project Finance makes cash flows verifiable through: (i) contractual arrangements made possible by structuring the Project Company as a single, discrete project legally separate from the sponsor; and (ii) private enforcement of these contracts through a network of project accounts that ensures lender control of project cash flows.

Comparing the incidence of bank loans for Project Finance with regular corporate loans for large investments (“Corporate Debt Finance”), we show that Project Finance is more likely in countries with weaker laws against insider stealing and weaker creditor rights laws. In addition, stronger creditor rights mitigate the marginal effect of weaker laws against insider stealing on the choice of Project Finance versus Corporate Debt Finance. To provide this evidence, we employ cross-country tests as well as time-series, difference-in-difference tests that exploit country-level changes in legal rules.

JEL classification: G32, G33, G34, K22

Key words: Agency Cost, Bankruptcy Cost, Corporate Finance, Corporate Governance, Free Cashflow, Investor Protection, Leverage, Limited Recourse, Project Finance, Self-Dealing

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1 Introduction

The law and finance literature (La Porta et. al., 1997, 1998) highlights that legal rules protecting outside investors vary systematically across countries. Market participants often respond to the inefficiencies created by weak legal protection of outside investors through contractual and private enforcement mechanisms. In this paper, we focus on one aspect of this overarching theme by investigating Project Finance as a private response to the risks posed by the financing of large investment projects, particularly in countries with weak legal protection of outside investors.

When a country's corporate and bankruptcy laws provide weak protection to outside investors, Corporate Debt Finance can lead to expropriation of outside investors by corporate insiders and, thereby, reduce debt capacity. Specifically, as Hart and Moore (1989, 1994) and Hart (1995) show, when cash flows are not verifiable, and can therefore be expropriated by the borrower or its insiders, debt capacity of a project becomes severely limited. Firms may respond to weak legal environments by employing Project Finance, where extensive contracts combine with private enforcement mechanisms to limit borrower discretion on cash flows. The resulting increase in cash flow verifiability enhances the debt capacity of the project. In effect, Project Finance offers a contractual substitute for legal protection of outside investors for financing of large investment projects.

In Project Finance, a legally independent project company is created to own and invest in the project, and the project debt is structured without recourse to the sponsors (Esty, 2003b; Nevitt and Fabozzi 2000). As a consequence, verifiability of cash flows becomes crucial because project cash flows are the essential means for repaying the lender. Project Finance enhances verifiability through (i) contractual constraints on cash flows that are made possible by the special structuring of the Project Financed company, and (ii) private enforcement of these contracts through a network of project accounts that are under the lender's control and into which project cash flows are required to be deposited.¹ Contractual constraints on cash flows are possible because the Project Company owns a single, discrete project that is legally separated from the sponsor, and invests only in the particular project for which it is created. Therefore, project cash flows can be meaningfully separated from the cash flows accruing from other projects. This enables explicit contracting over the Project Company's use of cash flows through *cash flow waterfall contracts*. These contracts finely detail the order of distribution of project cash flows across a number of contingencies, and may include provisions mandating accelerated repayment of project debt when excess cash is available.

With Corporate Debt Finance, by contrast, the commingling of cash flows from multiple projects makes it difficult to segregate and dedicate project cash flows to repayment of project debt. Moreover, tightly enforced cash flow constraints would significantly impede managerial discretion in the Corporate Debt Finance context. Multiple projects and internal capital markets distinguish

¹Structuring such verifiability incurs transaction costs. First, creating a stand-alone project company may take from six months to more than a year. Second, lenders to project companies charge advisory fees of up to 50 to 100 basis points for advice on the financial structure of the transaction. The contracting and other transaction costs may consume from 5% to 10% of the project's total cost (Esty, 2005).

Corporate Debt Finance from Project Finance. The managerial discretion required to operate in the former makes stringent cash flow constraints unworkable in practice. Therefore, contractual arrangements that are possible in Project Finance cannot be effected in Corporate Debt Finance.

We rely on the theory of debt proposed in Hart (1995) to derive our empirical hypotheses. Hart (1995) implies that debt capacity of a project increases when (i) cash flows become more verifiable; and (ii) the likelihood increases that the lender can seize and liquidate the collateral assets. The theory further implies that an increase in cash flow verifiability decreases the marginal effect of the expected liquidation value on debt capacity. The intuition behind these predictions is straightforward. First, when cash flows are more verifiable, the entire distribution of cash flows available to all claimants — creditors and equityholders — shifts to the right. Given their concave payoffs, creditors care about the left tails of the cash flow distribution. Therefore, an increase in cash flow verifiability enhances debt capacity by decreasing the probability of (strategic) default. Second, the lender can force the borrower to pay from the unverifiable portion of cash flows only by threatening to liquidate the collateral assets if the borrower defaults. Therefore, to the extent the lender can more easily seize and liquidate the collateral, the borrower is more deterred from defaulting strategically, which enhances debt capacity. Finally, when cash flows are more verifiable, the likelihood of strategic default is lower and, therefore, any increase in the probability that the lender will be able to seize and liquidate assets has a lower marginal effect.

Hart (1995)'s theory maps directly into our cross-country empirical setting. First, if legal protection against insider stealing is stronger, then cash flows are more verifiable in Corporate Debt Finance. Second, stronger creditor rights — in particular the lender's right to seize and liquidate assets — implies the lender is more likely to be able to seize and liquidate the collateral assets. As argued above, Project Finance makes cash flows verifiable even in countries with poor legal protection for outside investors. Therefore, we predict that Project Finance is less likely than Corporate Debt Finance in countries where (i) the protection against insider stealing is stronger; and (ii) creditor rights are stronger. Furthermore, the marginal effect of creditor rights on the choice between Project Finance and Corporate Debt Finance is lower when laws against insider stealing are stronger.

To test these predictions, we compare the incidence of Project Finance loans with Corporate Debt Finance loans across thirty-nine countries. Project Finance involves primarily bank debt for large investments (Esty, 2003b). Therefore, we compare bank loans for Project Finance with regular corporate loans for large investments ("Corporate Debt Finance"). The sample of bank loans is drawn from Loan Pricing Corporation's Dealscan database, which provides a comprehensive database of international bank loans (Qian and Strahan, 2007). Our Corporate Debt Finance loans consist of corporate loans for capital expenditures as well as corporate purpose term loans above \$0.5 million (which is the minimum size of a Project Finance loan in our sample).

We employ two different proxies for the strength of legal protection against insider stealing.²

²We do not distinguish between manager-shareholder conflicts and insider-outsider conflicts. For our purposes, "insider stealing" covers expropriation by both managers and controlling shareholders.

First, we employ a measure of ex post private control of self-dealing from Djankov, LaPorta, Lopez-de-Silanes and Shleifer (2006) (hereafter, DLLS). Our second proxy is a measure of the value of private benefits of control based on control block premia from Dyck and Zingales (2004). We use this measure to capture the quality of enforcement of laws against stealing, in addition to the quality of the laws themselves. This market-based measure reflects not only the quality of laws on the books protecting outside investors, but also enforcement quality. As our proxy for a country's creditor rights, we use the creditor rights index (a score between 0 and 4) constructed in Djankov, McLiesh and Shleifer (2005) (hereafter, DMS).

Inferring a causal relationship between these country-level laws and the deal-level choice between Project Finance and Corporate Debt Finance presents several challenges. First, omitted variables at the deal, borrower or lender level could corrupt our interpretation of any causal effect of these laws on this choice. Second, country-level laws governing insider stealing and creditor rights may be collinear with other country-level unobserved factors. To address these concerns econometrically, we undertake our analysis in several steps. In our basic tests, we undertake logit regressions for the likelihood of Project Finance as a function of our proxies for protection against insider stealing, creditor rights and the interactions between them. Consistent with our hypotheses, we find the coefficients of proxies against insider stealing and creditor rights to be negative and the coefficient of their interaction to be positive. We repeat our specifications after including (i) several deal-level and industry-level variables; (ii) borrower random effects together with industry- and year fixed effects; and (iii) all country-level variables highlighted in the law and finance literature for the level of a country's economic and financial development, as well as an index of its political rights. In addition, to alleviate concerns that our results may be driven by borrower- or lender level omitted factors, we aggregate our sample to a country, 4-digit SIC, year level and run OLS regressions using the percentage of Project Finance in the country, 4-digit SIC, year level.

In the *strongest piece of evidence* supporting our hypotheses, we conduct difference-in-difference tests that exploit within-country differences in Project Finance relating to *exogenous* changes in legal rules. We use changes in creditor rights and the institution of mandatory bid rules in various countries during our sample period. Mandatory bid rules reward bidders willing to put up search costs incurred in identifying potentially attractive targets by giving them the opportunity to secure control without an auction. Such laws enhance protection of outside investors by increasing the threat of takeovers (Jensen, 1988). These time-series tests have the attractive feature of not being subject to the omitted-variables bias often raised as an objection to cross-country regression results.

Having tested for the effects of creditor rights generally, our next set of tests are designed to shed light on our hypothesis that the creditor's right to seize and liquidate assets improves the likelihood of the borrowers' repayment. Accordingly, among the various DMS index components, the absence of an automatic stay on secured assets should matter more for the choice of Project Finance versus Corporate Debt Finance than the other components. We find that the absence of an automatic stay on secured assets is the only component that has an effect on the likelihood of Project Finance. Motivated by this result, we replace the overall creditor rights index with the

automatic stay component and confirm all of our prior findings.

Finally, to highlight the mechanism underlying our results, we investigate inter-industry differences in the effect of legal protection of outside investors on the choice of Project Finance versus Corporate Debt Finance. Since Project Finance renders cash flows verifiable, we predict that the effect of these laws would be disproportionately greater in industries with higher free cash flows. In this set of tests, we *interact* an industry-level measure of free cash flows to assets with the country-level variables. Unlike our earlier tests, since we focus on an interaction of country-level variables with industry-level variables, we control for all unobserved heterogeneity at the country-, industry-, and year levels through fixed effects for each of these.

Taken together, these tests provide convincing evidence that Project Finance offers a contractual substitute to Corporate Debt Finance for financing large projects in countries with weak legal protection against insider stealing and weak creditor rights. Furthermore, creditor rights and laws against insider stealing substitute for each other in offering protection to outside investors: stronger creditor rights reduce the marginal effect of laws against insider stealing on Project Finance and vice-versa. The economic magnitudes of these effects are significant. A one standard deviation increase in the proxy for protection against insider stealing decreases the likelihood of Project Finance in a country by 4.3% to 5.5%. A one point increase in the strength of creditor rights decreases the likelihood of Project Finance by 6.7% to 13.1%, and decreases the marginal effect of weaker protection against insider stealing on Project Finance by 9.1% to 16.2%. Finally, if we compare two industries for which free cash flow/ assets is one standard deviation apart, then these effects are economically larger in the higher free cash flow industry by 13.8% to 17.5%.

Our key contribution is to provide empirical evidence that Project Finance offers a private substitute for legal protection of outside investors in the context of financing large projects. Shleifer and Vishny (1997) define corporate governance as the “ways through which suppliers of capital to corporations assure themselves of getting a return on investment.” In the context of debt financing of large investment projects, we highlight that market participants can combine extensive contractual arrangements and private enforcement mechanisms to counter the inefficiencies from poor legal protection of outside investors. To our knowledge, our study is the first to offer evidence using a large, cross-country sample of market participants’ private contractual responses to weak legal environments.

This paper is organized as follows. The next section reviews the literature. Section 3 details the relevant institutional features of Project Finance. Section 4 describes the theoretical framework that leads to our hypotheses. Section 5 details our sample and proxies while Section 6 describes our results. Section 7 provides a discussion of our results while Section 8 concludes the paper.

2 Review of Literature

As a broad research inquiry, our paper is closely related to the law and finance literature (see LLSV, 1997, 1998; Djankov et al., 2005; Djankov et al., 2006 and the references therein), which

highlights the role of legal institutions in shaping the pattern of financial organization and economic growth in a country. Specifically, our paper resembles La Porta, et al. (1999) in examining how legal protection for investors affects the nature of financial organization in a country. We highlight that corporations and their lenders would choose Project Finance over Corporate Debt Finance to counter the effects of weak laws against insider stealing.

This paper augments the literature examining Project Finance as an optimal organizational and financing choice. Like our study, Chemmanur and John (1996) focus on the cash flow aspect of Project Finance. In their formal analysis, they assert that the key ingredient of project financing is the segregation of project cash flows from those of the sponsor and show *inter alia* that Project Finance would dominate other alternatives when the structure of private control benefits that the sponsor enjoys differs substantially across its projects.³ In contrast to Chemmanur and John (1996), we argue informally here that the (lack of) verifiability of cash flows in (Corporate Debt Finance) Project Finance, and therefore the (higher) lower private benefits, arise endogenously due to the nature of contracts that can (not) be written in (Corporate Debt Finance) Project Finance. Esty (2003b) articulates the important institutional details of Project Finance and argues that the governance structure of project companies combines with high leverage to mitigate agency conflicts. He supports his analysis with detailed case studies and field research. We differ from Esty (2003b) in employing a large sample of international loans to show that Project Finance substitutes for Corporate Debt Finance by enforcing contractual constraints on Project cash flows together with private enforcement mechanisms. Berkovitch and Kim (1990) formally show that if information between debtholders and equityholders is symmetric, Project Finance simultaneously alleviates the problems of under- and over-investment. Compared to Esty (2003b) and Berkovitch and Kim (1990), we take a different perspective on agency conflicts by demonstrating empirically that Project Finance offers a private substitute for legal rules designed to reduce agency conflicts.

Other studies have examined the relationship between Project Finance and legal environments. Kleimeier and Megginson (2000) compare Project Finance loans to non-Project Finance loans, and *inter alia* find that Project Finance loans are far more likely to be extended to borrowers in riskier countries, particularly countries with higher political and economic risks. Esty and Megginson (2003) analyze syndicated Project Finance loans to examine the effect of creditor rights and reliable legal enforcement on the pattern of debt ownership. We contribute to this literature by documenting the effect of a specific country-level risk – the quality of legal protection of outside investors – on the choice of Project Finance versus Corporate Debt Finance.

Our finding that Project Finance may substitute for legal protection against insider stealing is in line with the Coasian view that private parties may utilize a vast array of contracting mechanisms to organize transactions among themselves. At the same time, we find evidence supporting the contrasting view in Glaeser et. al. (2001) that regulations providing stronger protection to investors can reduce inefficiencies from agency conflicts. In this regard, our paper complements the work of

³Related to this, Shah and Thakor (1987) show that in an asymmetric information setting, Project Finance is sometimes optimal because creditors incur lower screening costs in evaluating the separately-incorporated project cash flows.

Durnev and Kim (2005), who show both that legal origins matter, and that private ordering may be useful in addressing deficiencies in legal protection for investors. The paper is also related to the literature on “tunneling” (Johnson et. al, 2000; Glaeser et. al., 2001; Bae et. al., 2002; Bertrand and Mulainathan, 2003a). In this paper, we highlight that Project Finance can limit tunneling by enhancing the verifiability of project cash flows.

3 Institutional Aspects of Project Finance

Project Finance has four essential features. First, it involves creation of a legally independent Project Company to own and invest in the project. Second, the Project Company invests only in the particular project for which it is created; it is typically dissolved once the project is completed. Third, the project debt is structured without recourse to the sponsors (Nevitt and Fabozzi, 2000; Esty, 2003b). These three features together imply that cash flows from the project are the essential means to repay the lender. All interest and principal payments come from project cash flows (Nevitt and Fabozzi, 2000). This observation leads to the fourth essential aspect of Project Finance, which has gone underemphasized in the literature but is the focus of our analysis: Project Finance includes severe constraints on the use and disposition of project cash flows. Project Finance incorporates detailed contractual constraints on project cash flows and an enforcement regime to finely track those cash flows. Compared to Corporate Debt Finance, the sponsoring firms, therefore, have considerably reduced discretion over project cash flows. In contrast, with Corporate Debt Finance, the sponsor company may invest in many projects simultaneously and reallocate cash flows across projects, and lenders may rely on the cash flows and assets of the sponsor company in addition to those of a given project.

A final aspect of Project Finance is that it involves very high leverage, the bulk of which is in the form of bank debt. The average Project Company has a leverage ratio of 70% compared to 33.1% for similar sized firms listed in the Compustat database (Esty, 2003b). Bank loans comprise around 80% of project debt (Esty, 2005).

3.1 Cash Flow Verifiability

Based on the discussion above, we argue that an essential distinction between Project Finance and Corporate Debt Finance is the verifiability of cash flows in Project Finance.

In Project Finance, project cash flows can be easily separated from those of the sponsor since the Project Company is legally independent and does not possess multiple current and future projects. In contrast, with Corporate Debt Finance, project cash flows become commingled with the cash flows from other assets. The ability to separate project cash flows, along with the decreased cost of monitoring such cash flows, enables the Project Company to enter into detailed arrangements with its lenders, including private enforcement through lender-controlled project accounts.

3.1.1 The Cash Flow Waterfall Contract

This ability to enter into extremely detailed contracts is unique to Project Finance, which is why it is sometimes referred to as “contractual finance” (Esty and Megginson, 2003). The *cash flow waterfall contract*, which specifies precisely how project cash flows may be used, is a critical contractual arrangement in Project Finance. Since the lender is repaid only through project cash flows, the lender seeks to ensure that the project’s cash is adequate to satisfy debt repayment obligations. The cash flow waterfall contract dictates the order in which project cash flows may be distributed. Typically, the borrower will be required to use project cash flows first in satisfaction of project operating expenses, and then to pay interest and loan principal. The lender also typically seeks to structure how excess cash flow – cash flow available in excess of what is required to satisfy project expenses and debt repayment – is distributed.

The cash flow waterfall contract adjusts for a number of contingencies. For example, scheduled payments may be adjusted based on a *loan life cover ratio*. This ratio is determined at a given moment as the net present value of the project revenues during the remaining term of the loan, divided by the amount of the loan then outstanding. If the loan life cover ratio falls below a specified threshold, required payments may be *increased*. These increased payments typically absorb all of the excess cash flow of the project, or such proportion as is necessary to move and maintain the loan life cover ratio above the agreed threshold. The cash flow waterfall contract commonly also includes “cash sharing” and “mandatory cash sweep” provisions, which are designed to effectively amortize debt at a rate faster than originally scheduled if the project performs appreciably better or appreciably worse than anticipated. When a project exceeds cash flow expectations, a cash sharing provision entitles the lender to capture a share of the cash flow that would otherwise be available for distribution to the project sponsor. This provision is triggered if the *debt service coverage ratio* exceeds a specified threshold, with the ratio calculated as the project’s actual revenues over some specified period divided by the project’s debt service obligations over the same period. In that case, all cash flows available for distribution to the project sponsor (after honoring all prior payment obligations under the cash flow waterfall contract) are shared in agreed proportions between the sponsor and the lender, usually in inverse order of maturity of debt contracts. In contrast, when the project is not performing up to expectation, “lock up” and “mandatory cash sweep” provisions may be triggered. If the debt service coverage ratio falls below an agreed threshold, the project will not be permitted to make distributions (i.e. return cash flow) to the sponsor, and the project cash flow remains locked up. If poor performance continues and the lock up extends beyond a specified period, the lender is entitled to “sweep” the locked up cash and apply it in payment of the principal outstanding (again in inverse order of maturity). This is the mandatory cash sweep.

3.1.2 Private Enforcement Mechanisms

The cash flow waterfall contract is enforced through a variety of project accounts that are usually under the lender’s control. These include (i) a *disbursement account*, into which all payments to the lender and any distributions to equity are deposited for transfer; (ii) a *proceeds account*, into which

project revenues are deposited; (iii) a *debt service reserve account*, in which cash flows are set aside to enable payments of principal and interest to the lender if project revenues are not available. Since these accounts are under the control of the lender, they provide a framework of control over the borrower’s activities without involving the lender in the borrower’s day-to-day business activities. These lender-controlled project accounts *lend teeth* to the elaborate and finely-tuned contracting undertaken in the cash flow waterfall contract. These teeth matter especially in countries with weak legal environments, where writing and enforcing contracts may be especially costly.⁴

3.2 A Trade-Off

These arrangements for cash flow verifiability imply trade-offs in the choice of Project Finance versus Corporate Debt Finance. The fundamental cost of this cash flow verifiability is a loss of managerial flexibility. Cash flow controls in Project Finance preclude managers from funding any project-related growth opportunities from internal cash flows or reallocating cash flows across multiple projects, as is possible with Corporate Debt Finance. Bill Young, the Head of Specialized Finance Group at BP-Amoco, opines about these costs of Project Finance: “I think of Corporate Finance as a way to avoid the inflexibility associated with Project Finance. When you sign a Project Finance deal, you have to live with a giant stack of documents full of provisions that hinder your ability to respond to a changing environment” (Esty and Kane, 2003).

On the other hand, cash flow verifiability makes insider expropriation more difficult which is a benefit of Project Finance over Corporate Debt Finance.

4 Theoretical Framework

Hart and Moore (1989, 1994) and Hart (1995) model debt as a contract that provides a lender the right to liquidate collateral assets. They model an environment where cash flows are completely *unverifiable*. They show that since cash flows are unverifiable, the debt capacity of a project does not depend upon the project’s cash flows. A simple extension of their basic model, with varying levels of cash flow verifiability, delivers the prediction that an increase in the verifiability of cash flows enhances debt capacity. The intuition behind this result is quite simple. When cash flows are more verifiable, the entire distribution of cash flows available to all claimants — creditors and equityholders — shifts to the right. Given their concave payoffs, creditors care about the left tails of the cash flow distribution. Therefore, an increase in cash flow verifiability enhances debt capacity by decreasing the probability of default. It is important to note that the lack of verifiability of cash flows limits debt capacity even if the borrower intends to repay all obligations since the borrower cannot credibly commit *ex ante* to repay his/ her obligations when cash flows are unverifiable.

⁴Project Finance offers an additional advantage with respect to expropriation risk. Expropriation can occur in Corporate-Financed transactions without triggering an event of default because multiple corporate assets and cash flows cross-collateralize each debt obligation. In contrast, even small acts of creeping expropriation can cause a highly leveraged project company to default.

When cash flows are unverifiable, the borrower can consume all cash flows and strategically default on his debt obligations. In such a scenario, the lender can force the borrower to repay *only* by threatening to liquidate collateral assets, even though such liquidation is ex-post inefficient. Therefore, debt capacity increases with an increase in the expected value from possible liquidation of assets. Thus, allowing for probabilistic liquidation, the theory predicts that an increase in the likelihood of the lender being able to seize and liquidate assets enhances debt capacity.

Finally, given probabilistic liquidation, an increase in cash flow verifiability decreases the marginal effect of the probability of liquidation on debt capacity. This is because the lender needs to liquidate assets when the borrower does not repay. As argued above, when a greater proportion of cash flows are verifiable, the likelihood of strategic default is lower. Therefore, any increase in the probability of being able to liquidate assets has a lower marginal effect when cash flows are more verifiable.

The theory maps directly into our cross-country empirical setting. First, if laws against insider stealing are stronger, then cash flows are more verifiable. Second, stronger creditor rights in a country — in particular the lender’s right to seize and liquidate assets — can be interpreted as a higher likelihood that the lender is able to seize and liquidate assets.

We argued in Section 3.1 above that legal and economic segregation of the project in the Project Company enables to severely restrict managerial flexibility with respect to project cash flows through elaborate contracts and powerful enforcement mechanisms. This cash flow verifiability makes insider stealing more difficult and enhances debt capacity in Project Finance. In contrast, in Corporate Debt Finance, such elaborate contracting and/ or powerful enforcement mechanisms are too costly since they severely inhibit managerial flexibility. Since cash flows are not rendered contractually verifiable, debt capacity in Corporate Debt Finance increases when laws against insider stealing or creditors’ rights become stronger. Furthermore, as laws against insider stealing become stronger, the marginal effect of stronger creditor rights on the debt capacity in Corporate Debt Finance becomes lower. Therefore, we predict that:

HYPOTHESIS 1: *Ceteris paribus*, Project Finance is less likely than Corporate Debt Finance in countries where the protection against insider stealing is stronger.

HYPOTHESIS 2: *Ceteris paribus*, Project Finance is less likely than Corporate Debt Finance in countries where creditor rights are stronger.

HYPOTHESIS 3: *Ceteris paribus*, the *marginal effect* of creditor rights on the choice between Project Finance and Corporate Debt Finance is lower when laws against insider stealing are stronger.

According to the theory in Hart (1995), the lender can force the borrower to repay *only* by threatening to liquidate collateral assets. Therefore, the “no automatic stay on secured assets” component of creditor rights should matter more than its other components. Therefore, we predict that

HYPOTHESIS 4: The “no automatic stay on secured assets” component of creditor rights should have a greater effect on the choice of Project Finance versus Corporate Debt Finance than the other components of creditor rights.

HYPOTHESIS 2A: Ceteris paribus, Project Finance is less likely than Corporate Debt Finance in countries where there is no automatic stay is placed on secured assets.

HYPOTHESIS 3A: Ceteris paribus, the *marginal effect* of “no automatic stay placed on secured assets” on the choice between Project Finance and Corporate Debt Finance is lower when laws against insider stealing are stronger.

Since agency costs of free cash flow are higher in industries with higher free cash flows, cash flow verifiability is economically more important in the higher free cash flow industries than in the lower free cash flow industries. Therefore, to highlight the *causal mechanism* for the above effects, we predict that:

HYPOTHESIS 1B: Ceteris paribus, the marginal effect of laws against insider stealing on the choice between Project Finance and Corporate Debt Finance increases with the level of free cash flow in an industry.

HYPOTHESIS 2B: Ceteris paribus, the marginal effect of creditor rights on the choice between Project Finance and Corporate Debt Finance increases with the level of free cash flow in an industry.

HYPOTHESIS 3B: Ceteris paribus, the marginal effect of the *interaction* of creditor rights with laws against insider stealing increases with the level of free cash flow in an industry.

5 Data, Sample and Proxies

5.1 Sample

We test our predictions using data on Project Finance and Corporate Debt Finance from Loan Pricing Corporation’s *Dealscan* database.⁵ Eighty percent of the debt in Project Finance comprises bank debt (Esty, 2003b), which is typically in the form of large internationally syndicated loans, where Dealscan’s coverage is the best among available data sources. In addition, Dealscan’s definition of Project Finance closely matches the characteristics of Project Finance that we consider essential. Dealscan describes Project Finance as a “non-recourse financing provided to an independently set up Project Company.” As for Corporate Debt Finance, comparable projects would be very large and require large loan amounts, which would likely involve the participation of large international banks. Qian and Strahan (2007) point out that from the mid-1990s, Dealscan provides a comprehensive source for international bank loans. Therefore, to examine the choice between

⁵Several recent studies focusing on bank loans have employed the Dealscan data (see Qian and Strahan, 2007 for an international study and Sufi, 2008 for US based studies).

Project Finance and Corporate Debt Finance across a large sample of countries, Dealscan serves as the most suitable data source.

To examine this choice,⁶ we are careful to identify categories of Corporate Debt Finance loans that are comparable to Project Finance loans, such that for each loan in our sample, the counterfactual choice between Project Finance and our sampled categories of Corporate Debt Finance is plausible. To determine which Corporate Debt Finance loans to include in our sample, we rely on Dealscan’s attribution of the primary purpose for each loan, as well as industry classification, as described below.

Since Project Finance involves the creation of “a single purpose capital asset” (Esty, 2005), Corporate Debt Finance loans with “Capital Expenditures” as their primary purpose would seem to offer a natural set of counterfactuals to Project Finance. Indeed, examining Panel A of Table 1 reveals that the deal amounts for Capital Expenditure and Project Finance loans are very similar. An equality of means test for these two samples with unequal variances cannot reject the hypothesis that the means are equal (the t-statistic obtained is 1.404). We also note in Panel A of Table 1 that the distribution of Capital Expenditure and Project Finance loans in Dealscan is similar with respect to loan maturity and the number of lenders.

In addition to Capital Expenditure loans, we also include large term loans for “Corporate Purposes” in our sampled Corporate Debt Finance loans.⁷ Since Project Finance involves large investments, *large term loans* for “Corporate Purposes” comprise another category where the counterfactual choice of Project Finance is plausible. Consistent with the minimum deal amount (converted in dollars) for Project Finance loans, which is \$0.5 million, we exclude all Corporate Purpose term loans with deal amounts (converted in dollars) less than 0.5 million. After this exclusion, we find in Panel A of Table 1 that our sampled Corporate Purpose term loans are slightly smaller than our Project Finance loans using both mean and median. An equality of means test for these two samples with unequal variances, however, cannot reject the hypothesis that the means are equal (the t-statistic obtained is 1.104). With respect to maturity and the number of lenders — for which we do not specify any sampling restrictions — we find that the distribution of our sampled Corporate Purpose term loans is very similar to our Project Finance loans.⁸

In examining our data, we found that a few industries were outliers in terms of the dominance of Project Finance over Corporate Debt Finance deals or vice versa. Therefore, in order to ensure the integrity of our comparisons—i.e., that for all loans in our sample, the counterfactual financing

⁶This choice does indeed exist. As Huang and Knoll (2000) point out, “project financing is a capital structure decision because the firm *could potentially* fund the project using its own credit” (emphasis added). Anecdotal evidence points to the existence of such a choice as well. After the merger of British Petroleum with Amoco, BP-Amoco prepared recommendations on when and in what circumstances the firm should use external project finance instead of corporate finance to fund its new investments (Esty and Kane, 2003).

⁷We thus exclude loans under the following categories: “corporate purpose” loans that are not term loans, “equipment purchases”, “CP backup”, “credit enhancement”, “debt repayment”, “debtor in possession”, “ESOP”, “exit financing”, “lease financing”, “stock buyback”, “recapitalization”, “trade finance”, and “working capital” loans.

⁸Because Capital Expenditure loans represent the most cleanly specified counterfactual to Project Finance, in addition to our main sample that includes both Capital Expenditure loans and large Corporate Purpose term loans, we run our deal-level regressions including only Capital Expenditure loans as Corporate Debt Finance loans. Our basic results are unaltered using this alternative sample.

choice is plausible—we exclude all loans for Agriculture, Forestry and Fishing (SIC codes 1-8) and Public Administration (SIC codes 91-97). The former shows only seven Project Finance deals during our sample period while the latter shows only four Corporate Debt Finance deals.

Our sample includes loans originated from 1993 through 2003.⁹ *Dealscan* provides information on loans at the facility level, where a loan deal may contain multiple facilities such as a credit revolver, a term loan, a line of credit, etc. Given our objective of comparing large investments financed with corporate debt versus those that are project financed, the relevant unit of observation is a deal.¹⁰ Our final deal-level sample contains 5,005 deals from 39 countries. This collection of countries is identical to that in Qian and Strahan (2007).

5.2 Explanatory Variables

Our primary explanatory variables are constructed at the country and industry-level. The variables are explained in detail below. The Appendix presents a summary of the explanatory variables and their sources.

5.2.1 Legal and Institutional Variables at the Country Level

Our first set of explanatory variables are constructed at the country-level.

We employ two empirical proxies for the protection against insider stealing. In the spirit of Shleifer and Wolfenzon (2002), where the ex-ante financing outcome is affected by the ex-post likelihood of a sponsor/manager being caught stealing, our first proxy is the index of *ex-post private control of self-dealing* constructed by Djankov, LaPorta, Lopez-de-Salinas and Shleifer (2006) (DLS). This measure captures the extent of ex-post disclosure that the controlling shareholder must provide in order to engage in a self-dealing transaction and the ease of proving wrongdoing once such a transaction is detected.

For our second proxy, we use a market-based measure from Dyck and Zingales (2004), as an alternative to the lawyer surveys on which DLS construct their measures. Dyck and Zingales calculate control block premia in order to value private benefits of control, which reflect the ability of corporate insiders to divert corporate wealth to themselves. This market measure may better capture the quality of legal enforcement across countries, in addition to the quality of the laws themselves. The law and development literature emphasizes the importance of legal enforcement as well the quality of the laws on the books (LLSV 1998; Pistor 2000). To be consistent with our other proxies for protection against insider stealing, where a higher value reflects greater hurdles to stealing, we employ *one minus the Dyck-Zingales control premium* as our proxy for protection

⁹We end our sample at 2003 since many of our country level explanatory variables — particularly creditor rights — do not extend beyond this year.

¹⁰We carefully eyeballed the data and found that multiple facilities in a deal can be identified by (a) the borrower name and the deal active date are identical; (b) the primary purpose is the same across the facilities, and (c) the tranche amounts on each of the facilities sum up equal to the deal amount. Hence, we used these three criteria to aggregate the data from the facility to the deal level. Performing analysis at the facility level would introduce spurious correlation since facilities in a deal are expected to be very highly correlated with each other.

against insider stealing.¹¹

Next, we use the creditor rights index constructed in Djankov, McLiesh and Shleifer (2005) (DMS) to proxy for creditor rights. A higher value for the DMS index indicates stronger creditor rights. The DMS creditor rights index measures four powers of secured lenders in bankruptcy: first, whether there are restrictions, such as creditor consent, when a debtor files for reorganization; second, whether an “automatic stay” or “asset freeze” is imposed by the court; third, whether secured creditors are paid first; and finally, whether an administrator rather than the debtor’s management is responsible for running the business during the reorganization. Each country’s index value is simply a tally of the number of these four powers enjoyed by creditors under the country’s bankruptcy law; a value of zero indicates poor creditor rights while a value of four indicates strong creditor rights.

We also include other country-level institutional variables, such as whether an information sharing mechanism — either a public registry or a private bureau — operates in the borrower’s country (Djankov et al., 2005); survey-based measures of legal enforcement costs and a measure of the level of contract enforceability from Djankov et al. (2003); the legal origin and accounting standards variables from LaPorta et al. (1998); and the real GDP per capita from the Center for International Comparisons at the University of Pennsylvania. We also include a measure of deadweight bankruptcy costs from Djankov, Hart, McLiesh and Shleifer (2006) (hereafter DHMS) which also enables us to control for differences in the *enforcement* of creditor rights. Finally, we include a measure of a country’s political rights from Freedom Source (check cite).

5.2.2 Industry Level Variables

Our second set of explanatory variables are constructed at the industry-level (4-digit SIC codes). Since firm level information is available (from Worldscope) for only 10% of our sample, we are concerned that any results might be specific to the particular firms in the firm level sample. The most comprehensive disaggregated data available are at the 4-digit SIC code level. We therefore construct our industry-level explanatory variables at this level.

Firms in industries with significant free cash flows may waste free cash through inefficient investment. Free cash flows could also simply be stolen through managerial self-dealing (Jensen and Meckling, 1976; Jensen, 1986; and Blanchard et al., 1994). In such industries, the agency costs of free cash flows are expected to be substantial. We normalize the free cash flow measure by the book value of assets and calculate the median Free Cash Flow to Assets for each specific 4-digit SIC industry (see Opler and Titman, 1993 and Lang, Stulz, and Walking, 1999).

We use a measure of tangible assets normalized by the book value of assets. We also measure Tobin’s Q as the ratio of the market value of assets to their book value. The market value of assets is constructed as the total book value of assets minus the book value of common equity minus the

¹¹We obtain identical results using the “Oppressed Minority” variable of the LLSV (1998) Antidirectors Rights Index. However, since Spamann (2006) points that the values of the “Oppressed Minority” variable may be suspect because of inconsistent coding, we do not report these results.

book value of deferred taxes plus the market value of equity.

5.3 Descriptive Statistics

The top panel of Figure 1 plots the likelihood of Project Finance vis-a-vis Corporate Debt Finance against the two main explanatory variables that proxy protection against insider stealing. This graph illustrates that the likelihood of Project Finance vis-a-vis Corporate Debt Finance is negatively associated with each of the two proxies for protection against insider stealing. This univariate finding is consistent with our Hypothesis 1.

The bottom panel of Figure 1 shows how creditor rights affect the relationship between the choice of Project Finance versus Corporate Debt Finance and protection against insider stealing. The dashed line is for countries with high creditor rights (equal to 2, 3, or 4), and the solid line is for countries with low creditor rights (equal to 0 or 1). In the two graphs of this panel, we again observe a negative relation between Project Finance and the two proxies for protection against insider stealing. More importantly, the dashed line is steeper than the solid line in both, suggesting that stronger creditor rights in a country mitigate the effect of weaker protection against insider stealing on Project Finance. This univariate finding is consistent with Hypothesis 3.

6 Results

6.1 Empirical Strategy

We investigate the effect of laws that offer protection against insider stealing and laws providing rights to creditors on the choice of Corporate Debt Finance versus Project Finance *in a country*. Inferring a causal relationship between these country-level laws and the choice made at the deal-level presents several challenges. First, omitted variables at the deal, borrower or lender level could corrupt our interpretation of any causal effect of these laws on this choice. Second, country-level laws governing insider stealing and creditor rights may be collinear with other country-level unobserved factors. To address these concerns econometrically, we undertake our analysis in several steps.

We start by examining Hypotheses 1-3 using logit regressions for the likelihood of Project Finance as a function of our proxies for protection against insider stealing, creditor rights and the interactions between them. In our next set of specifications, we control for (i) time-varying determinants of this choice by including several deal and industry-level variables; and (ii) unobserved heterogeneity at the borrower, industry and year levels through borrower random effects as well as industry and year fixed effects. Then, to alleviate concerns that our results are driven by borrower or lender level unobserved factors, we aggregate our sample to the 4-digit SIC industry-level in a particular country in a particular year and re-examine our predicted effects after including industry and year fixed effects. In other specifications, we control for all country-level variables that the law and finance literature highlights, for the level of economic and financial development in a country as well as an index of its political rights.

We provide the *strongest piece of evidence* in support of our hypotheses by conducting difference-in-difference tests that exploit the passage of laws in various countries in our sample. Here, we examine the before-after effect of a law change on the likelihood of Project Finance (the “treatment group”) vis-a-vis the before-after effect in countries where such a change was not effected (the “control group”). We use country-level changes in creditor rights as well as changes in the mandatory tender offer rules. As Jensen (1988) argues, laws that hinder the market for corporate control – mandatory tender offer rules have that effect by making takeovers more difficult – encourage greater consumption of private benefits of control by managers. Countries that effected changes in creditor rights during our sample period do not overlap with countries that changed the mandatory tender offer rules, which enables us to cleanly infer the effect of each of these changes. These time-series tests have the attractive feature of not being subject to the omitted-variables bias often raised as an objection to cross-country regression results.

Having tested for the effects of creditor rights generally, our next set of tests disaggregate the DMS creditor rights index into its individual components. Our tests shed light on our hypothesis that the creditor’s right to seize and liquidate assets forces the borrower to repay his obligations. Accordingly, among the various DMS index components, the automatic stay on secured assets should have special importance for the choice of Project Finance versus Corporate Debt Finance (Hypothesis 4). In addition, we re-examine our results by replacing the overall creditor rights index with the no automatic stay component (Hypotheses 2a and 3a).

To highlight the causal mechanism for the above results, in our final set of tests, we investigate inter-industry differences in the effect of laws against stealing and creditors’ rights on the choice of Project Finance versus Corporate Debt Finance. As discussed in Section 4, the effect of these laws would be disproportionately greater in industries with higher free cash flows. In these set of tests, we interact an industry-level measure of free cash flows to assets with the country-level variables. Unlike our earlier tests, since we focus on an *interaction* of country-level variables with industry-level variables, we control for all unobserved heterogeneity at the *country*, industry and year levels through fixed effects for each of these. In these tests, we also entertain and rule out competing hypotheses by (i) including interactions of other industry-level variables with our country-level variables of interest; and (ii) including interactions of other country-level variables without the industry variable of our interest — free cash flow to assets.

6.2 Basic Tests

To test Hypotheses 1-3, we estimate the following model:

$$prob(y_{kct} = 1) = \beta_0 + \beta_1 \cdot \lambda_c + \beta_2 \cdot \theta_{ct} + \beta_3 \cdot (\lambda_c * \theta_{ct}) + \beta X + \varepsilon_{kct} \quad (1)$$

where y_{kct} is an indicator variable equal to 1 if the bank loan deal to borrower k in country c in year t is project financed and 0 if the deal corresponds to a capital expenditure loan or a corporate purpose term loan (our two categories of Corporate Debt Finance loans); λ_c is the proxy

for protection against insider stealing in country c while θ_{ct} denotes the level of creditor rights in country c in year t . Hypotheses 1-3 imply that $\beta_1 < 0, \beta_2 < 0, \beta_3 > 0$. Here, and in all our other regressions, we estimate standard errors that are clustered by the country of the borrower.

Table 2 presents results of these regressions. In Columns (1) and (2), we separately test our Hypotheses using our two proxies for protection against insider stealing and find that $\beta_1 < 0, \beta_2 < 0, \beta_3 > 0$, with each of these coefficients being statistically significant. In Columns (3) and (4), we repeat these tests, excluding Corporate Purpose Term Loans from our sample, and leaving only Capital Expenditure loans as our sole category of Corporate Debt Finance loan. Recall that the category of Capital Expenditure loans offers the most cleanly specified Corporate Debt Finance loan for which the counterfactual choice of Project Finance is plausible. We find that the coefficient estimates for β_1, β_2 and β_3 in Columns (3)-(4) are very similar to those in Columns (1)-(2), which suggests that the economic effects from including Corporate Purpose Term Loans together with Capital Expenditure loans as Corporate Debt Finance are very similar to those obtained from including Capital Expenditure loans only. Because the explanatory power of our tests is greater when we include both categories of Corporate Debt Finance, as the substantially greater R-squared indicates, we employ this full sample for our other tests.

In Columns (5) and (6), we include several deal-level and industry-level control variables to control for time-varying heterogeneity. We include industry and year fixed effects to account for time-invariant unobserved heterogeneity at the industry-level and inter-temporal factors that may affect the choice of Project Finance. Finally, we include random effects at the country-level to control for unobserved heterogeneity at the borrower level. Since the proxies for protection against insider stealing do not change over time, we cannot include country-level fixed effects here. We find that the coefficient estimates retain their expected signs and are statistically significant.

We estimate the economic magnitudes of these effects using the coefficients obtained in Columns (5) - (6). *Ceteris paribus*, one standard deviation increases in the ex-post hurdles against self-dealing and one minus Dyck-Zingales' control premium respectively lead to decreases of 12.6% and 7.4% in the likelihood of Project Finance. A one point increase in the creditor rights index has a 9.9% - 14.6% decrease in the likelihood of Project Finance. Finally, a one point increase in the creditors rights index reduces the marginal effect of ex-post hurdles against self-dealing and one minus Dyck-Zingales' control premium respectively by 17% and 14%. Since the sample average of Project Financed deals is 30.5%, these effects are economically large.

We do not find any of the deal-level control variables to be consistently significant statistically. With regard to industry-level control variables, we note that the coefficient of free cash flow/ assets is positive, which suggests that Project Finance is employed more in industries where free cash flows are greater. Since this free cash flow effect underlies our Hypotheses 1b-3b, we explore them in detail below. We also find that Project Finance is employed more in tangible asset-intensive industries and in industries with greater leverage, as seen in the positive coefficients on asset tangibility and long term debt to assets.

We also test for the possibility that Project Finance could be advantageous in reducing the

deadweight costs resulting from debt-equity conflicts that arise with Corporate Debt Finance — in particular, leverage-induced under-investment. These deadweight costs arise when a levered firm has high leverage combined with significant growth opportunities as well. Our interaction between long term debt to assets and Tobin’s Q captures the extent of these deadweight costs at the industry-level. The positive coefficient on this interaction confirms that Project Finance is associated with industries with greater deadweight costs from such debt-equity conflicts. We also find that while the coefficient of long term debt to assets is significant despite the interaction, the coefficient of Tobin’s Q is absorbed completely in its interaction with long term debt to assets. This suggests that while leverage has an effect on the choice of Project Finance over and above the deadweight costs from debt-equity conflicts, growth opportunities matter primarily through their effect on the debt-equity conflicts. We explore the robustness of our results to effects of leverage below.

6.3 Industry-level Sample

Since the deal-level tests above are likely to be affected by deal-level omitted variables, we aggregate these deals at the 4-digit SIC level i in country c in year t and estimate the following specification:

$$y_{ict} = \beta_i + \beta_t + \beta_1 \cdot \lambda_c + \beta_2 \cdot \theta_{ct} + \beta_3 \cdot (\lambda_c * \theta_{ct}) + \beta X + \varepsilon_{ict} \quad (2)$$

where y_{ict} now denotes the percentage of deals that are project financed, β_i and β_t denote industry i and year t fixed effects. This industry-level analysis offers the advantage that our results are unlikely to be driven by omitted deal-level variables.

Table 3 presents the results of these regressions. We include the deal-level variables by averaging them to the industry-level of aggregation. We find that the coefficients β_1, β_2 and β_3 retain their expected signs and are statistically significant.

Unlike in the deal-level analysis, we find that the percentage of secured loans, the average maturity and the percentage of senior loans are all statistically significant. These coefficients indicate that the percentage of Project Finance is positively associated with average maturity and the percentage of secured loans while it is negatively associated with the percentage of senior loans.

As in the deal-level analysis, we find that Project Finance is employed more in industries where free cash flow to assets is higher, leverage is greater and where the deadweight costs from debt-equity conflicts are greater.

6.4 Controlling for other country-level factors

While we have controlled for deal and industry-level variables so far, the most important source of endogeneity stems from country-level omitted variables. We now investigate the robustness of our results by including various country-level variables that have been highlighted by the existing literature. In Columns 1-2 (3-4) of Table 4, we present the results of the deal-level (industry-level) analysis.

First, since the law and finance literature highlights that investor protection is stronger in common law countries than in civil law countries, we include dummy variables for the French, German and Scandinavian legal origins (English legal origin is the omitted legal origin in specifying these dummies.) We find that compared to the English legal origin countries, Project Finance is employed less in the French, German and Scandinavian legal origin countries. Second, to control for the strength of institutions and the level of corporate governance, in general, we include measures of the enforceability of contracts, the rule of law, corruption, the efficiency of the judicial system, the strength of political rights, legal formalism, and the strength of public enforcement. We find that among these variables, Project Finance is positively associated with rule of law and with the strength of political rights, but is negatively associated with measures of corruption in the country – these are the only variables that are consistently significant statistically. Third, to control for the effects of information asymmetry, we include the presence of information sharing mechanisms in the country in 1999 and find that Project Finance is positively associated with the presence of such information sharing. Fourth, we include a measure for the efficiency of the bankruptcy procedure in the country. Its coefficient is negative and statistically significant in one of the two specifications. The negative coefficient is consistent with the risk contamination motivation for Project Finance as proposed in Esty (2005), which would predict that Project Finance would be employed less in countries where bankruptcy procedure is more efficient.¹²

Finally, we might expect the level of financial and economic development to affect the relative attractiveness of Project Finance. Projects in less developed countries are more likely to include greater growth opportunities, but Project Finance may be relatively more attractive for projects with few anticipated growth opportunities or projects for which sponsors have ready access to external finance. To control for these effects, we include the log of GDP per capita as a proxy for the level of economic development. Also, following the existing literature (LLSV, 1998 and Rajan and Zingales, 1998), we include accounting standards and the log of private credit to GDP as proxies for financial development. We find that while Project Finance is positively correlated with the level of GDP per capita, the proxies for financial development do not have a consistent effect.

Crucially, even after including a plethora of country-level variables together with random effects at the borrower level and industry and year fixed effects, our basic results remain very strong. Thus, even after controlling for time-varying omitted factors at the country-level as well as industry and time fixed effects, our results persist.

In Columns 3-4 of Table 4, we re-examine our deal-level results by aggregating them at the industry-level. We find that though the coefficients are less statistically significant, our basic results remain unaltered.

¹²Large projects face the risk that if they fail, such failure may cause the parent to default on its obligations. Esty (2005) argues that Project Finance enables the management of such risk by isolating the large project in a Special Purpose Vehicle that is bankruptcy-remote to the parent/ corporate sponsor.

6.5 Difference-in-difference tests exploiting exogenous country-level changes

Despite the control variables that we have included at the deal, industry and country levels, nevertheless, inferring a causal relationship between Project Finance and the country-level laws affecting insider stealing and creditor rights still presents challenge that this relationship is driven by country-level unobserved factors. For example, the pattern of industrial activity in a country could be systematically driving the choice of Project Finance as well as the country-level law measures. To make further progress on the causal relationship, we now conduct difference-in-difference tests that exploit within-country differences in the usage of Project Finance due to the *exogenous* passage of laws. We use the country-level changes in creditor rights as well as the changes in the mandatory bid rules. Mandatory bid rules rewards bidders willing to put up search costs incurred in identifying potentially attractive targets by giving them the opportunity to secure control without an auction. As Jensen (1988) argues, laws that enable the market for corporate control reduce agency costs by increasing the threat of takeovers.

Panel A of Table 5 shows the countries that underwent a change in creditor rights during our sample period. Note that all the countries that underwent a creditor rights change in our sample *decreased* the level of creditor rights. Panel B of Table 5 shows the countries that instituted mandatory bid rules during our sample period. The list of countries that changed creditor rights comes from Djankov et. al. (2005) while the list of countries that instituting mandatory bid rules comes from Siems et. al. (2008). Note that the countries that effected changes in creditor rights do not overlap with countries that changed the mandatory tender offer rules, which enables us to cleanly infer the effect of each of these changes.

6.5.1 Changes in Creditor Rights

First, we exploit exogenous changes in creditor rights in some countries in our sample to perform a difference-in-difference test. We test the following model:

$$\text{prob}(y_{kct} = 1) = \beta_k + \beta_t + \beta_1 \cdot \Delta\theta_{ct} + \beta_2 \cdot (\Delta\theta_{ct} * \lambda_c) + \beta X + \varepsilon_{kct} \quad (3)$$

where y_{kct} is an indicator variable equal to 1 if the bank loan deal to borrower k in country c in year t is project financed and 0 if the deal corresponds to a capital expenditure loan or a corporate purpose term loan; λ_c is the proxy for protection against insider stealing in country c . $\Delta\theta_{ct}$ is an indicator variable which equals 1 for country c and years $t \leq m$ if a creditor rights reform initiated in year m decreased the rights provided to creditors and equals 0 otherwise.¹³ β_k and β_t denote borrower and year fixed effects respectively. Since a borrower's country does not change through time, borrower fixed effects subsume the country fixed effects that are required to identify the difference-in-difference coefficients. Similarly, since borrowers do not change their primary industry of operation, the firm fixed effects subsume industry fixed effects as well. The coefficient β_1 measures as a difference-in-difference the direct effect of the change in creditor rights

¹³Our sample of creditor rights changes over the period 1993-2003 includes only decreases in creditors rights.

on Project Finance while the coefficient β_2 captures the interaction of creditor rights with proxies for protection against insider stealing as a difference-in-difference. As before, we hypothesize that $\beta_1 < 0$ and $\beta_2 > 0$.

To ensure that country-level changes in protection of outside investors through the institution of mandatory bid rules (which we employ as a time-series proxy for changes in λ_c) do not affect the interpretation of our results, we exclude from these regressions those countries that underwent a change in the mandatory tender offer rules during our sample period. Thus, given no change in the laws governing protection against stealing, the borrower fixed effects capture all country-level variation in this variable.

Since all the countries in our sample period underwent decreases in creditor rights, we code $\Delta\theta_{ct}$ to be 1 before the decrease and 0 after the decrease,

Columns 1-2 in Panel C of Table 5 present results of the difference-in-difference test described above. Using both the ex-post hurdles against self-dealing and One minus the Dyck-Zingales control premium, we find that $\beta_1 < 0$ and $\beta_2 > 0$ and these coefficients are strongly significant statistically.

6.5.2 Changes in Mandatory Bid Rules

Since we are unable to use the changes in creditor rights to identify as a difference-in-difference the effect of protection against insider stealing, we rely on mandatory bid rules instituted in some countries in our sample to identify the same. As argued above, mandatory bid rules enhance protection to outside investors by enabling the market for corporate control. We conduct a difference-in-difference test of the effect of the passage of these changes in mandatory tender offer rules. We test the following model:

$$prob(y_{kct} = 1) = \beta_k + \beta_t + \beta_1 \cdot \Delta\lambda_{ct} + \beta_2 \cdot (\Delta\lambda_{ct} * \theta_c) + \beta X + \varepsilon_{kct} \quad (4)$$

where y_{kct} , β_k and β_t are defined as in (3). $\Delta\lambda_{ct}$ is an indicator variable which equals 1 for country c and years $t > m$ if mandatory bid rules were instituted in year m and equals 0 otherwise.¹⁴ Consistent with λ_{ct} being a proxy for *difficulty* of stealing, this definition captures the decrease in protection against insider stealing due to the strengthening of mandatory tender offer rules. As in (3), borrower fixed effects subsume the country and industry fixed effects. The coefficient β_1 measures as a difference-in-difference the direct effect of a change in protection against insider stealing while the coefficient β_2 captures the interaction of creditor rights with proxies for protection against insider stealing as a difference-in-difference. As before, we hypothesize that $\beta_1 < 0$ and $\beta_2 > 0$.

To ensure that country-level changes in creditor rights do not affect the interpretation of our results, we exclude from these regressions those countries that underwent a change in creditor rights during our sample period.

¹⁴For Brazil, which removed the mandatory bid rules in 1997 and reinstated them in 1999, we code $\Delta\lambda_{ct}$ to be equal to 0 for the years 1998 and 1999 and 1 for the remaining years.

Column 3 in Panel C of Table 5 present results of the difference-in-difference test described above. We find that $\beta_1 < 0$ and $\beta_2 > 0$ and these coefficients are significant statistically.

6.6 Components of Creditor Rights

Our next set of tests are designed to shed light on our hypothesis that the creditor’s right to *seize and liquidate assets* makes it more likely that the borrower will repay its obligations. Among the various components of our creditor rights index, we hypothesize that the absence of an automatic stay on secured assets matters more for the choice of Project Finance versus Corporate Debt Finance than the other components. These other three components indicate whether: (a) secured creditors are first paid; (b) restrictions exist on initiation of reorganization; and (c) management is ousted in reorganization (LaPorta et al. (1998)).

Table 6 reports the results using these disaggregated components of our creditor rights index. In Columns (1) and (2), we test all the four components and confirm that the only one that matters is the absence of an automatic stay on secured assets. The other components are not statistically significant. Motivated by this result, we replace the overall creditor rights index with the automatic stay component and re-examine our results from Table 2 in Columns (3) and (4). In columns (5) and (6), we aggregate the deals at the industry level, as we did in Table 3, and re-examine the specifications employed in Columns (3) and (4). We find across columns (3)-(6) that the results are quite strong and consistent with Hypotheses 1-3.

These findings provide further support for our claim in Hypotheses 2 and 3 the creditor’s right to *seize and liquidate assets* forces the borrower to repay his obligations.

6.7 Evidence on the Causal Mechanism

To highlight the causal mechanism for our results so far, in our final set of tests, we investigate inter-industry differences in the effect of laws against stealing and creditors’ rights on the choice of Project Finance versus Corporate Debt Finance. In particular, we focus on differences based on industry-level free cash flows.

6.7.1 Main Test

To test Hypotheses 1b – 3b, we estimate the following model:

Table 6 reports the results using these disaggregated components of our creditor rights index. In Columns (1) and (2), we test all the four components and confirm that the only one that matters is the absence of an automatic stay on secured assets. The other components are not statistically significant. Motivated by this result, we replace the overall creditor rights index with the automatic stay component and re-examine our results from Table 2 in Columns (3) and (4). In columns (5) and (6), we aggregate the deals at the industry level, as we did in Table 3, and re-examine the specifications employed in Columns (3) and (4). We find across columns (3)-(6) that the results

are quite strong and consistent with Hypotheses 1-3.

$$y_{ict} = \beta_i + \beta_c + \beta_t + (\beta_1\lambda_c + \beta_2\theta_{ct} + \beta_3\lambda_c\theta_{ct}) * \gamma_{ict} \quad (5)$$

$$+ \beta_1 \cdot \gamma_{ict} + \beta_5\lambda_c + \beta_6\theta_{ct} + \beta_7\lambda_c\theta_{ct} + \beta X + \varepsilon_{ict} \quad (6)$$

where all the variables except γ_{ict} are defined as in (1) before. γ_{ict} is the ratio of free cash flow to assets for each 4-digit SIC industry in a given country in a given year.

Because we are testing an interaction of country-level variables with an industry-level variable, we include both country and industry fixed effects to account for all time-invarying heterogeneity at the country and industry levels respectively. Note that since the country fixed effects subsume all the variation in λ_c , we do not include it separately in the regressions. The year fixed effect captures all inter-temporal variations in the determinants of Project Finance. As in our prior tests, we expect the effects of protection against insider stealing and creditor rights to be negative and their interaction to be positive, i.e., $\beta_5 < 0$, $\beta_6 < 0$, and $\beta_7 > 0$. According to Hypotheses 1b – 3b, these predicted country-level effects would be relatively greater in industries where free cash flows are higher, i.e. γ_{ict} is higher. Therefore, we expect $\beta_1 < 0$, $\beta_2 < 0$, and $\beta_3 > 0$.

Table 7 presents results of the logit regression. The coefficients in Columns (1) and (2) confirm the relationships we expect and are uniformly statistically significant. Based on the lowest coefficients for the interaction terms, the economic magnitude of the interaction effect is as follows. If we consider two industries whose free cash flow to assets differ by one standard deviation, then the marginal effects of protection against insider stealing, creditor rights and the interaction between the two are respectively greater by 13%, 9% and 6% in the higher cash flow industry than the lower cash flow industry.

6.7.2 Examining alternative channels

We argued that the cash flow verifiability in Project Finance substitutes for poor legal protection against insider stealing and poor creditor rights. Consistent with the role of cash flow verifiability, we have seen that the benefit of Project Finance as a substitute for poor legal protection is relatively higher in industries where free cash flows are higher. However, it is possible that such inter-industry differences based on the level of free cash flow are due to (i) industry-level factors other than the free cash flow; and (ii) country-level variables other than protection against insider stealing and creditor rights. Therefore, we now examine these alternative explanations.

First, it is possible that the greater debt capacity in Project Finance is due to the reduction in the deadweight costs resulting from debt-equity conflicts (rather than cash flow verifiability). As Myers (1977) pointed out, deadweight costs from debt-equity conflicts arise for a highly levered firm when it possesses growth opportunities. Since Project Finance involves the financing of a single, discrete asset, it may mitigate such deadweight costs. To examine this alternative channel, we employ the interaction between long term debt to assets and Tobin's Q as a proxy for the deadweight costs from debt-equity conflicts at the industry-level. Since Project Finance mitigates the deadweight

costs as measured by this interaction, it should be employed relatively more in those industries where such costs are greater. Therefore, the coefficient of this interaction should be positive. We find in Columns (3) and (4) of Table 7 that this indeed the case. To test whether this reduction in deadweight costs accounts for our main effect, we interact this measure of deadweight costs with our three main country-level variables – proxies for difficulty of insider stealing, creditor rights and their interaction. In columns (3) and (4), we find that the coefficients of the interaction of our country-level variables with our proxy for deadweight costs are of the same sign as their interactions with free cash flow to assets. Furthermore, they are all statistically significant suggesting that the mitigation of deadweight costs arising from debt-equity conflicts contributes the higher debt capacity in Project Finance too. Crucially, however, we find that the interaction of the country-level variables with free cash flow assets – the primary interactions that are of interest given the cash flow verifiability hypothesis – stay the same in Columns (3) and (4) as they were in Columns (1) and (2). Therefore, we can conclude that the reduction in deadweight costs from debt-equity conflicts does not drive our results of interest.

Second, a more efficient bankruptcy process may mitigate the risk contamination aspect of Project Finance. Large projects face the risk that if they fail, such failure may cause the parent to default on its obligations. Esty (2005) argues that Project Finance enables the management of such risk by isolating the large project in a Special Purpose Vehicle that is bankruptcy-remote to the parent/ corporate sponsor. Such a benefit of Project Finance would be greater in countries where the bankruptcy process is more inefficient. Such a feature of Project Finance may account for our results because of the following two reasons. First, industries where free cash flow is high are often also industries where the leverage is high (in fact, the correlation between free cash flow to assets and long term debt to assets is 0.81 in our sample). Second, countries where creditor rights or protection against stealing are low may also happen to be countries where the bankruptcy process is more inefficient (in fact, the correlation between the efficiency of bankruptcy process and our two proxies for protection against insider stealing are 0.57 and 0.64 though the correlation between creditor rights and the efficiency of the bankruptcy process is -0.08). If this risk management aspect of Project Finance is accounting for our inter-industry differences in the effect of laws providing protection against insider stealing and creditor rights, then including an interaction between the country-level measure of efficiency of the bankruptcy process and industry-level leverage should eliminate the effects observed on our primary interactions. In columns (3) and (4), we find that this is not the case.

In Columns (5) and (6) of Table 7, we include interactions of the various country-level variables with free cash flow, in addition to our primary interactions. Since the country-level variables do not vary across time, the levels of these variables are subsumed by the country fixed effects. We find that the interaction with the free cash flow to assets of French and German legal origins is positive, which suggests that Project Finance is used disproportionately more in higher free cash flow industries in French and German legal origin countries. This is consistent with the evidence in the law and finance literature that investor protection is generally lower in the French and German

legal origin countries. We also find that the interaction with free cash flow to assets of the efficiency of judiciary in a country, the index of political rights, and log of GDP per capita, which suggests that Project Finance is employed disproportionately more in higher free cash flow industries in countries where judiciary are less efficient, political rights are lower, and in poorer countries as measured by the GDP per capita.

Crucially, we find that despite the inclusions of interactions of these country-level variables with the industry-level free cash flow assets, the interaction of this measure with the country-level variables of interest — laws preventing insider stealing and creditor rights and the interaction between them — retain their predicted signs and are quite statistically significant.

7 Discussion

7.1 The Nature of Our Inquiry: Private Debt

In our empirical analysis, we focus on private debt financing. We compare Project Finance to Corporate Debt Finance, two alternative approaches to bank financing. We acknowledge, however, that Corporate Debt Finance may not exhaust the universe of potential alternatives for financing large projects. Equity financing, public debt, and internal financing at the sponsor level may also be available in some cases. We nevertheless focus solely on private debt because this focus enables us to make sharper *ceteris paribus* comparisons of interest to us. In addition, data constraints preclude us from constructing comprehensive samples of these equity, public debt, or internal financing for which Project Finance would have offered a plausible alternative.

Including equity or public debt financing as alternatives would import significant additional issues that would confound our results and impede clean comparisons. Including equity financing, for example, would implicate optimal leverage questions and additional corporate governance issues specific to equity issuance. Moreover, any bias from ignoring hypothetical equity financing alternatives likely works against us here. Recall our hypothesis that Project Finance is relatively more likely in countries with weak legal protections against insider stealing. Weak investor protection has a second effect, however. Equity financing is relative less likely to offer a practical alternative to Project Finance in countries with weak legal protection. Dispersed equity is relatively unattractive to investors with weak legal protection; it is possible only in sophisticated legal regimes. Equity financing is relatively more likely to displace Project Finance in countries with strong investor protection. Therefore, we are likely to undercount the equity-financed alternatives to Project Finance by a greater margin in countries with stronger investor protection. Consequently, compared to the use of Project Finance in the population, our sampling of Project Finance alternatives using only Corporate Debt Finance would lead to *overestimation* of the likelihood of Project Finance in countries with strong investor protection (e.g., the United States but not Venezuela). Since our hypothesis is that Project Finance would be used relatively *less* in countries with strong investor protection, this bias works against our hypothesis.

Including public debt as an additional alternative to Project Finance would similarly muddy our

analysis. Adding public debt necessarily implicates the more general issue concerning the choice of public versus private debt. This general question has been studied quite extensively (see Denis and Mihov, 2003 and references therein), and it is a question that, while related, is different from the one we examine here.

As for internal financing, we anticipate two offsetting dynamics that might be relevant. First, in countries with weak legal protection of outside investors, managers are more likely to steal, which may make internal financing less likely because managers would as soon steal free cash rather than invest it. Second, in these same weak legal regimes, information asymmetry may be severe, causing external financing alternatives to be scarce. Which of these opposing dynamics would dominate is an open question that is beyond the scope of our study.

7.2 Distinguishing Project Finance from Related Mechanisms

In developing our hypotheses, we argued that contractual and private enforcement mechanisms make cash flows verifiable. We now distinguish Project Finance from related mechanisms, which offer features similar to Project Finance, but which are insufficient to make cash flows verifiable.

Separate legal incorporation significantly reduces the cost and difficulty of monitoring managerial actions and assessing performance. However, what is also essential is that the Project Company own and operate only a single discrete project. Only this combination of separate incorporation and a single project enables transparent cash flow separation. A subsidiary with multiple projects, for example, offers no advantage as to cash flow separation and monitoring compared to the parent. Rather than monitoring commingled cash flows from numerous assets, and trying to sort out noisy signals on managerial skill, the Project Finance lender monitors relatively simple cash flow streams from a single asset. Furthermore, since the subsidiary company houses multiple projects, the costs stemming from loss of managerial flexibility (due to the extensive contracting) are no different in the Corporate parent than in its subsidiary.

Project Finance is also distinct from Corporate Debt Finance in the form of secured debt, which offers some of the advantages of Project Finance, but is not a substitute. Secured debt with high leverage (SDHL), for example, offers two advantages of Project Finance. SDHL collateralizes corporate debt with specific assets in the same way that Project Finance does. The high leverage also reduces agency costs of free cash flow by reducing the amount of free cash managers have available in any period. What SDHL misses, however – that is central to Project Finance – is cash flow verifiability and concomitant control of the cash. As implied above in the discussion of the cash flow waterfall arrangement, with Project Finance, very little cash is likely ever to be free cash. Even after project expenses and scheduled debt service have been paid in a given period, the cash flow waterfall arrangement dictates the use of any remaining cash. The waterfall arrangement adjusts to absorb any free cash, whether the project generates more or less cash flow than originally anticipated. Only Project Finance enables this tight leash on free cash. The standard excess cash flow sweep covenant of Corporate Debt cannot effect the finely tuned cash management embodied in the cash flow waterfall arrangement of Project Finance. Therefore, SDHL cannot explain our main

hypothesis – the inverse relationship between the likelihood of Project Finance and the strength of legal protection against insider stealing.

Finally, it is important to note that Project Finance not only enables this control of cash but in fact requires it. Unlike Corporate Debt Finance, with Project Finance, the lender can look only to project cash flows for repayment. So the lender monitors cash flow very carefully. More so than with Corporate Debt Finance, where multiple projects and growth opportunities offer some risk diversification, the Project Finance lender must guard against the possibility that future cash flows may be poor. This vigilance requires the cash flow waterfall arrangement with its multiple lender-monitored cash accounts.

8 Conclusion

We investigate Project Finance as a private response to inefficiencies created by weak legal protection of outside investors. In the context of large investment projects, Project Finance offers a contractual and organizational substitute for investor protection laws by making cash flows *verifiable*, thereby enhancing debt capacity. Project Finance makes cash flows verifiable through: (i) contractual arrangements made possible by structuring the Project Company as a single, discrete project legally separate from the sponsor; and (ii) private enforcement of these contracts through a network of project accounts that ensures lender control of project cash flows.

Comparing the incidence of bank loans for Project Finance with regular corporate loans for large investments (“Corporate Debt Finance”), we show that Project Finance is more likely in countries with weaker laws against insider stealing and weaker creditor rights laws. In addition, stronger creditor rights mitigate the marginal effect of weaker laws against insider stealing on the choice of Project Finance versus Corporate Debt Finance. To provide this evidence, we employ cross-country tests as well as time-series, difference-in-difference tests that exploit country-level changes in legal rules.

To ensure sharp *ceteris paribus* comparisons, we focus only on private debt alternatives for Project Finance. Our results, however, may have broader implications. As earlier discussed, though we do not consider equity financing or other external corporate finance here, it is plausible that we would obtain even stronger results by including equity financing and/or public debt financing at the sponsor level as alternatives to Project Finance. We conjectured earlier that Project Finance in weak legal environments may be preferable not only to Corporate Debt Finance, but also to equity finance, since weak investor protection laws make equity financing relatively unattractive. This might also be true with respect to public debt finance. If these conjectures hold, then our findings on the choice of Project Finance versus Corporate Debt Finance may hold for external Corporate Finance generally. We leave this interesting question for future study.

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Figure 1: Likelihood of Project Finance plotted against primary explanatory variables

Each of the graphs below plots the linear regression fit of Project Finance versus Corporate Debt Finance against the explanatory variables. The y-variable equals 1 if the bank loan is for Project Finance and 0 if it is either for Capital Expenditure or is a Corporate Purpose term loan with a deal amount above \$0.5 million (converted values). The two upper graphs plot the fit for the entire sample. In the two lower graphs, the dashed (solid) line represents countries with creditor rights equal to 2, 3 or 4 (0 or 1).

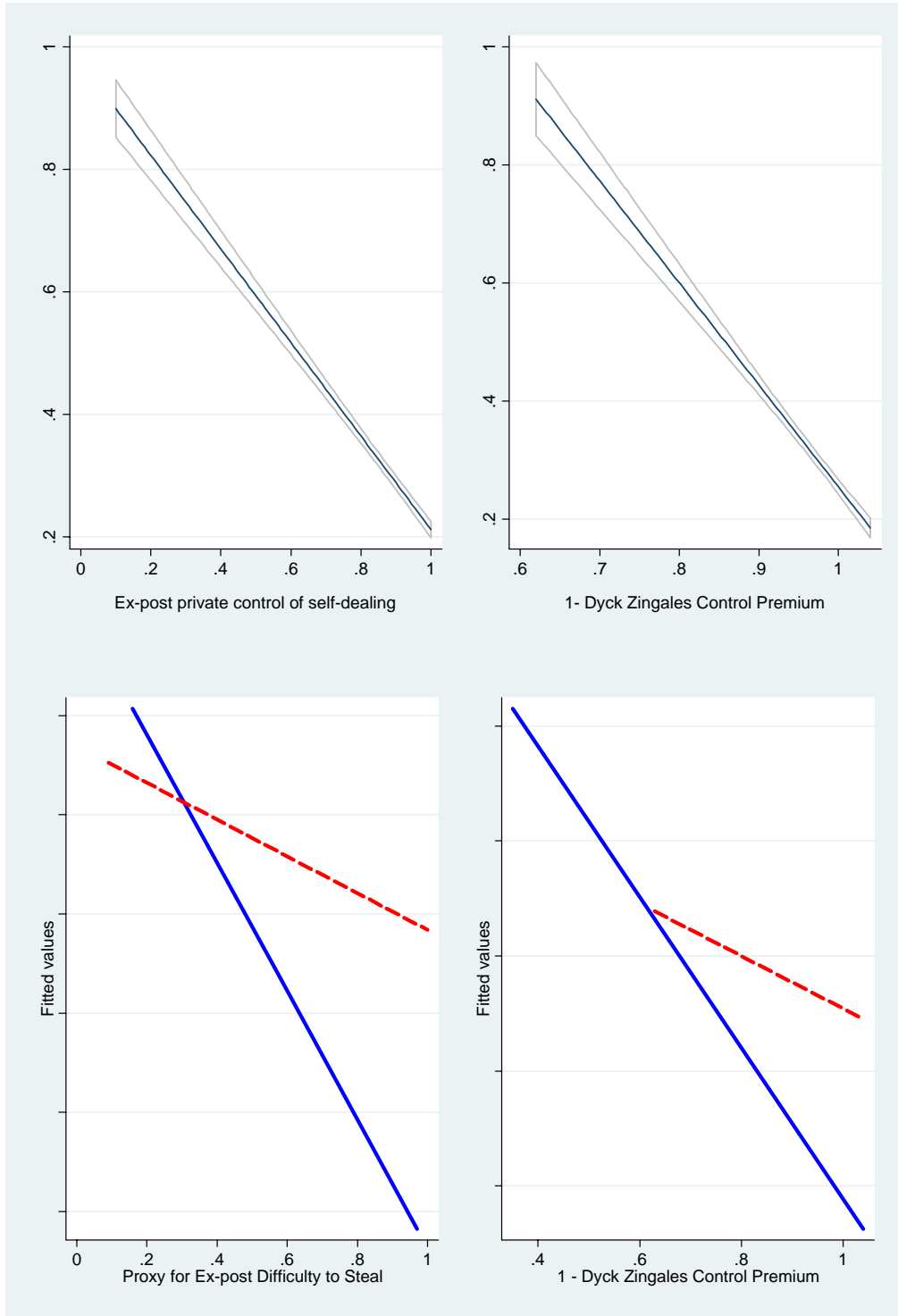


Table 1 – Summary Statistics

This Table displays the various summary statistics for Project Finance versus Corporate Debt Finance. The unit of observation is a bank loan deal from the Loan Pricing Corporation's Dealscan database for the period 1993 - 2003. Project Finance includes loans with primary purpose as Project Finance while Corporate Debt Finance includes Capital Expenditure loans as well as Corporate Purpose Term Loans with deal amounts above \$0.5 million (converted values).

Panel A: Features of Bank Loan Contracts in Project Finance and Corporate Debt Finance

Summary Statistic	Project Finance	Capital expenditures	Corporate Purpose Term loans
Observations	1595	774	2743
Deal Amount (in \$ millions)			
Mean	255.2	215.5	244.4
Median	123.9	155.0	100.0
Std. Devn.	482.2	597.9	635.1
Minimum	0.5	0.5	0.8
Maximum	10513.8	10586.3	10588.9
Maturity (in years)			
Mean	10.7	10.5	10.4
Median	10.6	10.5	10.4
Std. Devn.	0.7	0.4	0.4
Minimum	9.5	9.5	9.5
Maximum	20.0	12.8	12.8
Number of Lenders			
Mean	7.1	5.3	5.0
Median	4	3	3
Std. Devn.	7.4	6.1	6.4
Minimum	1	1	1
Maximum	50	48	96

Panel B: Project and Corporate Debt Finance Deals by Industry

Industry Description	SIC Codes	Capital expenditures	Corporate Purpose Term Loans	Project Finance	Total	% Project Finance
Construction	15-17	9	56	151	216	70%
Manufacturing	20-39	288	758	237	1283	18%
Mining	10-14	21	171	115	307	37%
Real Estate, Insurance and Other Finance	60-67	49	424	191	664	29%
Retail/Wholesale/Distributors	50-59	50	246	38	334	11%
Services	70-89	124	408	124	656	19%
Transportation	40-49	135	496	466	1097	42%

Panel C: Project and Corporate Debt Finance Deals by Legal Origin

Legal Origin	Capital expenditures	Corporate Purpose Term Loans	Project Finance	Total	% Project Finance
English	492	2,497	977	160	3966
French	86	146	372	6	604
German	186	47	173	0	406
Scandinavian	3	19	7	0	29

Panel D: Summary Statistics for the Main Explanatory Variables

	Observations	Mean	Std. Devn.	Minimum	Maximum
Ex-post private control of self-dealing	5002	0.87	0.19	0.09	1
1- Dyck Zingales' Control Premium	4961	0.97	0.08	0.35	1.04
Creditor Rights	5002	1.54	1.00	0	4
Free Cash Flow to Assets	5002	-0.14	1.17	-2	2

Table 2: Effect of Protection against Self-dealing and Creditor Rights

This Table reports the marginal effects from the following logit regressions:

$$prob(y_{kct} = 1) = \beta_0 + \beta_1 \cdot \lambda_c + \beta_2 \cdot \theta_{ct} + \beta_3 \cdot (\lambda_c * \theta_{ct}) + \beta X + \varepsilon_{kct}$$

where y_{kct} is an indicator variable equal to 1 if the bank loan deal to borrower k in country c in year t is project financed and 0 if the deal corresponds to a capital expenditure loan or a corporate purpose term loan (our two categories of Corporate Debt Finance loans). λ_c is the proxy for protection against insider stealing in country c while θ_{ct} denotes the level of creditor rights in country c in year t . The sample of bank loans is drawn from the Loan Pricing Corporation's Dealscan database for the period 1993 - 2003. The coefficient estimates correspond to the marginal effects. Robust standard errors are clustered by the country of the borrower. ***, **, * represent coefficients that are statistically significant at the 1%, 5% and 10% levels respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Proxy for Difficulty of Stealing:	Ex-post private control of self-dealing	1 – Dyck Zingales Control Premium	Ex-post private control of self-dealing	1 – Dyck Zingales Control Premium	Ex-post private control of self-dealing	1 – Dyck Zingales Control Premium
Proxy for Difficulty of Stealing	-0.745*** (4.28)	-0.964*** (3.11)	-0.743*** (3.48)	-1.187*** (3.79)	-0.677*** (3.53)	-0.941*** (3.00)
Proxy for Difficulty to Steal *	0.111** (2.40)	0.134*** (3.63)	0.107** (2.12)	0.157*** (5.17)	0.113** (2.34)	0.136*** (3.40)
Creditor Rights	-0.093* (1.90)	-0.14*** (2.84)	-0.09* (1.83)	-0.16*** (4.14)	-0.099** (2.03)	-0.146*** (2.89)
All in spread drawn					-0.056 (1.27)	-0.075** (2.01)
Log of Deal Amount					-0.003 (0.31)	-0.008 (0.93)
One if Secured					0.015 (1.29)	0.017 (1.38)
Maturity					0.129** (2.22)	0.103 (1.58)
One if Borrower not rated					0.034 (1.02)	0.018 (0.62)
One if Senior					-0.136 (1.56)	-0.132 (1.54)
Free Cash Flow / Assets					0.122*** (5.76)	0.111*** (5.46)
Tangibility					0.116** (2.56)	0.077* (1.74)
Interest Expense / Net Income					0.012 (1.43)	0.005 (0.59)
LT Debt / Total Assets					0.229*** (4.19)	0.225*** (3.54)
Tobin's Q					0.100 (1.05)	0.063 (0.69)
LT Debt / Total Assets * Tobin's Q					0.799*** (8.13)	0.742*** (6.79)
Sample	Full	Full	Excludes Corporate Purpose Term Loans		Full	Full
Borrower Random Effects	No	No	No	No	Yes	Yes
Industry Fixed Effects	No	No	No	No	Yes	Yes
Year Fixed Effects	No	No	No	No	Yes	Yes
Observations	5005	4964	2296	2264	4533	4493
R-squared	0.39	0.46	0.24	0.36	0.68	0.71

Table 3: Tests controlling for deal and borrower level endogeneity using industry level sample

This Table reports results from the following OLS regressions:

$$y_{ict} = \beta_i + \beta_t + \beta_1 \cdot \lambda_c + \beta_2 \cdot \theta_{ct} + \beta_3 \cdot (\lambda_c * \theta_{ct}) + \beta X + \varepsilon_{ict}$$

where y_{ict} denotes the percentage of Project Financed deals in 4-digit SIC industry i in country c in year t . Our two categories of Corporate Debt Finance include capital expenditure loans and corporate purpose term loan. λ_c is the proxy for protection against insider stealing in country c while θ_{ct} denotes the level of creditor rights in country c in year t . The sample of bank loans is drawn from the Loan Pricing Corporation's Dealscan database for the period 1993 - 2003. Robust standard errors are clustered by the country of the borrower. ***, **, * represent coefficients that are statistically significant at the 1%, 5% and 10% levels respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Proxy for Difficulty of Stealing:	Ex-post private control of self-dealing	1 – Dyck Zingales Control Premium	Ex-post private control of self-dealing	1 – Dyck Zingales Control Premium	Ex-post private control of self-dealing	1 – Dyck Zingales Control Premium
Proxy for Difficulty of Stealing	-0.702*** (7.84)	-1.153*** (5.89)	-0.651*** (3.70)	-1.220*** (4.66)	-0.242*** (4.14)	-0.502*** (5.25)
Proxy for Difficulty to Steal *	0.044**	0.071***	0.061	0.126***	0.015*	0.029***
Creditor Rights	(2.48)	(3.69)	(1.60)	(3.75)	(2.00)	(3.09)
Creditor rights	-0.027* (1.68)	-0.063** (2.56)	-0.047* (1.72)	-0.125*** (3.02)	-0.008* (1.76)	-0.025** (2.24)
Average of All in spread drawn					0.020 (0.75)	0.016 (0.51)
Average of Log of Deal Amount					0.004 (0.43)	0.001 (0.10)
% of Secured Loans					0.016** (2.29)	0.018*** (2.78)
Average Maturity					0.126*** (7.86)	0.131*** (6.89)
% of Borrowers not rated					0.046 (1.62)	0.038 (1.29)
% of Senior loans					-0.043* (1.85)	-0.048** (2.17)
Free Cash Flow / Assets					0.144*** (3.76)	0.135*** (3.76)
Tangibility					0.088 (1.07)	0.075 (0.95)
Interest Expense / Net Income					0.028* (2.00)	0.025* (1.98)
LT Debt / Total Assets					0.250** (2.13)	0.263** (2.29)
Tobin's Q					0.044 (0.46)	0.020 (0.23)
LT Debt / Total Assets * Tobin's Q					1.318*** (4.74)	1.245*** (4.45)
Sample	Full	Full	Excludes Corporate Purpose Term Loans		Full	Full
Industry Fixed Effects	No	No	No	No	Yes	Yes
Year Fixed Effects	No	No	No	No	Yes	Yes
Observations	1795	1762	1212	2264	1677	1645
R-squared	0.16	0.19	0.09	0.36	0.75	0.75

Table 4: Tests controlling for other country level factors

Columns 1-2 in this table report the marginal effects from the following logit regressions:

$$prob(y_{kct} = 1) = \beta_0 + \beta_1 \cdot \lambda_c + \beta_2 \cdot \theta_{ct} + \beta_3 \cdot (\lambda_c * \theta_{ct}) + \beta X + \varepsilon_{kct}$$

where y_{kct} equals 1 if the bank loan deal to borrower k in country c in year t is project financed and 0 if it corresponds to Corporate Debt Finance. Columns 3-4 estimate the following OLS regressions:

$$y_{ict} = \beta_i + \beta_t + \beta_1 \cdot \lambda_c + \beta_2 \cdot \theta_{ct} + \beta_3 \cdot (\lambda_c * \theta_{ct}) + \beta X + \varepsilon_{ict}$$

where y_{ict} denotes the percentage of Project Financed deals in 4-digit SIC industry i in country c in year t . λ_c is the proxy for protection against insider stealing in country c while θ_{ct} denotes the level of creditor rights in country c in year t . Bank loans are drawn from the Loan Pricing Corporation's Dealscan database for the period 1993 - 2003. Robust standard errors are clustered by the country of the borrower. ***, **, * represent coefficients that are statistically significant at the 1%, 5% and 10% levels respectively.

	(1)	(2)	(3)	(4)
Proxy for Difficulty of Stealing:	Ex-post private control of self-dealing	1 – Dyck Zingales Control Premium	Ex-post private control of self-dealing	1 – Dyck Zingales Control Premium
Proxy for Difficulty of Stealing	-1.863*** (3.44)	-1.581*** (4.59)	-0.871** (2.29)	-0.779* (1.99)
Proxy for Difficulty of Stealing * Creditor Rights	0.155*** (4.42)	0.177*** (9.96)	0.057* (1.83)	0.098** (2.59)
Creditor rights	-0.124*** (3.90)	-0.178*** (9.14)	-0.041 (1.46)	-0.092** (2.20)
French legal origin dummy	-0.536* (1.83)	-0.466** (2.46)	-0.220 (1.37)	-0.227 (1.27)
German legal origin dummy	-0.346** (2.19)	-0.274*** (3.10)	-0.115 (1.05)	-0.075 (0.73)
Scandinavian legal origin dummy	-0.352* (1.85)	-0.190** (2.38)	-0.258** (2.28)	-0.146** (2.65)
Enforceability of contracts	0.017 (0.59)	-0.014 (0.71)	-0.011 (0.75)	-0.025** (2.21)
Rule of Law	0.160** (2.47)	0.112** (2.22)	0.072* (1.77)	0.114*** (3.45)
Corruption	-0.153** (2.26)	-0.138*** (3.39)	-0.038 (0.91)	-0.075* (1.78)
Efficiency of Judicial System	-0.056* (1.65)	-0.037 (1.23)	-0.039* (1.92)	-0.049** (2.37)
Index of Political Rights	0.070** (2.12)	0.075*** (3.25)	0.046* (1.91)	0.073*** (3.31)
Legal Formalism Index	0.132 (1.44)	0.162** (2.55)	0.061 (1.30)	0.118** (2.53)
Public enforcement index	-0.112 (1.21)	-0.148** (2.32)	-0.018 (0.34)	-0.095* (1.72)
One if information sharing operates in 1999	0.376*** (2.75)	0.285*** (3.14)	0.173 (1.55)	0.238** (2.56)
Efficiency of the Bankruptcy Procedure	-0.005 (1.30)	-0.004* (1.96)	-0.001 (0.66)	-0.003 (1.54)
Log of GDP per capita	0.374* (1.73)	0.381** (2.23)	0.114 (0.97)	0.181 (1.16)
Log of Private Credit to GDP per capita	0.252 (1.64)	0.171* (1.93)	0.062 (0.83)	0.024 (0.33)
Accounting Standards	-0.006** (2.18)	-0.001 (0.22)	-0.003 (1.16)	0.004* (1.73)
Sample	Deal	Deal	Country, Industry, Year	Country, Industry, Year
Borrower Random Effects	Yes	Yes	N/A	N/A
Industry Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	4534	4494	1678	1646
R-squared	0.58	0.62	0.40	0.42

Table 5: Difference-in-Difference tests using Exogenous Country Level Legal Changes

Panel A: Countries that underwent a decrease in Creditor Rights		Panel B: Countries that underwent a change in Mandatory Bid Rules	
Country Name	Year of change	Country Name	Year of change
Indonesia	1998	Argentina	2002 (weaken)
Israel	1995	Brazil	1997 (strengthen), 1999 (weaken)
Japan	1999	Chile	2000 (weaken)
Sweden	1995	Germany	2001 (weaken)
Thailand	1998	Italy	1998 (weaken)
		Switzerland	1998 (weaken)

Panel C: Regression Results

Columns 1-2 and 3-4 report respectively the marginal effects from the following logit regressions:

$$prob(y_{kct} = 1) = \beta_k + \beta_t + \beta_1 \cdot \Delta\theta_{ct} + \beta_2 \cdot (\Delta\theta_{ct} * \lambda_c) + \beta X + \varepsilon_{kct}$$

$$prob(y_{kct} = 1) = \beta_k + \beta_t + \beta_1 \cdot \Delta\lambda_{ct} + \beta_2 \cdot (\Delta\lambda_{ct} * \theta_c) + \beta X + \varepsilon_{kct}$$

where y_{kct} equals 1 if the bank loan deal to borrower k in country c in year t is project financed and 0 if the deal corresponds to a capital expenditure loan or a corporate purpose term loan. λ_c and θ_{ct} denote proxies for protection against insider stealing and creditor rights respectively. $\Delta\theta_{ct}$ equals 1 for country c and years $t \leq m$ if creditor rights decreased in year m in country c and equals 0 otherwise. $\Delta\lambda_{ct}$ equals 1 for country c and years $t > m$ if mandatory bid rules were instituted in year m and equals 0 otherwise. β_k and β_t denote borrower and year fixed effects respectively. The sample of bank loans is drawn from the Loan Pricing Corporation's Dealscan database for the period 1993 - 2003. Robust standard errors are clustered by the country of the borrower. ***, **, * represent coefficients that are statistically significant at the 1%, 5% and 10% levels respectively.

	(1)	(2)	(3)
Change in Creditor Rights	-0.264*** (8.15)	-0.638*** (9.15)	
Change in Creditor Rights * Ex-post private control of self-dealing	0.178*** (7.29)		
Change in Creditor Rights * (1 - Dyck Zingales Control Premium)		0.308*** (8.85)	
Change in Mandatory Tender Offer Rules			-0.303* (1.90)
Change in Mandatory Tender Offer Rules * Creditor Rights			0.046** (2.00)
Sample	Excludes countries that underwent a change in Mandatory Offer Rules	Excludes countries that underwent a change in Creditor Rights	
Borrower Fixed Effects*	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
R-squared	0.02	0.02	0.40
Observations	4834	4793	4747
R-squared	0.09	0.09	0.09

* The borrower fixed effects subsume country and industry fixed effects

Table 6: Effect of Creditor Rights Components and Protection against Self-dealing

Columns 1-4 in this table report the marginal effects from the following logit regressions:

$$prob(y_{kct} = 1) = \beta_0 + \beta_1 \cdot \lambda_c + \beta_2 \cdot \theta_{ct} + \beta_3 \cdot (\lambda_c * \theta_{ct}) + \beta X + \varepsilon_{kct}$$

where y_{kct} equals 1 if the bank loan deal to borrower k in country c in year t is project financed and 0 if it corresponds to Corporate Debt Finance. Columns 5-6 estimate the following OLS regressions:

$$y_{ict} = \beta_i + \beta_t + \beta_1 \cdot \lambda_c + \beta_2 \cdot \theta_{ct} + \beta_3 \cdot (\lambda_c * \theta_{ct}) + \beta X + \varepsilon_{ict}$$

where y_{ict} denotes the percentage of Project Financed deals in 4-digit SIC industry i in country c in year t . λ_c is the proxy for protection against insider stealing in country c . In Columns 1-2, θ_{ct} – country level creditor rights in country c in year t – is decomposed into its four components. In Columns 3-6, θ_{ct} denotes “no automatic stay component of creditor rights”. Bank loans are drawn from the Loan Pricing Corporation’s Dealscan database for the period 1993 - 2003. Robust standard errors are clustered by the country of the borrower. ***, **, * represent coefficients that are statistically significant at the 1%, 5% and 10% levels respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Proxy for Difficulty of Stealing:	Ex-post private control of self-dealing	1 – Dyck Zingales Control Premium	Ex-post private control of self-dealing	1 – Dyck Zingales Control Premium	Ex-post private control of self-dealing	1 – Dyck Zingales Control Premium
Proxy for Difficulty of Stealing	-0.586*** (4.74)	-1.032*** (4.26)	-0.925*** (4.16)	-0.429* (1.68)	-0.460*** (3.35)	-0.358** (2.31)
Proxy for Difficulty of Stealing * No automatic stay			0.100*** (6.80)	0.104*** (9.56)	0.039** (2.49)	0.052*** (3.30)
No automatic stay on secured assets	0.213*** (3.64)	0.323*** (6.52)	-0.344*** (6.37)	-0.48*** (9.62)	-0.122** (2.15)	-0.228*** (2.98)
Secured creditors first paid	-0.015 (0.19)	-0.106 (1.59)				
Restrictions for going into reorganization	0.078 (1.33)	0.044 (0.72)				
Management does not stay in reorganization	-0.039 (0.54)	-0.066 (1.13)				
Log of Deal Amount			-0.006 (1.01)	-0.004 (0.71)	-0.002 (0.22)	0.001 (0.13)
One if Secured			0.007 (1.36)	0.005 (1.28)	0.012 (1.50)	0.008 (1.11)
Maturity			0.155*** (4.61)	0.164*** (4.44)	0.137*** (8.12)	0.145*** (7.52)
One if borrower not rated			0.022 (1.58)	0.029* (1.69)	0.040 (1.51)	0.047* (1.79)
One if senior			-0.033 (1.37)	-0.050 (1.60)	-0.061** (2.43)	-0.096*** (3.51)
Free Cash Flow / Assets			0.163*** (7.81)	0.165*** (7.27)	0.142*** (3.40)	0.143*** (3.38)
Tangibility			0.029 (0.73)	0.029 (0.69)	0.081 (1.01)	0.077 (0.96)
Interest Expense / Net Income			0.006 (0.83)	0.005 (0.64)	0.025* (1.85)	0.025* (1.88)
LT Debt / Total Assets			0.139** (2.31)	0.142** (2.49)	0.239* (1.98)	0.239* (1.98)
Tobin’s Q			0.166* (1.82)	0.185** (2.25)	0.044 (0.42)	0.058 (0.54)
LT Debt / Total Assets * Tobin’s Q			0.833*** (6.90)	0.806*** (7.03)	1.391*** (4.97)	1.442*** (4.63)
Sample aggregated at what level?:	Deal	Deal	Deal	Deal	Country, Industry, Year	Country, Industry, Year
Country Level Controls as in Table 4	No	No	Yes	Yes	Yes	Yes
Borrower Random Effects	No	No	Yes	Yes	N/A	N/A
Industry Fixed Effects	No	No	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	Yes	Yes	Yes	Yes
Observations	5005	4964	4533	4493	1677	1645
R-squared	0.13	0.12			0.76	0.76

Table 7: Inter-industry differences based on Free Cash Flow to Assets in the effects of Protection against stealing and Creditor rights

This Table reports the marginal effects from the following logit regressions:

$$y_{ict} = \beta_i + \beta_c + \beta_t + (\beta_1\lambda_c + \beta_2\theta_{ct} + \beta_3\lambda_c\theta_{ct}) * \gamma_{ict} + \beta_4 \cdot \gamma_{ict} + \beta_5\lambda_c + \beta_6\theta_{ct} + \beta_7\lambda_c\theta_{ct} + \beta X + \varepsilon_{ict}$$

where y_{kct} is an indicator variable equal to 1 if the bank loan deal to borrower k in country c in year t is project financed and 0 if the deal corresponds to a capital expenditure loan or a corporate purpose term loan. λ_c is the proxy for protection against insider stealing in country c while θ_{ct} denotes the level of creditor rights in country c in year t . γ_{ict} denotes the free cash flow to assets in 4-digit SIC industry i in country c in year t . The sample of bank loans is drawn from the Loan Pricing Corporation's Dealscan database for the period 1993 - 2003. The coefficient estimates correspond to the marginal effects. Robust standard errors are clustered by the country of the borrower. ***, **, * represent coefficients that are statistically significant at the 1%, 5% and 10% levels respectively.

	(1) Ex-post private control of self- dealing	(2) 1 – Dyck Zingales Control Premium	(3) Ex-post private control of self-dealing	(4) 1 – Dyck Zingales Control Premium	(5) Ex-post private control of self-dealing	(6) 1 – Dyck Zingales Control Premium
Free Cash Flow to Assets * Proxy for Difficulty of Stealing	-0.353*** (7.73)	-0.488*** (5.66)	-0.359*** (6.01)	-0.480*** (5.09)	-0.138*** (2.84)	-0.113** (2.13)
Free Cash Flow to Assets * Proxy for Difficulty of Stealing * Creditor Rights	0.020*** (5.71)	0.032*** (5.86)	0.02*** (5.35)	0.032*** (6.81)	0.013** (2.74)	0.010* (1.71)
Free Cash Flow to Assets * Creditor Rights	-0.043* (1.86)	-0.125*** (3.08)	-0.043* (1.76)	-0.123*** (3.43)	-0.011** (2.48)	-0.003** (2.09)
Creditor rights	-0.123*** (38.46)	-0.169*** (24.44)	-0.122*** (29.11)	-0.168*** (22.25)	-0.127*** (39.85)	-0.18*** (27.01)
Proxy for Difficulty of Stealing * Creditor Rights	0.190*** (29.87)	0.182*** (28.96)	0.189*** (23.61)	0.181*** (22.68)	0.195*** (35.68)	0.192*** (34.03)
Free Cash Flow / Assets	0.387*** (9.15)	0.603*** (9.36)	0.386*** (6.06)	0.589*** (7.43)	0.830*** (4.83)	0.530** (2.65)
LT Debt / Total Assets * Efficiency of the Bankruptcy Procedure			0.001 (0.63)	0.000 (0.12)		
LT Debt / Total Assets			-0.012 (0.12)	0.016 (0.17)		
Deadweight Costs of D/E Conflicts * Creditor Rights * Proxy for Difficulty to Stealing			0.143*** (12.48)	0.112** (2.33)		
Deadweight Costs from Debt-Equity Conflicts * Creditor Rights			-0.097*** (7.81)	-0.126* (1.78)		
Proxy for Difficulty of Stealing * LT Debt / Total Assets * Tobin's Q			-0.139*** (4.04)	-0.148* (2.00)		
LT Debt / Total Assets * Tobin's Q			0.238*** (5.35)	0.279*** (3.74)		
Tobin's Q			-0.015 (0.16)	0.023 (0.23)		
Free Cash Flow to Assets * French Legal Origin					0.112*** (4.03)	0.137*** (4.43)
Free Cash Flow to Assets * German Legal Origin					0.070*** (3.80)	0.088*** (4.61)
Free Cash Flow to Assets * Scandinavian Legal Origin					0.015 (0.65)	0.025 (1.70)
Free Cash Flow to Assets * Enforcement of Contracts					0.005* (1.72)	0.000 (0.00)
Free Cash Flow to Assets * Rule of Law					-0.007 (0.87)	-0.003 (0.36)
Free Cash Flow to Assets * Corruption					0.013 (1.50)	0.011 (1.32)
Free Cash Flow to Assets * Efficiency of Judiciary					-0.008** (2.36)	-0.012*** (3.12)
Free Cash Flow to Assets * Political Rights Index					-0.019*** (3.53)	-0.011*** (3.06)
Free Cash Flow to Assets * Efficiency of					0.000	-0.000

Bankruptcy Process					(0.13)	(0.32)
Free Cash Flow to Assets * Accounting Standards					-0.001	0.002**
Free Cash Flow to Assets * Information sharing operates in 1999					(0.66)	(2.51)
Free Cash Flow to Assets * Log of GDP per capita					-0.055**	-0.051***
Free Cash Flow to Assets * Log of Private Credit to GDP per capita					(2.74)	(3.18)
Free Cash Flow to Assets * Public enforcement index					-0.047**	-0.041**
Free Cash Flow to Assets * Legal Formalism Index					(2.47)	(2.20)
					-0.010	-0.042
					(0.51)	(1.61)
					0.084***	0.075***
					(5.19)	(5.01)
					-0.038***	-0.035***
					(4.05)	(3.10)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4534	4494	4505	4494	4534	4494
R-squared	0.83	0.82	0.83	0.83	0.84	0.83