

Law, Agency Costs and Project Finance: An Empirical Analysis¹

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Abstract

When corporations make large investments, what benefits do they derive from Project Finance vis-à-vis Corporate Finance? In this paper, we show that Project Finance contractually mitigates the agency costs stemming from managerial self-dealing. We argue that cash flows become *verifiable* in Project Finance because of the contractual arrangements made possible due to a single, discrete project that is legally separate from the sponsor.

We compare Project Finance loans with Corporate Finance loans across forty countries. We show, first, that Project Finance is more likely in countries where laws protecting against managerial self-dealing are weaker. We highlight the causal channel for this effect by showing that in such countries, Project Finance is *disproportionately* more likely in industries where free cash flows are higher. We use a 4-digit SIC level measure of free cash flow to assets across countries, as well as the US 4-digit SIC measure as an *instrument* for the cross-country measure. Second, since creditors' threat to seize collateral deters borrower opportunism, we predict that stronger creditor rights mitigate the marginal effect of weaker protection against managerial self-dealing. We provide evidence for this prediction using exogenous country-level changes in creditor rights and using cross-country tests.

Apart from highlighting the corporate governance benefits of Project Finance vis-à-vis Corporate Finance, our study augments the law and finance literature by highlighting a micro channel through which legal origins can affect financing choices.

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

1 Introduction

Companies across the world frequently employ Project Finance for their large investments. Their importance is underscored by the following fact: Though US corporations used Project Finance less often than their foreign counterparts,¹ their investment of \$47 billion in Project Finance in 2006 exceeded the \$41 billion that venture capital funds invested in startups and the \$43 billion raised by US companies through IPOs in the same year (Esty and Sesia, 2007). While academic research in finance has provided many insights into venture capital financing and IPOs, Project Finance has received limited attention. An obvious question arises: What drives a firm to choose Project Finance instead of Corporate Finance to finance a large investment? As Esty (2003a) points out, Project Finance involves significant costs compared to Corporate Finance.² What are the offsetting benefits then of Project Finance vis-à-vis Corporate Finance? Why were 64% of large investments financed through Project Finance in French legal origin countries while this percentage was only 26% in English legal origin countries? In other words, how does the legal and institutional environment in a country shape this choice of Project Finance vis-à-vis Corporate Finance?

This paper attempts to fill some of these gaps in our knowledge. We make two important contributions. First, to our knowledge, our paper is the first to empirically document the corporate governance benefits of Project Finance vis-à-vis Corporate Finance. Second, we augment the law and finance literature (see references below) by providing evidence on the micro channel through which legal origin could affect financing choices – through the provision of investor protection to reduce managerial agency costs.

Esty (2003b) argues that Project Finance reduces the agency costs of free cash flow encountered in Corporate Finance:

“The first motivation to use Project Finance, the agency cost motivation, recognizes that certain assets, namely large, tangible assets with high free cash flows, are susceptible to costly agency conflicts. The creation of a project company provides an opportunity to create a new, asset-specific governance system to address the conflicts between ownership and control. . . Project companies utilize joint ownership and high leverage to discourage costly agency conflicts among participants.”

From the above argument, it is clear that Project Finance mitigates the agency costs stemming from separation of ownership and control. However, it is unclear exactly *how* Project Finance operates to mitigate these agency costs while other forms of financing cannot. For example, why cannot corporations effect governance systems specialized to the nature of their assets, or utilize joint ownership and leverage to mitigate these agency costs? What is it about Project Finance – as opposed to Corporate Finance – that reduces agency conflicts?

¹Kleimeier and Megginson (2000) find Project Finance loans are a lot more likely to be extended to non-US firms than US firms. In our sample, 19% of large investments by US corporations were Project Financed while this percentage was 53% for the international firms.

²First, creating a stand-alone project company may take from six months to more than a year; the contracting and other transaction costs may consume from 5% to 10% of the project’s total cost (Esty, 2005). Second, the up-front fees are considerably higher for project debt than for corporate debt. Finally, lenders to project companies charge advisory fees of up to 50 to 100 basis points for advice on the financial structure of the transaction (Esty, 2003b).

We argue that *cash flows become verifiable in Project Finance*³ because of the contractual arrangements that are made possible in the Project Financed company. These contractual arrangements become possible because the Project company owns a single, discrete project that is legally separated from the sponsor, and the Project company has no future growth opportunities. Since Corporate Finance involves multiple current and future projects, the same contractual arrangements cannot be effected in Corporate Finance. Therefore, cash flows are less verifiable in Corporate Finance, particularly in countries where the protection against managerial self-dealing is weaker.

Due to the verifiability of cash flows in Project Finance, we predict that in countries where insiders can expropriate minority investors more easily, Project Finance is more likely than Corporate Finance. In particular, to highlight the causal mechanism for this prediction, we predict that in such countries, Project Finance is *disproportionately* more likely than Corporate Finance in industries where Free Cash Flow is higher. To understand better this difference-in-difference prediction, consider two industries: Drugs and Cement. Given the lack of significant investment opportunities in Cement when compared to Drugs, the agency cost of free cash flows would be higher in Cement than in Drugs (Jensen and Meckling, 1976, Jensen, 1986 and Blanchard, Lopez-de-Silanes and Shleifer, 1994). Since Project Finance mitigates these agency costs by making cash flows verifiable, *ceteris paribus*, the difference in the use of Project Finance in Cement versus that in Drugs would be greater in Venezuela than this difference in the United States since the laws protecting managerial self-dealing are stronger in the United States than in Venezuela.

Furthermore, since cash flows are less verifiable in Corporate Finance, borrower opportunism is more likely. Therefore, the creditors' credible threat to seize and liquidate collateral matters more with Corporate Finance since such a threat serves to deter borrower opportunism. We argue that stronger creditor rights mitigate the effect of weaker protection against managerial self-dealing on the choice of Project Finance and lead to more Corporate Finance overall.

To test these predictions, we compare Project Finance loans to Corporate Finance loans across forty countries. The sample of loans is drawn from Loan Pricing Corporation's *Dealscan* database. To restrict our analysis to those Corporate Finance investments where Project Finance is a viable option, we include loans to corporations under the categories of equipment purchases, capital expenditures, acquisition of assets or companies, and takeovers. To capture differences across countries in the protection provided to investors against managerial self-dealing, we employ the index of private control of self-dealing constructed by Djankov, LaPorta, Lopez-de-Silanes and Shleifer (2006) (hereafter, DLLS) . This index measures the hurdles that the controlling shareholder in a firm must jump in order to indulge in a self-dealing transaction. In the spirit of Shleifer and Wolfenzon (2002) where *ex-ante* financing outcomes are affected by the *ex-post* likelihood of a sponsor/manager being caught self-dealing, we focus on DLLS's measure of *ex-post private control of self-dealing*.⁴ Since our most comprehensive disaggregated data is at the 4-digit SIC industry level, we perform our primary tests using this industry level data, though we also verify that our results are obtained using a smaller firm level sample.

First, we find that Project Finance is more likely in countries where the measure of ex-post private control of self-dealing is weaker. We find this result after controlling for (i) unobserved

³Contrary to our claim here, Gatti, Kleimeier, Megginson, and Steffanoni (2007) assert that it is difficult for lenders to prevent expropriation of project company cash flows.

⁴This measure captures the extent of *ex post* disclosure that the controlling shareholder in a firm must provide and the ease of proving wrongdoing once investors detect managerial self-dealing; a higher value indicates more hurdles.

determinants of Project Finance at the country, industry and year level; and (ii) time varying variables at the country and industry level. However, this result suffers from the usual criticisms of endogeneity at the country level. In a sample of forty countries, it is possible that ex-post private control of self-dealing picks up the effect of time-varying unobserved heterogeneity at the country level.

Therefore, to show that weaker protection against managerial self-dealing *leads* to more Project Finance, we examine the interaction of free cash flow to assets with ex-post private control of self-dealing. As mentioned above, this difference-in-difference approach captures the agency cost channel through which weaker protection against managerial self-dealing leads to more Project Finance. We follow Opler and Titman (1993) and Lang, Stulz, and Walking (1999) in proxying agency costs of free cash flow using the ratio of free cash flow to assets. After including fixed effects at the country, industry, and year levels, and time-varying industry and country level controls, we find that in countries where protection against managerial self-dealing is weaker, Project Finance is *relatively* more likely than Corporate Finance in industries where the ratio of free cash flow to assets is higher. While the assumptions required to identify this difference-in-difference are weaker, this interaction term may not be clearly identified if, for example, larger firms report higher measures of free cash flow to assets, particularly in countries where investor protection is stronger and if larger firms undertake relatively more Project Finance. In a similar vein, firms in higher cash flow industries may indulge in more accounting manipulation, particularly in countries where investor protection is poor. This could bias our interaction term if these higher free cash flow industries undertake more Project Finance.

To examine the robustness of our difference-in-difference result to these and other sources of endogeneity, we follow Rajan and Zingales (1998) in employing the median free cash flow to assets for US firms at the 4-digit SIC industry level as an *instrument* for our cross-country measure. The US industry measure serves as a good instrument for three reasons. First, the profitability of an industry and the resultant level of free cash flow is partly a function of the technological aspects of the industry as well as the life-cycle stage of the industry. Therefore, we expect the free cash flow for US industries to be correlated with the cross-country measure.⁵ Second, as Carey and Nini (2004) acknowledge, Dealscan's coverage of US borrowers is comprehensive, which eliminates selection biases that may contaminate the cross-country measure. Third, given Project Finance usage of 19% in the US against 53% in the rest of the world, the US industry level measure is not expected to be systematically correlated with unobserved determinants of Project Finance across the world. As *strong evidence* of our theory's predictions, we obtain identical results to the above using this instrumental variable.

The cross-country difference-in-difference test along with the test using the US measure as the instrumental variable provides convincing evidence that weaker laws protecting managerial self-dealing *lead* to more Project Finance. The economic magnitudes of these effects are significant. A one standard deviation decrease in the measure of ex post private control of self-dealing increases the likelihood of Project Finance in a country by 5.9%, which represents more than a 25% increase over the sample average. If we compare two industries for which free cash flow/ assets is one

⁵The correlation in the Free Cash Flow/ Assets measure among the countries in our sample, both in the cross-section and the time-series, is quite high. The correlation is 0.73 over all industries and all years. The minimum correlation across time for an industry is 0.59 while the maximum is 0.94; similarly, the minimum correlation across industries for a particular year is 0.65 while the maximum is 0.88.

standard deviation apart, then a one standard deviation decrease in the ex-post private control of self-dealing increases the likelihood of Project Finance in the industry with higher free cash flow by 5% more than in the industry with weaker free cash flow. Since Project Finance is 25% likely on average in our sample, this 5% increase represents a 20% change over the sample average.

To test for the effect of creditors rights, we use the creditor rights index (a score between 0 and 4) constructed in Djankov, McLiesh and Shleifer (2005) (hereafter, DMS). A higher value for the DMS creditor rights index indicates stronger rights to creditors. First, we employ cross-country regressions where we control for any unobserved heterogeneity at the country, industry and year levels and find that the coefficient of interaction between creditor rights and ex-post private control of self-dealing is strongly positive. We find that a one point increase in the strength of creditor rights decreases the marginal effect of weaker protection against self-dealing on Project Finance by 32%. We investigate further as to which component of the creditor rights index affects this choice between Corporate Finance and Project Finance. In line with our argument before that creditors' rights to seize collateral deter borrower opportunism, we find that in countries with no automatic stay to shield collateral assets in bankruptcy, the effect of managerial self-dealing is mitigated. The other components of the DMS creditor rights index do not matter here.

Examining the interaction of creditor rights with ex-post private control of self-dealing enables us to overcome the usual criticisms of endogeneity that cross-country studies face, namely, the possible correlation between unobserved determinants of Project Finance and levels of these variables. This is because it is considerably less likely that the *interaction* of these two variables is correlated with unobserved determinants of Project Finance at the country level. Despite the weaker identifying assumptions required when testing for this interaction term, readers may still be concerned about residual endogeneity at the country level. For example, it is possible that creditor rights, ex-post private control of self-dealing, and the strength of legal institutions are correlated, and that despite our controlling for the strength of legal institutions through various country level variables, the interaction term picks up some non-linear effects of the overall strength of legal institutions on the choice of Project Finance. To rule out such possibilities, we consider this interaction for a treatment sample of countries, where creditor rights underwent a change during our sample period, and a control sample of other countries. We find that the *decrease* in the rights provided to creditors in our treatment sample enhanced the marginal effect of ex-post private control of self-dealing on the choice of Project Finance. This interaction effect provides further evidence that the agency cost channel drives the choice of Project Finance. Furthermore, it indicates that creditor rights and laws protecting minority equityholders from managerial self-dealing are marginal substitutes in mitigating agency conflicts.

Interestingly, though we find in our univariate comparisons that Project Finance is employed more often in French and German legal origin countries than in English or Scandinavian legal origin countries, French and German legal origin dummies are never statistically significant when we include our measures of investor protection. Given the evidence in the law and finance literature (see references later) that investor protection is correlated with legal origins, this suggests that legal origin may be affecting financing choices through the provision of investor protection to reduce managerial agency costs.

This paper is organized as follows. The next section describes the related literature. Section 3 provides the relevant background information on Project Finance. Section 4 describes the theoret-

ical framework that leads to our hypotheses. Section 5 details our empirical analysis while Section 6 describes our empirical results. Section 7 examines the robustness of our results to (i) a smaller firm level sample; (ii) alternative specifications of the dependent variable; (iii) the effect of financial development; and (iv) agency costs of debt motivations for Project Finance. 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 LaPorta, Lopez-de-Silanes, Shleifer and Vishny, 1997; LaPorta, Lopez-de-Silanes, Shleifer and Vishny, 1998; Djankov, LaPorta, Lopez-de-Silanes and Shleifer, 2003; Djankov et al., 2005; Djankov, LaPorta, Lopez-de-Silanes and Shleifer, 2006; and Djankov, Hart, McLiesh and Shleifer, 2006 and the references therein), which highlights the role of the legal institutions in shaping the pattern of financial organization and economic growth in a country. Specifically, our paper relates to how legal protection provided to investors affects the nature of financial organization in a country (see for example La Porta, Lopez-de-Silanes and Shleifer, 1999). Our paper highlights that corporations and their lenders would choose Project Finance over Corporate Finance to *unwind* the effects of weak laws against managerial self-dealing. This finding is in line with the view of Coasians (as against Coase; see Glaeser et. al., 2001) that private parties can utilize a vast array of contracting mechanisms to organize transactions between themselves, and therefore, most laws and regulations are unnecessary.

However, we find evidence supporting the view in Glaeser et. al. (2001) that regulations providing stronger protection to investors can reduce inefficiencies due to agency conflicts. First, we find that stronger legal protection against managerial self-dealing obviates the need to undertake Project Finance in order to reduce agency costs of free cash flow, and thus leads to more Corporate Finance. Second, we find that stronger creditor rights can reduce the impact of poor protection against managerial self-dealing, and thus lead to more Corporate Finance. These two findings taken together are potentially more important than the observation that private parties can use Project Finance to unwind the effect of the legal and institutional environment. This is because, unlike Corporate Finance, Project Finance is a specialized form of finance which involves significant transaction costs and is possible only if the project's assets and cash flows can be successfully isolated from the other current and future investments of the Corporation. In this regard, our paper complements the work of Durnev and Kim (2005), who show both that legal origins matter, and that private ordering may be useful in addressing deficiencies in legal protection provided to investors. They find that across twenty-four countries, firms adapt efficient governance practices in the face of weak legal regimes. Governance quality and disclosure practices are positively correlated with firm value, and this positive effect is stronger in weak legal regimes.

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), which is a word coined by Johnson et. al. to describe “the transfer of assets and profits out of firms for the benefit of those who control them.” In this paper, we highlight the corporate governance benefits of Project Finance. We argue that Project Finance can limit tunneling by contractually enhancing the verifiability of cash flows from the project.

This paper is related to the literature examining Project Finance as an optimal organizational and financing choice. Esty (2003b) articulates the important institutional details of Project Finance and outlines three distinct advantages of Project Finance over Corporate Finance – limiting agency costs, reducing debt-overhang problems, and risk management. In contrast to his study, we focus on agency conflicts and explicitly show the substitution effect between law and contracts. We demonstrate empirically that Project Finance offers a private substitute for legal rules meant to reduce agency conflicts. To our knowledge, this paper is the first to empirically document these governance benefits of Project Finance vis-à-vis Corporate Finance. Our finding that stronger protection for minority equityholders and creditors encourages Corporate Finance indicates that *law matters* through its mitigation of the agency conflicts that may otherwise necessitate Project Finance.

Berkovitch and Kim (1990) show that if information between debtholders and equityholders is symmetric, Project Finance optimally alleviates the problem of under-investment while simultaneously minimizing the problem of over-investment. Chemmanur and John (1996) assert that the key ingredient of project financing is the segregation of project cash flows from those of the sponsor. They proceed to show formally that the project with weaker private benefits of control would be structured as project finance. In contrast, we argue informally here that the (lack of) verifiability of cash flows in (Corporate) Project Finance, and therefore the (higher) weaker private benefits, arise endogenously due to the nature of contracts that can (not) be written in (Corporate) Project Finance. In an asymmetric information setting, Shah and Thakor (1987) show that Project Finance is sometimes optimal because creditors incur weaker screening costs in evaluating the separately-incorporated project cash flows.

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 non-US borrowers and to borrowers in riskier countries. 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. Esty (2004b) examines syndicated loans to firms in different countries with a focus on how legal and financial systems affect syndicated loan composition. Gatti, Kleimeier, Megginson, and Steffanoni (2007) examine the role of third party certification by exploiting the self-contained financial entity feature of project finance loans.

Finally, while the law and finance literature (LaPorta, Lopez-de-Silanes, Shleifer and Vishny, 1997 and LaPorta, Lopez-de-Silanes, Shleifer and Vishny, 1998) has unearthed evidence that the origin of laws in a country has important implications for the pattern of financial organization and, in turn, economic growth and development, the exact mechanism through which this effect manifests itself has been unclear. In this paper, we show that legal origin matters through the provision of investor protection to reduce managerial agency costs. These results are important in light of the assertion in La Porta, Lopez-de-Silanes, and Shleifer (1999) that “the central agency problem in large corporations around the world is the expropriation of minority shareholders by controlling shareholders.” In unearthing a micro channel for the effect of legal origins on real outcomes, this paper complements Qian and Strahan (2006). They analyze various price and non-price features of debt contracts in countries similar to ours and find evidence that country level legal and institutional variables affect these features of debt contracts.

3 Background Information on Project Finance

Esty (2003b) defines Project Finance as the following:

Project finance involves the creation of a legally independent project company financed with non-recourse debt (and equity from one or more sponsoring firms) for the purpose of financing a single purpose capital asset, usually with a limited life.

This definition highlights the following features of Project Finance: First, Project Finance involves creating a legally independent project company to own and invest in the project; the assets and liabilities of the project company do not appear on the sponsors' balance sheet. The sponsoring firm does not have access to the cash flows of the project company and vice-versa. In contrast, in Corporate Finance, the investment is owned and financed as part of the company's existing balance sheet.

Second, in contrast to a corporation which may be investing in many projects simultaneously, a project company invests only in the particular project for which it is created. The project company is dissolved once the project gets completed.

Third, in Project Finance, the investment is financed with non-recourse debt. Since the project company is a standalone, legally independent company, the debt is structured without recourse to the sponsors. As a result, all the interest and loan repayments come from the cash flows generated from the project. This is in contrast to Corporate Finance, where the lenders can rely on the cash flows and assets of the sponsor company in addition to those of the project itself.

Fourth, project companies have very high leverage ratios compared to public companies. Esty (2003b) points out that the average project company has a leverage ratio of 70% compared to 33.1% for similar sized firms listed in the Compustat database. The majority of project debt comes from bank loans. Esty (2005) shows that bank loans comprise around 80% of project debt.

4 Theoretical Framework

4.1 Cash Flow Verifiability

Based on the discussion in Section 3, we argue that an essential distinction between Project Finance and Corporate Finance is the verifiability of cash flows in Project Finance.

Unlike Corporate Finance, cash flows in Project Finance can be easily separated from those produced by the sponsor since the project company is legally independent and does not possess multiple current and future projects.

The presence of a single discrete project in a legally separate entity enables the lender to easily monitor project cash flows. However, in Corporate Finance, project cash flows become co-mingled with the cash flows from other assets, which makes the monitoring of such cash flows relatively more difficult. 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 contracts with its lenders.

Project companies are built primarily on contractual arrangements. In fact, some people refer to Project Finance as "contractual finance" (Esty and Megginson, 2003). A salient contract in Project Finance is the *cash flow waterfall contract* which specifies precisely how project cash flows may be used. 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. In addition, capital providers also have control over the distribution of cash flows in excess of these amounts. A commonly used mechanism to control the distribution of cash flows is the set-up of a variety of project accounts, such as a disbursement account, a proceeds account, a debt service reserve account, etc. These project accounts provide lenders control over the borrower's day-to-day business activities.

While separate legal incorporation is necessary to enable the separation of project cash flows from those of the sponsor, it is not sufficient to make such contracting feasible.⁶ For example, in a subsidiary company, which is a separate legal entity from its parent, multiple projects and future growth opportunities would make meaningful cash flow separation and monitoring as difficult as in the parent. With Project Finance, by contrast, the single discrete project housed in the project company enables this transparent cash flow separation.

The presence of contracts such as the cash flow waterfall contract between the project company and the lender *enhances the verifiability of cash flows* in Project Finance when compared to Corporate Finance. In contrast, since cash flows are less verifiable in Corporate Finance, we argue that insiders (project sponsors/ equityholders) can expropriate a greater portion of these cash flows if the laws preventing managerial self-dealing are weak. Therefore, we predict that:

HYPOTHESIS 1: *Ceteris paribus*, in countries where the protection against managerial self-dealing is weaker, Project Finance is more likely than Corporate Finance.

Highlighting the *causal mechanism* for this effect, we argue that higher free flow accentuates the problem of diversion of cash flows by the sponsor/ equityholder. Since Project Finance limits diversion of cash flows by enhancing their verifiability, the marginal benefit from undertaking Project Finance is greater in industries where the agency costs of free cash flow are higher. Therefore, we also predict that

HYPOTHESIS 2: *Ceteris paribus*, in countries where the protection against managerial self-dealing is weaker, Project Finance is *relatively* more likely than Corporate Finance in industries where Free Cash Flow is higher.

4.2 Role of Creditor Rights

When a borrower defaults, the creditor can threaten to seize the collateral assets. The right to repossess collateral gives lenders an essential threat to ensure that borrowers do not behave opportunistically since such behavior makes borrower default and repossession of collateral assets more likely.⁷ This raises the cost of such value-reducing deviant behavior and reduces the incentives to take such actions.

⁶It can be argued that separating project cash flows and rendering them verifiable to the lender could be accomplished in Corporate Finance by contract. However, separate incorporation of the solitary project in a project company economizes on contracting, monitoring, and enforcement costs. For example, transferring free cash flow to the sponsor from the separately incorporated project company would require corporate formalities such as formal declaration of dividends by the project company board of directors, or at least some intercompany cash accounting system to track such transfers. No similar formalities would be required to transfer free cash with the firm under Corporate Finance.

⁷As a practical matter, restructuring the defaulted project may be more likely than liquidation. The specificity of project assets means that going concern value is likely to exceed salvage value (Esty and Megginson (2003), citing Hoffinan (1998, p.656)), whether under Project Finance or Corporate Finance. Even in restructuring, however, the right to seize collateral advantages the creditor in negotiating the terms of the restructure.

Stronger creditor rights enable lenders to possess and liquidate collateral more easily. Therefore, stronger creditor rights mitigate the effect of the sponsor/ equityholder’s ability to divert project cash flows. Given the greater verifiability of cash flows in Project Finance, such opportunistic behavior is a greater threat to the lender under Corporate Finance. Stronger creditor rights are therefore likely to make Corporate Finance relatively more attractive than Project Finance as compared to a regime with weaker creditor rights. We predict that:

HYPOTHESIS 3: *Ceteris paribus*, stronger creditor rights in a country mitigate the effect of weaker protection against managerial self-dealing on Project Finance.

HYPOTHESIS 4: *Ceteris paribus*, stronger creditor rights lead to more Corporate Finance than Project Finance.

5 Empirical Analysis

We test the above predictions using data on Project Finance and Corporate Finance from Loan Pricing Corporation’s Dealscan database.

5.1 Data and Sample

Our sample of loans is obtained from Loan Pricing Corporation’s *Dealscan* database. *Dealscan* is a good data source for our empirical analysis for the following reasons. First, *Dealscan*’s coverage of international loans is comprehensive and accurate relative to other alternative sources. Qian and Strahan (2006) point out that using *Dealscan* information from the mid 1990s provides a comprehensive source of international loans.⁸ Second, *Dealscan*’s coverage of project finance loans appears well suited for our purpose. *Dealscan* describes Project Finance as a “non-recourse financing provided to an independently set up project company.” This definition closely matches the characteristics of Project Finance that we consider.

To restrict our analysis to those Corporate Finance investments where Project Finance is a viable option, we include loans to firms under the categories of equipment purchases, capital expenditures, and credit lines for funding acquisition of assets or companies.⁹ This selection of categories ensures a meaningful like-for-like comparison between Project Finance and Corporate Finance.

⁸Carey and Nini (2004) compare the Dealogic’s *Loanware* database to the *Dealscan* database. They find that *Dealscan* focuses primarily on the U.S. loan market until the late 1990s, whereas entries in *Loanware* are largely from non-U.S. markets until the early 1990s. They compare *Loanware* and *Dealscan*’s coverage of loans by drawing small random samples of loans from each and searching for match loans. They find that, while *Dealscan* has no or incomplete information for about 80 percent of European-market loans found in *Loanware* from 1992 to 1997, the overlap between the two data sources is about 90 percent from 1998 onwards. They also note: (1) *Loanware* appears more likely to make errors in recording lender identities and their roles; (2) *Loanware*’s coverage of US loans is not as comprehensive as that of *Dealscan*.

To account for the fact that the Dealscan’s international loan data may be less than comprehensive for the period before 1998, we verify whether our results hold for the limited 1998-2003 period. We find that our results are robust over this period too.

⁹We thus exclude loans under the following categories: “corporate purpose”, “CP backup”, “credit enhancement”, “debt repayment”, “debtor in possession”, “ESOP”, “exit financing”, “lease financing”, “stock buyback”, “recapitalization”, “trade finance”, and “working capital” loans. Given the nature of these loans, the choice to undertake project finance does not exist with these loans.

We begin our sample with loans that originated in 1993 and include loans originated till 2003.¹⁰ *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 investments made at the corporate level versus those made at the project company level, our unit of observation is a deal.¹¹ Our initial sample contains 6,257 deals from 110 countries. We then merge the country level and industry level data to generate our final sample. After adding the country level information, we lose 212 deals from 70 countries. The final sample contains 6,045 deals from 40 countries. This collection of countries is identical to that in Qian and Strahan (2006).

As we explain below, our primary explanatory variables are defined either at the country or the 4-digit SIC level industry. Therefore, for most of our empirical analysis, we aggregate these 6,045 deals at the 4-digit SIC level. To check whether our results hold at the more disaggregated firm-level, we use a much smaller sample comprising over 800 deals from twenty-two countries.

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 used in this study 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.

First, we employ the index of private control of self-dealing constructed by Djankov, LaPorta, Lopez-de-Silanes and Shleifer (2006) (DLS) to capture differences across countries in the protection provided to investors against managerial self-dealing. This index measures the hurdles that the controlling shareholder in a firm must jump in order to indulge in a self-dealing transaction. DLS construct this measure by describing a hypothetical self-dealing transaction between two firms controlled by the same person, which can in principle be used to improperly enrich this person. They then ask attorneys from Lex Mundi law firms in 102 countries to describe in detail how each country's legal system regulates this transaction. 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 self-dealing, we focus on DLS's measure of *ex-post private control of self-dealing*. This measure captures the extent of ex-post disclosure that the controlling shareholder in a firm must provide and the ease of proving wrongdoing once investors detect managerial self-dealing; a higher value indicates more hurdles.

Second, we use the creditor rights index constructed in Djankov, McLiesh and Shleifer (2005) (DMS) to proxy the rights that creditors possess. The DMS 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 secured creditors are able to seize their collateral after the

¹⁰We end our sample at 2003 since many of our country level explanatory variables do not extend beyond this year.

¹¹We 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.

petition for reorganization is approved, or whether an “automatic stay” or “asset freeze” is imposed by the court; third, whether secured creditors are paid first out of the proceeds of liquidating a bankrupt firm; and finally, whether an administrator rather than the management is responsible for running the business during the reorganization. Each country’s index value is simply a count 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 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 as in 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 the Djankov, Hart, McLiesh and Shleifer (2006) (hereafter DHMS) measure of deadweight bankruptcy costs.

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 about results being specific to the sample of firms that we would get in the firm level sample. The most comprehensive disaggregated data that we have is at the 4-digit SIC code level. We therefore construct our industry level variables at this level.

Firms in industries which produce significant free cash flows may waste such cash flows through inefficient investment. Free cash flows could also be plainly 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. Opler and Titman (1993) and Lang, Stulz, and Walking (1999) also use Free Cash Flow/ Assets to proxy agency costs of free cash flow.

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

5.3 Descriptive Statistics

The most salient finding from the summary statistics is that *Project Finance is much less likely (i) in the US than the rest of the world; and (ii) in English and Scandinavian legal origin countries than in French or German legal origins*. Panel A of Table 1 shows that 53% of the non-US loans in our sample are project financed, while the percentage for US loans is only 19%. Similarly, Panel B shows that the percentages for English and Scandinavian legal origin countries are 25.9% and 35.7%, respectively, and 63.9% and 42.9% for French and German legal origin countries. This finding that Project Finance is less likely in countries with the most developed legal systems and institutions is the heart of our analysis.

Panel C of Table 1 shows the distribution of the percentage of Project Finance deals vis-a-

vis Corporate Finance deals by year of origination. From this table, we can infer the absence of significant outliers in any specific year. Panel D of Table 1 shows the distribution of Corporate Finance and Project Finance deals and the measures of ex-post private control of self-dealing and creditor rights for each country in our sample. We note that English legal origin countries have the highest measures for ex-post private control of self-dealing and creditor rights, followed by Scandinavian and German legal origins. The French legal origin countries have the lowest measures for these two variables.

6 Empirical Results

In this section, we present the results of our regression analyses. First, we test the prediction in Hypothesis 1 that weaker protection against managerial self-dealing leads to more Project Finance vis-a-vis Corporate Finance. Second, to pin down the precise causal mechanism for this effect, we interact the country level measure of protection against self-dealing with the industry level measure of free cash flow to assets. We test for a difference-in-difference with a basic cross-sectional regression, and then we use the US measure of free cash flow to assets as an instrument for the cross-sectional measure. Third, to further nail down the agency cost channel that drives the choice of Project Finance, we test for the effect of the interaction between creditor rights and protection against managerial self-dealing on Project Finance. We estimate this interaction term using cross-sectional regressions and through a third-difference test that exploits exogenous changes in creditor rights. In these cross-sectional and time-series regressions, we also examine the overall effect of creditor rights as predicted by Hypothesis 4.

6.1 Effect of Protection against Self-dealing

To test Hypothesis 1, we estimate the following regression model:

$$y_{ict} = \beta_0 + \beta_1 \cdot \lambda_c + \beta X + \varepsilon_{ict} \quad (1)$$

where y is number of Project Finance deals divided by the number of Project Finance, Acquisition Lines, Equipment Purchase, Capital Expenditures and Takeover Finance deals in 4-digit SIC industry (i), country (c), and year (t). λ_c is the DLLS measure of ex-post private control of self-dealing as described in Section 5.2. From Hypothesis 1, we predict that $\beta_1 < 0$.

Table 2 shows the results of our tests. Across all the specifications in this table, we estimate standard errors that are clustered by the country of the borrower since our primary explanatory variable in (1) is at the country level.

In column (1), we estimate β_1 without adding any other control variables and find it to be strongly negative. Since protection against managerial self-dealing may be stronger in the developed countries than in the less developed ones, we estimate β_1 for only the sample of developed countries in column (2). Similarly, in column (3) we exclude those industry years where *any* Project Finance deal was employed for infrastructure projects. This is because the option to use Corporate Finance may not exist in the case of infrastructure projects. Column (4) includes creditor rights to examine if it subsumes the effect of our variable of interest. Here, we note that the coefficient of creditor rights is positive, an effect that we explore in detail later. In column (5), we control for the effect

of various deal level variables by including the number of lenders, the loan spread over LIBOR, log of the deal amount, the maturity of the loan, and whether the loan was rated. These variables are averaged for industry (i) in country (c) in year (t). We note that β_1 continues to remain strongly negative in Columns (2) through (5).

To provide a causal interpretation to the effect of ex-post private control of self-dealing, the identifying assumption we need is that *time-varying* unobserved determinants of the dependent variable at the country or industry level are uncorrelated with the measure of ex-post private control of self-dealing. However, in a sample of forty countries, it is possible that the ex-post private control of self-dealing picks up the non-linear effect of other time-varying variables at the country level. To deal with these issues, we use the following three approaches. First, in column (6), we include dummies for French, German and Scandinavian legal origins and other country level variables such as enforceability of contracts, rule of law, index of corruption, accounting standards, a dummy for information sharing, the ratio of private credit to GDP, and the efficiency of the bankruptcy procedure. Here, we note that French and German legal origin dummies are statistically insignificant while the Scandinavian legal origin dummy is negative. Among other country level variables, only enforceability of contracts and the dummy for information sharing are statistically significant and are therefore reported. Stronger enforceability of contracts and lower information asymmetry due to the presence of information sharing lead to more Corporate Finance, which is consistent with the effects documented in the existing literature. Second, in column (7), we control for time-varying industry level heterogeneity by including the ratio of free cash flow/ assets, Tobin's Q, and tangible assets/ total assets for industry (i) in country (c) in year (t). Here, we note that the coefficient of free cash flow/ assets is negative, an effect that we explore in detail below. We also find that Project Finance is employed more in industries where the investment opportunities are limited as reflected in the negative coefficient on Tobin's Q and in industries with substantial tangible assets. Through Columns (6) and (7), β_1 continues to remain strongly negative.

As our third strategy for addressing potential endogeneity, we use fixed effects estimation. Thus, we estimate the following specification

$$y_{ict} = \beta_i + \beta_c + \beta_t + \beta_1 \cdot \lambda_c + \varepsilon_{ict} \quad (2)$$

where β_i , β_c and β_t denote fixed effects for industry (i), country (c) and year (t). The industry and country fixed effects enable us to control for *time-invariant* unobserved determinants of Project Finance at the country and industry levels. The year fixed effects control for intertemporal differences in the choice of Project Finance. In column (8) where we estimate this fixed effects specification, we find that the estimate of β_1 stays strongly negative.

To estimate the economic magnitude of the effect of protection against managerial self-dealing, we use the most conservative estimate of β_1 which is -0.304 in column (5). Since the standard deviation of the measure of ex-post private control of self-dealing is 0.184, a one standard deviation decrease in this measure increases the likelihood of Project Finance in a country by 0.059 from the sample average of 0.25,¹² which amounts to a 25% increase over the sample average.

Despite these attempts at resolving issues of endogeneity, the usual concerns about endogeneity

¹²Note that the sample average of 0.25 is the average of percentage of project finance deals in a 4-digit SIC code industry in a country. The sample average of 32.0% project finance displayed in Panel B of Table 1 is the average at the deal level.

in cross-country studies remain. For example, industries could be systematically different across countries that vary in the measure of ex-post private control of self-dealing. This may show up as an effect of our variable of interest. To make further progress in identifying the causal link between protection against self-dealing and Project Finance, we now turn to testing Hypothesis 2 through a difference-in-difference test.

6.2 Evidence on the Causal link between Protection against Self-dealing and Project Finance

To intuitively describe how a difference-in-difference test can provide evidence on causality, consider the following analogy described in Rajan and Zingales (2003). To show that an approaching train *causes* birds sitting on the train track to fly away, evidence on the mechanism by which this happens – namely, vibrations on the train track alert the birds – might be convincing. Suppose there were available two kinds of rail tracks, one that did not vibrate at all and one that vibrated. Suppose also that there were two kinds of birds, ones that sensed vibrations and ones that did not. Now, if we found that the sensitive birds flew away much earlier than the insensitive birds when both were on the vibrating tracks as compared to when both were on the nonvibrating ones, then we would be quite convinced that vibrations from the approaching train caused the birds to fly away.

Similarly, we conjecture that agency costs of free cash flows provide the channel through which weaker laws protecting self-dealing lead to more Project Finance. Industries with high and low levels of free cash flow are equivalent to the sensitive and insensitive birds, respectively, while countries with strong and weak protection against managerial self-dealing are equivalent to nonvibrating and vibrating tracks, respectively, in the above analogy. Therefore, we want to show that high free cash flow industries undertake *disproportionately* more Project Finance than low free cash flow industries if the country has weak protection against managerial self-dealing than if the country has strong protection, which is exactly what Hypothesis 2 predicts.

6.2.1 Basic Test

To test Hypothesis 2, we perform difference-in-difference tests using the model described below:

$$y_{ict} = \beta_0 + \beta_1 \cdot \lambda_c + \beta_2 \cdot \gamma_{ict} + \beta_3 \cdot (\lambda_c * \gamma_{ict}) + \beta X + \varepsilon_{ict} \quad (3)$$

where y is number of Project Finance deals divided by the number of Project Finance, Acquisition Lines, Equipment Purchase, Capital Expenditures and Takeover Finance deals in 4-digit SIC industry (i), country (c), and year (t). As described in Section 5.2, λ_c is the DLLS measure of ex-post private control of self-dealing while 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. The principal coefficient of interest is β_3 since this captures the difference-in-difference that we are trying to measure. Hypothesis 2 suggests that $\beta_3 < 0$. We also want to check whether the coefficient β_1 continues to remain negative.

Table 3 shows the results of our tests. Across specifications (1) - (9), we estimate the standard errors by accounting for clustering of the residuals by the country of the borrower.

To examine the unconditional effect of free cash flow/ assets at the industry level on the choice of Project Finance, we test for the effect of free cash flow/ assets without its interaction with the

measure of ex-post private control of self-dealing. Column (1) shows the results of this specification. We find that β_1 is strongly negative but β_2 is not statistically significant. In column (2), we add the interaction of free cash flow/ assets with the measure of ex-post private control of self-dealing and find that both β_1 and the coefficient of the interaction term β_3 are negative and statistically significant. We also find in column (2) that β_2 now becomes positive and statistically significant. Thus, we infer from Columns (1) and (2) that Project Finance is chosen more in countries where the protection provided against managerial self-dealing is weaker. However, industries where the free cash flow/ assets variable is higher do not necessarily choose more Project Finance than Corporate Finance. Instead, industries where the free cash flow/ assets variable is higher choose Project Finance *disproportionately* more in countries where the ex-post private control of self-dealing is weaker. Since the unconditional effect of free cash flow/ assets is not stable but its interaction with ex-post private control of self-dealing is consistently negative and significant, this suggests that free cash flow/ assets matters mainly when the protection against self-dealing is weak, which is in line with the causal mechanism that Hypothesis 2 highlights.

The remaining columns in Table 3 are similar to tests in Table 2. In column (3), we test for the sample of developed countries. In column (4), we exclude industry year observations where *any* Project Finance deal was employed for Infrastructure projects. In column (5), we include the industry level averages for the various deal characteristics as in Table 2. Our results on our main variables of interest are not tainted in any of these specifications.

To examine if observed time-varying differences at the country level subsume our primary effects, Column (6) includes creditor rights, French, German and Scandinavian legal origins and other country level variables. First, we note that while β_3 continues to remain statistically significant, β_1 loses its statistical significance. Note that the coefficient of ex-post private control of self-dealing was statistically significant when these country level variables were included in column (6) of Table 2. Therefore, putting the result of this specification together with that in column (6) of Table 2 suggests that controlling for the various country level variables may subsume the direct effect of protection against managerial self-dealing when the interaction term capturing the causal mechanism is present. We argued above that the effect of free cash flow to assets seems to operate through the protection provided against managerial self-dealing. Similarly, this specification suggests that the effect of protection against managerial self-dealing operates through the industry level proxy for the agency costs of free cash flows. Second, we note in column (6) that French, German and Scandinavian legal origins have no effect on the choice of Project Finance. Third, the coefficients of other country level variables are of expected signs: Corporate Finance is used more in countries with more efficient bankruptcy enforcement, better enforcement of contracts, better information sharing, a more efficient judicial system, and greater financial development. Finally, as in Table 2, the coefficient of Creditor Rights is positive – an effect that we examine in greater detail later.

In column (7), we include Tobin’s Q and tangible assets/ total assets for industry (i) in country (c) in year (t). Consistent with our theory, we find that Project Finance is employed more in industries where the investment opportunities are limited as reflected in the negative coefficient on Tobin’s Q and in industries with substantial tangible assets.

Apart from the time-varying control variables at the country and industry level, we estimate the difference-in-difference by including fixed effects at the country, industry and year level. The

specification we test in column (8) is described below:

$$y_{ict} = \beta_i + \beta_c + \beta_t + \beta_1 \cdot \lambda_c + \beta_2 \cdot \gamma_{ict} + \beta_3 \cdot (\lambda_c * \gamma_{ict}) + \varepsilon_{ict} \quad (4)$$

These fixed effects control for inter-temporal changes in the choice of Project Finance and the effect of unobserved time-invariant determinants of this choice at the industry and country level. We note that the coefficients β_1 and β_3 stay negative in this specification.

6.2.2 Test using US industry measures as an Instrumental Variable

Despite the strong results for our difference-in-difference estimate using various specifications above, it is possible that systematic differences in industries across countries may explain this result. For example, a potential source of bias in our cross-country results above stems from the nature of firms for which information is likely to be found in Dealscan. Qian and Strahan (2006) acknowledge that *Dealscan* is likely to cover loans from large domestic and foreign banks to large borrowers. Since Project Finance entails significant transaction costs, large borrowers are more likely to undertake Project Finance. Though we normalize the free cash flow measure to account for firm size, it is still possible that compared to smaller firms, the measure of free cash flow/ assets that large firms report varies systematically with the level of investor protection. Since larger firms may undertake more project finance, this could bias the coefficient β_3 in (3) above. Another potential source of bias could be that in countries where accounting requirements are poor, firms in higher free cash flow industries indulge in greater accounting manipulation than firms in low free cash flow industries. Since investor protection is correlated with accounting standards, this could also bias our results if higher free cash flow industries undertake more Project Finance.

To test whether our results above are affected by such biases, omitted variables, or other potential sources of endogeneity, we follow Rajan and Zingales (1998) and employ the median industry measure of free cash flow/ assets for US firms as an instrument for our cross-country measure above. The US industry measure serves as a useful instrument for three reasons.

First, the profitability of an industry and the resultant level of free cash flow is partly a function of the technological aspects of the industry and the life-cycle stage of the industry. Therefore, we expect the industry level measures computed for the US firms to correlate with the industry level measures for other countries. In fact, we find that the correlation in the free cash flow/ assets measure among the countries in our sample is quite high both in the cross-section and the time-series. The correlation is 0.73 over all industries and all years. The minimum correlation across time for an industry is 0.59 while the maximum is 0.94; similarly, the minimum correlation across industries for a particular year is 0.65 while the maximum is 0.88.

Second, as Carey and Nini (2004) acknowledge, Dealscan’s coverage of US borrowers is comprehensive. Therefore, the US industry measure of free cash flow/ assets is unlikely to have any biases that may occur in the cross-country measure.

Third, as we can see in Panel A of Table 1, the usage of Project Finance is 19% in the US while this same percentage is 53% for the rest of the world, which indicates that the industry level measures for the US are not likely to be systematically correlated with the choice of Project Finance across the world.

Therefore, the US industry level measure satisfies the requirements of an instrumental variable

– correlation with the potentially endogenous explanatory variable and lack of correlation with the dependent variable. Furthermore, it is unlikely to suffer from sample selection biases.

Table 4 shows the results of these instrumental variable regressions. Across the various specifications, we find that the coefficients of ex-post private control of self-dealing and its interaction with free cash flow/ assets are negative.¹³ The economic significance of these results is similar to those in Table 3, which suggests that the potential biases due to endogeneity in Table 3 are insignificant. In other words, the results in Table 4 suggest the absence of any significant correlation between unobserved determinants of Project Finance and the interaction of ex-post private control of self-dealing with the industry level measure of free cash flow/ assets.

Taken together, the results in Tables 3 and 4 give us confidence in our *causal interpretation* of the effect of protection against managerial self-dealing on the choice of Project Finance versus Corporate Finance.

6.3 Effect of Creditor Rights

Next, to provide further evidence on the agency cost channel that drives the choice of Project Finance versus Corporate Finance, we examine the interaction of creditor rights with ex-post private control of self-dealing. To test for this difference-in-difference, we exploit the cross-sectional variation in the level of creditor rights as well as exogenous changes in the level of creditor rights in different countries in our sample. Apart from providing evidence on the agency cost channel, this interaction effect is valuable in itself since it indicates how creditor rights and minority shareholder rights interact in determining financing choices.

6.3.1 Cross Sectional Tests

To test Hypothesis 3, we perform tests using the model described below:

$$y_{ict} = \beta_0 + \beta_1 \cdot \theta_c + \beta_2 \cdot \lambda_c + \beta_3 \cdot (\lambda_c * \theta_c) + \beta X + \varepsilon_{ict} \quad (5)$$

where y is number of Project Finance deals divided by the number of Project Finance, Acquisition Lines, Equipment Purchase, Capital Expenditures and Takeover Finance deals in a given 4-digit SIC industry (i), country (c) and year (t). As described in Section 5.2, θ_c is the DMS creditor rights index. The principal coefficient of interest is β_3 , which captures the interaction of creditor rights with ex-post private control of self-dealing. Hypothesis 3 suggests that $\beta_3 > 0$. We are also interested in checking whether $\beta_1 < 0$ as predicted by Hypothesis 4.

Examining this interaction enables us to overcome the usual criticisms of endogeneity that cross-country studies face, namely, the possible correlation between unobserved determinants of Project Finance and levels of these variables. The assumption required to identify β_3 above is that the *interaction* of creditor rights with ex-post private control of self-dealing is uncorrelated with unobserved determinants of Project Finance, which is considerably weaker than assuming the lack of such correlation with the levels of these variables.

¹³Given the use of the US level measure for Free Cash Flow/ Assets, there is less variation in the interaction term at the level of each industry in each country when compared to the original cross country measure. Therefore, country fixed effects subsume all the variation in the measure of ex-post private control of self-dealing and the variation in the interaction term. Thus, in Column (9) of Table 5 we employ random effects at the level of each industry in each country and find that our variables of interest are of intended signs.

Table 5 shows the results using the aggregate level of creditor rights. Across specifications (1) - (9), we estimate the standard errors by accounting for clustering of the residuals by the country of the borrower.

Column (1) in Table 5 shows the specification without the interaction of creditor rights with the ex-post private control of self-dealing. In this specification, the coefficient of creditor rights is positive and statistically significant, which is consistent with the strong positive sign on creditor rights as a control variable in Tables 2-4. In column (2), we add the interaction of creditor rights with the ex-post private control of self-dealing and find that the coefficient of creditor rights becomes negative but it is not statistically significant. We also note in column (2) that the coefficient of ex-post private control of self-dealing stays negative while its interaction with creditor rights is positive and statistically significant. This suggests that the unconditional effect of an increase in creditor rights is to lead to more Project Finance. However, when the interaction of creditor rights with ex-post private control of self-dealing is included, the interaction term absorbs all the explanatory power of creditor rights. This is in line with our prediction in Hypothesis 3 that the effect of creditor rights operates through the agency cost channel, namely, stronger creditor rights mitigate the effect of managerial self-dealing on Project Finance.

Columns (3) and (4) test this basic specification for the sample of developed countries and by excluding Project Finance for infrastructure projects and find that our conclusion in column (2) is unaltered.

Column (5) controls for the effect of French, German and Scandinavian legal origins and other country level variables to see if these variables substitute for the effect captured by our interaction variable. We note that β_3 continues to be strongly positive while β_1 becomes strongly significant while remaining negative. This suggests that when we control for the various omitted variables at the country level and include our interaction term, the overall effect of stronger creditor rights is to lead to *less* Project Finance. Using our time-series results later, we confirm that this direct effect of creditor rights is negative which is consistent with the prediction in Hypothesis 4. We also note that the coefficient β_2 continues to remain negative and statistically significant in column (5). Finally, French and German legal origin dummies are not statistically significant while the Scandinavian legal origin dummy is negative and statistically significant.

Column (6) controls for the effect of various industry level variables such as free cash flow/ assets, Tobin's Q, and tangible assets/ total assets, along with measures of leverage such as interest expense/ net income and long term debt/ total assets. We find that β_3 remains strongly positive. We also note that the signs on Tobin's Q and tangible assets/ total assets, which are the only ones that remain statistically significant, are as expected. In column (7), we include the industry level averages for the various characteristics of the deal such as the number of lenders, the average loan spread over LIBOR, log of the deal amount, the maturity of the loan, and whether the loan was rated or not. However, β_3 remains positive and statistically significant. In column (8), we also control for unobserved heterogeneity at the year level and find that our basic results are unaltered. Since country fixed effects subsume all variation in the interaction term, in column (9), we instead employ random effects at the country level after aggregating our sample at the country level. We find that β_3 is positive and significant at the 10% level in this specification.

The economic effect of creditor rights is quite significant too. For example, let us consider the specification employed in column (2) which is the most parsimonious. With a creditor rights score

of zero, the coefficient of ex-post private control of self-dealing is -0.88. This coefficient becomes -0.67 with a one point increase in the creditor rights score. Thus, this one point increase reduces the marginal effect of ex-post private control of self-dealing by about 23%.

Having found evidence consistent with our prediction on the aggregate level of creditor rights, we now turn to the four individual components of the creditor rights index and examine which components drive our results. The four components are from LaPorta et al. (1998): (i) no automatic stay on secured assets, (ii) secured creditors first paid, (iii) restrictions on initiation of reorganization, and (iv) management does not stay in reorganization. Table 6 reports the results. Columns (2)-(8) parallel those same columns in Table 5. The only difference is that we substitute the “no automatic stay on secured assets” component of the creditor rights index for the index itself in the interaction with the ex-post private control of self-dealing variable. We employ only this component since we find in column (1) of Table 6 that none of the other components matter. We find that all the action in the aggregate creditor rights index comes from the “no automatic stay on secured assets” component since the results on this component mirror the results on the aggregate index.

6.3.2 Time Series Tests exploiting Exogenous Changes in Creditor Rights

In Section 6.3.1, we used cross-country regressions to examine the effect of the interaction between creditor rights and ex-post private control of self-dealing. Despite the weaker identifying assumptions required when testing for this interaction term, readers may still be concerned about residual endogeneity at the country level. For example, it is possible that creditor rights, ex-post private control of self-dealing, and the strength of legal institutions are correlated. Despite our controlling for the strength of legal institutions through various country level variables, the interaction term may be picking up some non-linear time-varying effects of overall strength of legal institutions on the choice of Project Finance. Since the coefficient of aggregate creditor rights or the coefficient of “no automatic stay on secured assets” is statistically significant only when all the country level variables are included (in Column 5 of Tables 5 and 6), this suggests that country level omitted variables may be a concern.

To rule out this possible endogeneity, we now exploit exogenous changes in creditor rights in various countries to perform a third-difference test. The model we test is described below:

$$y_{ict} = \beta_0 + \beta_1\delta_{ct} + \beta_2\delta_c + \beta_3\delta_t + [\beta_4 + \beta_5\delta_{ct} + \beta_6\delta_c + \beta_7\delta_t] * \lambda_c + \beta X + \varepsilon_{ict} \quad (6)$$

where y is the number of Project Finance deals divided by the number of Project Finance, Acquisition Lines, Equipment Purchase, Capital Expenditures and Takeover Finance deals in a given 4-digit SIC industry i , country c and year t . δ_{ct} is an indicator variable which equals one 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 zero otherwise.¹⁴ δ_c and δ_t are country and year dummies respectively, while $\delta_c * \lambda_c$ and $\delta_t * \lambda_c$ represent country and year dummies interacted with ex-post private control of self-dealing. The above model is an adaptation of Bertrand and Mulainathan (2003b) to estimate

¹⁴Our sample of creditor rights changes over the period 1993-2003 includes only decreases in creditors rights.

the difference-in-difference for our interaction variable. To see this, note that (6) is equivalent to

$$\frac{\partial y_{ict}}{\partial \lambda_c} = \beta_4 + \beta_5 \delta_{ct} + \beta_6 \delta_c + \beta_7 \delta_t \quad (7)$$

$$\Leftrightarrow \beta_5 = \left[\frac{\partial y_{ict}}{\partial \lambda_c} \Big|_{after} - \frac{\partial y_{ict}}{\partial \lambda_c} \Big|_{before} \right]_{treated} - \left[\frac{\partial y_{ict}}{\partial \lambda_c} \Big|_{after} - \frac{\partial y_{ict}}{\partial \lambda_c} \Big|_{before} \right]_{control} \quad (8)$$

Therefore, the coefficient β_5 captures the third-difference that we are looking to measure.

Bertrand and Mulainathan (2003b) include firm dummies since their unit of observation is a firm. To parallel the same, we include industry dummies at the 4-digit SIC level since this is our unit of observation.

Note that the identifying assumption in these time-series tests is considerably weaker, namely, that the unobserved determinants of Project Finance are uncorrelated with the *interaction* of the *change* in creditor rights and ex-post private control of self-dealing. Such correlation is even less likely than correlation with the interaction of creditor rights and ex-post private control of self-dealing, which is in turn less likely than correlation in the levels of these variables themselves. Furthermore, the time-series test has the additional attractive feature that it provides point estimates on the effect of creditor rights on Project Finance that are derived from experiments of greatest relevance from a policy standpoint.

Table 7 shows the countries that underwent a change in creditor rights during our sample period and the number of Corporate Finance and Project Finance deals before and after the change. Interestingly, all the countries that underwent a creditor rights change decreased the level of creditor rights. Since, we code δ_{ct} to be one before the decrease and zero after the decrease for the treatment countries, we hypothesize that $\beta_1 < 0$ and $\beta_5 > 0$.

Table 8 presents the results of the time series test described above. Across all our specifications, we find that the coefficient of the interaction of the creditor rights change with ex-post private control of self-dealing is strongly positive, which is consistent with the prediction in Hypothesis 3 that the decrease in creditor rights increased the marginal effect of ex-post private control of self-dealing on Project Finance. Also, the coefficient of creditor rights change (β_2 above) is negative and statistically significant, consistent with the prediction in Hypothesis 4.

In sum, our results using creditor rights provide further evidence of the agency cost channel that drives the choice of Project Finance versus Corporate Finance. The results indicate that laws protecting minority equityholders from managerial self-dealing and rights provided to creditors in bankruptcy are marginal substitutes in mitigating agency conflicts.

6.4 Legal origins matter through investor protection

From the cross-section tests that we discussed in Section 6.3.1, we point out an interesting aspect of the effect of legal origin. In Tables 2-6, we find that the coefficients on dummies for French and German legal origins are always statistically indistinguishable from zero. This result is in sharp contrast to our univariate results in Panel B of Table 1, where we find that French and German legal origin countries employ Project Finance substantially more (63.9% and 42.9% respectively) than English legal origin countries (25.9%). The law and finance literature referenced earlier has highlighted that investor protection is generally weaker in French and German legal origin countries

than in English and Scandinavian legal origin countries. Once we explicitly include the effect of legal protection for minority equity investors and creditors, the large effect of legal origins observed at the univariate level disappears. This suggests that legal origin affects financing choices across countries through this legal protection for minority investors and creditors. While the existing law and finance literature highlights the role of legal institutions in shaping financing choices, the precise channel through which this effect operates has not been empirically documented (see Qian and Strahan, 2006, for a notable exception). Our result identifying the investor protection channel through which legal origins may impact financing choices is therefore important.

7 Robustness

We now conduct robustness tests on the main results. First, we examine if our results are generalizable to the firm level. Second, we examine alternative specifications of our dependent variable. Third, we investigate whether including a country’s level of financial development alters our results. Finally, since leverage may mitigate those agency costs that necessitate Project Finance, we examine whether our results are robust to these leverage effects.

7.1 Firm Level Analysis

First, we test if our results generalize to the firm level. Matching *Dealscan* borrower information with the *WorldScope* database dramatically reduces the sample to only around 800 observations because of the unavailability of data. This reduced sample presents issues of sample selection bias since it is quite likely that large firms are more prevalent in the Worldscope data. If large firms are likely to undertake more Project Finance given its large transaction costs, employing the firm level sample could bias both β_1 and β_3 in 3. The effect of ex-post private control of self dealing (β_1) would be overstated if large firms undertake relatively more project finance in countries where investor protection is weaker. The bias in the interaction term (β_2) could result if the difference in the measure of free cash flow/ assets that large firms report, relative to small firms, systematically varies with the country level measure of protection against managerial self-dealing. The economic effect of the interaction would be understated (overstated) if large firms have relatively higher measures of free cash flow/ assets in countries with strong (weak) investor protection. Nevertheless, we present the firm level results as a complement to our industry level analysis.

For the firm level analysis, we add controls that are not available at the industry level. First, we control for the relative scale of the project, since projects that are large relative to firm size may be Project Financed to avoid potential bankruptcy costs for the sponsor. We define this variable as the total amount borrowed divided by the market value of the sponsoring firm’s equity. Second, we include the logarithm of the market value of the firm to proxy for firm size since larger firms may find it easier to bear the large transaction costs associated with Project Finance. Finally, we also control for project risk by including the S&P debt rating for the borrower, whenever available, and a dummy to capture those deals that are not rated.

Table 9 presents the firm level results. The dependent variable in these logit regressions is a binary variable that equals 1 for Project Finance and 0 if the loan is for an Acquisition Line, an Equipment Purchase, Capital Expenditures, or Takeover Finance. As in the industry level analysis,

we estimate robust standard errors by clustering the residuals at the country level. Columns (1) through (3) show the effects of agency costs of free cash flows on firms' choice between Project Finance and Corporate Finance. In column (1), we employ our basic specification which includes our set of control variables. In Columns (2) and (3), we add fixed effects at the country level and the industry level, respectively, along with year fixed effects.¹⁵ We find that the coefficient on ex-post private control of self-dealing and its interaction with free cash flow/ assets to be negative. In column (4), we test for the interaction of creditor rights with ex-post private control of self-dealing and find the coefficient to be strongly positive as in the industry analysis.¹⁶ In sum, the firm level analysis complements the results obtained from our comprehensive industry level sample.

Furthermore, by comparing these results to our earlier results using the industry level sample, we can infer that large firms undertake significantly more Project Finance in countries where protection against self-dealing is weaker, which explains the significantly larger magnitude of the coefficient of ex-post private control of self-dealing in Table 9. Furthermore, the lower magnitude of the interaction term indicates that large firms are likely to report relatively higher measures of free cash flow/ assets in countries with stronger investor protection.

7.2 Alternative Specifications of the Dependent Variable

While we intentionally include only those Corporate Finance deals where Project Finance is a viable option, we now test the robustness of our results by varying the dependent variable. We return to OLS regressions with the robust standard errors clustered at the country level.

In Table 10, we check whether our basic results are robust to the definition of the dependent variable. Panel A reproduces the results using our main dependent variable for the purpose of comparison. Panel B includes only Acquisition Lines and Takeover Finance in the Corporate Finance category while Panel C only Equipment Purchases and Capital Expenditures as Corporate Finance. All the variables of interest emerge with the expected signs with most of them being statistically significant.

7.3 Role of Financial Development

Should we be concerned that weak protection against managerial self-dealing may be capturing the effect of other relevant cross-country differences? For example, is protection against managerial self-dealing weaker in countries that are financially under-developed? If this is so, our proxy for the level of protection against managerial self-dealing would lose its explanatory power once we include measures of financial development and their interaction with the industry level measure of free cash flow/ assets.

To address this issue, we employ three measures of financial development: Accounting Standards, Total (Stock Market) Capitalization to GDP, and Domestic Private Credit to GDP (from LLSV, 1998 and Rajan and Zingales, 1998). We check for univariate correlation between our mea-

¹⁵In Column (3), when we add country fixed effects, the effect of ex-post private control of self-dealing gets subsumed in the country fixed effects.

¹⁶In this test, we are unable to add the scale of deal and the logarithm of market value of equity as controls due to the problem of multi-collinearity. Furthermore, given the smaller number of countries in this firm-level sample, and our test for an interaction effect, we are unable to add country level dummies when testing for the effect of creditor rights.

sure of ex-post private control of self-dealing and these measures of financial development. The correlation ranges from 0.47 to 0.79, confirming that protection against managerial self-dealing and financial development are highly positively correlated. These correlations illustrate that between 25% to 65% of the total variability of protection against managerial self-dealing can be explained by financial development. However, there is still sufficient *exogenous* variation in protection against managerial self-dealing on its own. This is not surprising given, for example, the substantial variation in investor protection among the developed countries of North America and Europe based on legal origin, as highlighted by the law and finance literature.

In Panel A of Table 11, we include our measures of financial development and their interaction with free cash flow/ assets in the cross-country tests of Table 3. We find that the coefficient of the interaction of free cash flow/ assets with ex-post private control of self-dealing continues to be strongly negative. We find that when we condition on financial development and its interaction with free cash flow/ assets, ex-post private control of self-dealing loses its explanatory power. This is expected given the high positive correlation between Financial Development and ex-post private control of self-dealing. However, even after including financial development or its interaction with free cash flow/ assets, the interaction of ex-post private control of self-dealing with free cash flow/ assets remains significant. This is important because this latter interaction captures our causal mechanism.

In Panel B of Table 11, we include our measures of financial development in our cross-country tests of the effects of creditor rights from Table 5. We find that the coefficient of the interaction of creditor rights with ex-post private control of self-dealing continues to be strongly positive, while the coefficient of ex-post private control of self-dealing continues to be strongly negative.

We conclude that our main results on the effect of ex-post private control of self-dealing and creditor rights are unaffected by including proxies for financial development or their interactions with free cash flow/ assets.

7.4 Role of Agency Costs of Debt

Here, we investigate whether our main results are robust to the effects of leverage. Jensen (1986) shows that high leverage can help reduce the agency costs of free cash flows. Therefore, in industries where free cash flows are high, firms may decide to lever up to mitigate agency costs, especially in countries with weak protection against managerial self-dealing. Instead of choosing Project Finance, firms could undertake Corporate Finance but increase their leverage to mitigate the agency costs of free cash flow. However, we argue that Project Finance, by enhancing verifiability of cash flows, serves to limit these agency costs of free cash flow over and above what leverage can accomplish in Corporate Finance.

Berkovitch and Kim (1990) show that if information between debtholders and equityholders is symmetric, Project Finance optimally alleviates the problem of under-investment while it simultaneously minimizes the problem of over-investment.

To show that our primary variables of interest are robust to these effects of leverage, we proxy for leverage using the interest coverage ratio and the ratio of long-term debt to total assets. We interact these proxies with measures for ex-post private control of self-dealing, creditor rights, and efficiency of bankruptcy process separately.

Table 12 shows the results of these tests. Panel A examines the effect of including these leverage

measures on the interaction of free cash flow/ assets with ex-post private control of self-dealing. Panel B examines the effect on the interaction of creditor rights with ex-post private control of self-dealing. We find that the primary variables of interest remain strong in both panels.

8 Conclusion

When corporations make large investments, what benefits do they derive from Project Finance vis-à-vis Corporate Finance? In this paper, we show that Project Finance contractually mitigates the agency costs stemming from managerial self-dealing. We argue that cash flows become *verifiable* in Project Finance because of the contractual arrangements made possible due to a single, discrete project that is legally separate from the sponsor.

We compare Project Finance loans with Corporate Finance loans across forty countries. We show, first, that in countries where laws protecting against managerial self-dealing are weaker, Project Finance is more likely. We highlight the causal channel for this effect by showing that in such countries, Project Finance is *disproportionately* more likely in industries where free cash flows are higher. We use a 4-digit SIC level measure of free cash flow to assets across countries, as well as the US 4-digit SIC measure as an *instrument* for the cross-country measure. Second, since creditors' threat to seize collateral deters borrower opportunism, we predict that stronger creditor rights mitigate the marginal effect of weaker protection against managerial self-dealing. We provide evidence for this prediction using exogenous country-level changes in creditor rights and using cross-country tests.

Apart from highlighting the corporate governance benefits of Project Finance vis-à-vis Corporate Finance, our study augments the law and finance literature by highlighting a micro channel through which legal origins can affect financing choices.

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Table 1 – Panel A
Project Finance Deals vs. Corporate Finance Deals in the US and Rest of the World

	Corporate Finance	Project Finance	% Project Finance
Rest of World	1,095	1,233	53.0%
USA	3,035	712	19.0%

Table 1 – Panel B
Project Finance Deals vs. Corporate Finance Deals by Legal Origin

Legal Origin	Corporate Finance	Project Finance	% Project Finance
English	3,567	1,249	25.9%
French	275	487	63.9%
German	252	189	42.9%
Scandinavian	36	20	35.7%
All legal origins	4,130	1,945	32.0%

Table 1 – Panel C
Project Finance vs. All Categories of Corporate Finance by Year of Origination

Year	Acquisition line	Capital expenditures	Equipment Purchase	Takeover Finance	Project Finance	Total	% Project Finance
1993	167	4	3	3	67	241	28%
1994	232	7	5	10	114	358	32%
1995	207	20	11	15	120	358	34%
1996	250	26	14	19	168	458	37%
1997	345	46	26	24	247	664	37%
1998	389	17	37	20	252	695	36%
1999	362	22	72	15	238	694	34%
2000	343	32	65	14	231	671	34%
2001	292	62	48	11	178	580	31%
2002	283	86	72	9	153	594	26%
2003	294	87	55	9	177	613	29%

Table 1 – Panel D
Summary Statistics for Country Level variables

Country	# of Acqn. line	# of Capex	# of Eqpmt. Purch.	# of Takeover Finance	# of Project Finance	Total Deals	% Project Finance	Ex-post private control of Self Dealing	Creditor Rights
ENGLISH LEGAL ORIGIN									
Australia	55	13	7	0	105	180	58%	0.69	3
Canada	93	4	0	3	40	140	29%	0.97	1
Hong Kong	13	37	13	1	89	153	58%	0.93	4
Ireland	2	2	0	0	8	12	67%	0.80	1
Israel	1	0	0	0	3	4	75%	0.93	4(3)*
Malaysia	16	27	9	0	68	120	57%	0.90	3
New Zealand	6	0	0	0	11	17	65%	0.90	4
Singapore	13	17	5	0	42	77	55%	1.00	3
South Africa	3	0	0	0	6	9	67%	0.63	3
Thailand	2	13	7	0	37	59	63%	0.70	3(2)*
USA	2550	97	259	129	712	3747	19%	0.97	1
United Kingdom	146	7	7	10	127	297	43%	0.85	4
Group	2900	217	307	143	1,249	4816	26%	0.86	2.7
FRENCH LEGAL ORIGIN									
Argentina	6	0	0	1	24	31	77%	0.39	1
Belgium	5	0	2	0	5	12	42%	0.69	2
Brazil	5	0	4	0	23	32	72%	0.36	1
Chile	4	1	1	2	26	34	76%	0.75	2
Colombia	5	0	0	0	12	17	71%	0.32	0
Ecuador	1	0	0	0	3	4	75%	0.17	0
Egypt	2	0	0	0	7	9	78%	0.40	2
France	47	1	5	1	17	71	24%	0.68	0
Greece	6	0	6	0	12	24	50%	0.37	1
Indonesia	1	20	7	0	92	120	77%	0.56	3(2)*
Italy	15	2	2	1	25	45	56%	0.69	2
Mexico	14	1	1	0	42	58	72%	0.16	0
Netherlands	26	3	2	1	20	52	38%	0.36	3
Peru	2	0	0	0	4	6	67%	0.57	0
Philippines	2	27	7	0	51	87	59%	0.42	1
Portugal	4	0	0	0	7	11	64%	0.75	1
Spain	23	0	1	0	60	84	71%	0.52	2
Turkey	4	0	2	0	35	41	85%	0.52	2
Venezuela	1	1	0	0	20	22	91%	0.09	3
Group	173	56	40	6	487	762	64%	0.46	1.4
GERMAN LEGAL ORIGIN									
Germany	21	3	0	0	17	41	41%	0.42	3
Japan	12	57	9	0	16	94	17%	0.74	3(1)*
Korea (South)	9	32	16	0	60	117	51%	0.67	3
Switzerland	11	0	1	0	6	18	33%	0.45	1
Taiwan	6	44	31	0	88	169	52%	0.70	2
Group	59	136	57	0	189	441	43%	0.60	2.1
SCANDINAVIAN LEGAL ORIGIN									
Denmark	3	0	0	0	2	5	40%	0.68	3
Finland	5	0	1	0	8	14	57%	0.78	1
Norway	15	0	2	0	5	22	23%	0.45	2
Sweden	9	0	1	0	5	15	33%	0.51	2(1)*
Group	32	0	4	0	20	56	36%	0.61	1.8

* Countries that underwent a creditor rights change. The number in parentheses is the creditor rights value after the change.

Table 2: Effect of Protection against Self-dealing on Project Finance vs. Corporate Finance

The dependent variable in these OLS regressions is the percentage of project financed deals in a particular country, year, 4-digit SIC industry. Corporate Finance categories include Acquisition Lines, Equipment Purchase, Capital Expenditures and Takeovers. Other country level variables include Efficiency of the bankruptcy process, Logarithm of private credit to GDP per capita, Enforceability of Contracts, Rule of Law, Corruption, Index of Legal Formalism, Accounting Standards, Dummy for Information Sharing operating in the country in 1999, Index of public enforcement, and Efficiency of judiciary. The Deal characteristics include 4-digit SIC industry averages for the number of lenders, the average loan spread over LIBOR, log of the deal amount, the maturity of the loan and whether the loan was rated or not. The sample of bank loans is drawn from the Loan Pricing Corporation's Dealscan database for the period 1993 - 2003. The 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)	(7)	(8)
Ex-post private control of self-dealing	-0.715*** (4.84)	-0.634*** (3.27)	-0.707*** (4.93)	-0.582*** (5.42)	-0.591*** (5.04)	-0.445** (2.54)	-0.497*** (3.73)	-0.780*** (10.76)
Creditor rights				0.096*** (3.46)				
French legal origin dummy						-0.170 (1.37)		
German legal origin dummy						-0.063 (0.73)		
Scandinavian legal origin dummy						-0.312** (2.30)		
Enforceability of contracts						-0.051*** (4.10)		
One if information sharing operates in 1999						-0.234*** (2.81)		
Free Cash Flow / Assets							-0.367*** (3.21)	
Tangibility							0.385*** (9.04)	
Tobin's Q							-0.007*** (3.40)	
Sample	All countries	Developed countries	No infrastructure project finance	All countries	All countries	All countries	All countries	All countries
Deal Characteristics	No	No	No	No	Yes	No	No	No
Other Country Variables	No	No	No	No	No	Yes	No	No
Year Dummies	No	No	No	No	No	No	No	Yes
Industry Dummies	No	No	No	No	No	No	No	Yes
Country Dummies	No	No	No	No	No	No	No	Yes
Observations	1609	1454	1574	1609	1039	1609	1504	1481
Adjusted R-squared	0.11	0.06	0.11	0.17	0.16	0.21	0.13	0.32

Table 3: Effect of Interaction of Free Cash Flow with Protection against Self-dealing on Project Finance vs. Corporate Finance

The dependent variable in these OLS regressions is the percentage of project financed deals in a particular country, year, 4-digit SIC industry. Corporate Finance categories include Acquisition Lines, Equipment Purchase, Capital Expenditures and Takeovers. The Other country level variables include Rule of Law, Corruption, Index of Legal Formalism, Accounting Standards, and Index of public enforcement. The Deal characteristics include industry level averages for the number of lenders, the average loan spread over LIBOR, log of the deal amount, the maturity of the loan and whether the loan was rated or not. The sample of bank loans is drawn from the Loan Pricing Corporation's Dealscan database for the period 1993 - 2003. The 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)	(7)	(8)
Ex-post private control of self-dealing	-0.691*** (4.50)	-0.635*** (3.80)	-0.548** (2.67)	-0.631*** (3.93)	-0.425*** (3.21)	-0.015 (0.10)	-0.466*** (3.21)	-0.674*** (7.60)
Industry median Free Cash Flow/ Assets	-0.066 (0.82)	0.802* (1.69)	1.397*** (3.44)	0.710 (1.58)	1.524*** (3.04)	0.812* (1.85)	0.526 (1.04)	1.344** (2.09)
Ex-post private control of self-dealing *		-1.018* (1.89)	-1.665*** (3.30)	-0.885* (1.75)	-1.923*** (3.20)	-0.940** (2.02)	-1.033* (1.74)	-1.602** (2.19)
Creditor rights						0.096*** (6.05)		
French Legal Origin Dummy						-0.020 (0.22)		
German Legal Origin Dummy						0.049 (0.69)		
Scandinavian Legal Origin Dummy						-0.169 (1.66)		
Efficiency of bankruptcy procedure						-0.207** (2.24)		
Enforceability of contracts						-0.036*** (5.53)		
One if information sharing operates in 1999						-0.295*** (10.40)		
Efficiency of Judicial System						-0.022* (1.70)		
Log of Private Credit to GDP						-0.202*** (3.38)		
Industry median TobinsQ							-0.008*** (6.34)	
Industry median Asset Tangibility							0.360*** (9.24)	
Sample	All countries	All countries	Developed countries	Excludes infrastructure projects	All countries	All countries	All countries	All countries
Deal Characteristics	No	No	No	No	Yes	No	No	No
Other Country Level variables	No	No	No	No	No	Yes	No	No
Year Fixed Effects	No	No	No	No	No	No	No	Yes
Industry Fixed Effects	No	No	No	No	No	No	No	Yes
Country Fixed Effects	No	No	No	No	No	No	No	Yes
Observations	1583	1583	1443	1548	1024	1583	1504	1470
Adjusted R-squared	0.10	0.10	0.06	0.10	0.15	0.21	0.13	0.31

Table 4: Effect of Interaction of Free Cash Flow with Protection against Self-dealing on Project Finance vs. Corporate Finance using US industry measure as an Instrument

The dependent variable in these OLS regressions is the percentage of project financed deals in a particular country, year, 4-digit SIC industry. The median Free Cash Flow/ Assets of US firms in a particular 4-digit SIC in a particular year is employed as an *instrument* for our cross-country measure. Corporate Finance categories include Acquisition Lines, Equipment Purchase, Capital Expenditures and Takeovers. The Other country level variables include Enforceability of Contracts, Rule of Law, Corruption, Index of Legal Formalism, Accounting Standards, Dummy for Information Sharing operating in the country in 1999, and Logarithm of ratio of private credit to GDP. The Deal characteristics include industry level averages for the number of lenders, the average loan spread over LIBOR, log of the deal amount, the maturity of the loan and whether the loan was rated or not. The sample of bank loans is drawn from the Loan Pricing Corporation's Dealscan database for the period 1993 - 2003. The 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)	(7)	(8)
Ex-post private control of self-dealing	-0.514*** (4.36)	-0.427* (2.02)	-0.495*** (4.48)	-0.495*** (4.26)	-0.092 (0.24)	-0.432*** (4.11)	-0.234 (1.50)	-0.363*** (2.62)
US Industry median Free Cash Flow/ Assets	2.026* (2.00)	1.456 (1.73)	2.120* (2.01)	1.931* (1.79)	1.233** (2.59)	2.007** (2.15)	3.083** (2.44)	2.496** (2.35)
Ex-post private control of self-dealing * US Industry median Free Cash Flow/ Assets	-2.244** (2.07)	-1.641* (1.80)	-2.288* (2.04)	-2.149* (1.87)	-1.395** (2.79)	-2.340** (2.35)	-3.151** (2.28)	-2.736** (2.32)
Creditor rights				0.028** (2.44)				
French Legal Origin Dummy					-0.269 (1.05)			
German Legal Origin Dummy					-0.037 (0.19)			
Scandinavian Legal Origin Dummy					-0.015 (0.12)			
Efficiency of Judicial System					-0.128* (2.09)			
US Industry median TobinsQ						0.003 (1.40)		
US Industry median Asset Tangibility						0.391*** (11.36)		
Sample	All countries	Developed countries	No infrastructure Project Finance	All countries	All countries	All countries	All countries	All countries
Other Country Level variables	No	No	No	No	Yes	No	No	No
Year Fixed Effects	No	No	No	No	No	No	Yes	No
Industry Fixed Effects	No	No	No	No	No	No	Yes	No
Random Effects (Country * SIC)	No	No	No	No	No	No	No	Yes
Observations	1024	982	1007	1024	1024	1010	980	588
Adjusted R-squared	0.17	0.11	0.17	0.17	0.20	0.24	0.29	0.20

Table 5: Effect of Interaction of Protection against Self-Dealing with Creditor Rights on Project Finance vs. Corporate Finance

The dependent variable in these OLS regressions is the percentage of deals corresponding to project finance in a particular country, year, 4-digit SIC industry. Corporate Finance categories include Acquisition Lines, Equipment Purchase, Capital Expenditures and Takeovers. The Other country level variables include Rule of Law, Corruption, Index of Legal Formalism, Index of public enforcement, and Accounting Standards. The Deal characteristics include industry level averages for the number of lenders, the average loan spread over LIBOR, log of the deal amount, the maturity of the loan and whether the loan was rated or not. The sample of bank loans is drawn from the Loan Pricing Corporation's Dealscan database for the period 1993 - 2003. The 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) ^a	(7)	(8)	(9)
Creditor rights	0.096*** (3.46)	-0.071 (0.98)	-0.146 (1.27)	-0.051 (0.73)	-0.065* (1.90)	-0.038 (0.55)	-0.066 (1.36)	-0.079** (2.13)	-0.034 (0.47)
Ex-post private control of self-dealing	-0.582*** (5.42)	-0.881*** (6.96)	-0.885*** (3.24)	-0.833*** (4.82)	-0.394*** (3.31)	-0.572*** (3.89)	-0.720*** (7.35)	-0.427*** (3.32)	-0.664*** (3.33)
Ex-post Private control of Self-dealing * Creditor Rights		0.206** (2.03)	0.286** (2.02)	0.175** (2.01)	0.216*** (4.06)	0.154* (1.91)	0.120** (1.96)	0.238*** (4.29)	0.151* (1.69)
French legal origin dummy					-0.089 (1.18)			-0.064 (0.84)	
German legal origin dummy					0.032 (0.62)			0.062 (1.29)	
Scandinavian legal origin dummy					-0.210* (1.91)			-0.211* (1.79)	
Efficiency of bankruptcy procedure					-0.259*** (2.98)			-0.264*** (2.83)	
Enforceability of contracts					-0.033*** (3.35)			-0.032*** (3.13)	
One if information sharing operates in 1999					-0.133*** (2.93)			-0.125*** (3.22)	
Efficiency of Judicial System					-0.036*** (2.88)			-0.031*** (2.90)	
Log of Private Credit to GDP per capita					-0.143*** (3.24)				
Tangibility						0.312*** (6.92)			
Tobin's Q						-0.007*** (2.64)			
Sample	All countries	All countries	Developed countries	No infrastructure Project Finance	All countries	All countries	All countries	All countries	All countries
Deal characteristics	No	No	No	No	No	No	Yes	No	No
Other country level variables	No	No	No	No	Yes	No	No	Yes	No
Year Dummies	No	No	No	No	No	No	No	Yes	Yes
Random Effects (Country)	No	No	No	No	No	No	No	No	Yes
Observations	1609	1609	1454	1574	1609	1504	1039	1609	232
Adjusted R-squared	0.17	0.17	0.13	0.17	0.23	0.18	0.17	0.25	0.20

^a Also includes Free Cash Flow / Assets, Interest Expense / Net Income and Long Term Debt / Assets which are statistically insignificant

Table 6: Effect of Interaction of Protection against Self-Dealing with Creditor Rights Components on Project Finance vs. Corporate Finance

The dependent variable in these OLS regressions is the percentage of deals corresponding to project finance in a particular country, year, 4-digit SIC industry. Corporate Finance categories include Acquisition Lines, Equipment Purchase, Capital Expenditures and Takeovers. The Other country level variables include Rule of Law, Corruption, Index of Legal Formalism, Index of public enforcement, Accounting Standards, Dummy for information sharing operating in 1999, and Efficiency of judiciary. The sample of bank loans is drawn from the Loan Pricing Corporation's Dealscan database for the period 1993 - 2003. The 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) ^a	(7)	(8)
Secured creditors first paid	-0.029 (0.36)							
Restrictions for going into reorganization	0.075 (0.93)							
Mgmt. does not stay in reorganization	0.024 (0.34)							
No automatic stay on secured assets	0.192*** (2.98)	-0.180 (1.03)	-0.180 (1.03)	-0.096 (0.40)	-0.391*** (3.13)	-0.138 (0.84)	-0.186 (1.21)	-0.234 (1.06)
Ex-post private control of self-dealing	-0.526*** (3.97)	-0.661*** (6.52)	-0.661*** (6.52)	-0.458** (2.28)	-0.182 (1.00)	-0.419*** (4.59)	-0.641*** (9.83)	-0.411** (2.46)
Ex-post private control of self-dealing * No automatic stay on secured assets		0.545** (2.29)	0.545** (2.29)	0.446 (1.49)	0.536** (2.20)	0.465** (2.34)	0.339* (1.74)	0.602* (1.96)
French legal origin dummy					-0.131 (1.59)			-0.116 (1.12)
German legal origin dummy					-0.049 (0.99)			-0.024 (0.42)
Scandinavian legal origin dummy					-0.280*** (3.02)			-0.288** (2.13)
Efficiency of bankruptcy procedure					-0.200** (2.11)			-0.195* (1.79)
Enforceability of contracts					-0.037*** (3.73)			-0.036*** (3.47)
Log of Private Credit to GDP per capita					-0.154*** (3.46)			
Tangibility						0.319*** (7.03)		
Tobin's Q						-0.005** (2.21)		
Sample	All countries	All countries	Developed countries	No infrastructure Project Finance	All countries	All countries	All countries	All countries
Deal Characteristics	No	No	No	No	No	No	Yes	No
Other country level variables	No	No	No	No	Yes	No	No	Yes
Year Dummies	No	No	No	No	No	No	No	Yes
Observations	1609	1609	1609	1454	1609	1504	1609	1609
Adjusted R-squared	0.18	0.18	0.18	0.13	0.22	0.19	0.20	0.24

^a Also includes Free Cash Flow / Assets, Interest Expense / Net Income and Long Term Debt / Assets which are statistically insignificant

Table 7: Summary Statistics on Project Finance and Corporate Finance for “Treatment” Countries that underwent a decrease in Creditor Rights

Country Name	Year of change	Number of Corporate Finance Deals		Number of Project Finance Deals		Percentage of Project Finance Deals	
		Before	After	Before	After	Before	After
Indonesia	1998	21	85	7	7	25%	8%
Israel	1995	0	0	1	3	100%	100%
Japan	1999	2	3	76	13	97%	81%
Sweden	1995	2	0	8	5	80%	100%
Thailand	1998	12	28	10	9	45%	24%

Table 8: Effect of Interaction of Protection against Self-Dealing with Changes in Creditor Rights on Project Finance vs. Corporate Finance

The OLS regressions employ the difference in difference specifications where the Treatment group is industries in a country where a Creditor’s rights reform was initiated while the control group includes industries where such reform was not initiated. The dependent variable in all specifications is the percentage of deals corresponding to project finance in a particular country, year, industry group. The Creditor Rights Change Dummy 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. The regressions also include time dummies which equal 1 for years $t \leq m$ if the creditor rights reform was initiated in year m , and dummies for the treated country. The sample of bank loans is drawn from the Loan Pricing Corporation’s Dealscan database for the period 1993 - 2003. The robust standard errors are clustered by country. ***, **, * represent coefficients that are statistically significant at the 1%, 5% and 10% levels respectively.

	(1)	(2) ^a	(3) ^b	(4)	(5) ^c
Creditor Rights Change	-2.220*** (2.90)	-2.220*** (2.90)	-2.220*** (2.90)	-2.020** (2.70)	-2.476*** (2.88)
Creditor Rights Change *	3.234*** (2.81)	3.234*** (2.81)	3.234*** (2.81)	2.961** (2.62)	3.426*** (2.71)
Ex-post private control of Self-Dealing					
Ex-post private control of self-dealing		-2.345*** (5.25)		-2.193*** (5.02)	0.465 (0.74)
Tobin’s Q					-0.049*** (4.60)
Free Cash Flow / Assets				1.329* (1.74)	
Free Cash Flows to Assets *				-1.585* (1.84)	
Ex-post Private control of Self-dealing					
Log of Private Credit to GDP per capita			-0.558*** (9.15)		
Enforceability of contracts			-0.066*** (5.53)		
One if information sharing operates in 1999			-0.231*** (3.63)		
French legal origin dummy		2.064*** (5.25)			
German legal origin dummy		1.981*** (6.67)			
Scandinavian legal origin dummy		0.720*** (6.86)			
Year Dummies	Yes	Yes	Yes	Yes	Yes
Country Dummies	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes
Year Dummies * Ex-post private control of self-dealing	Yes	Yes	Yes	Yes	Yes
Country Dummies * Ex-post private control of self-dealing	Yes	Yes	Yes	Yes	Yes
Observations	1481	1481	1481	1470	1406
Adjusted R-squared	0.34	0.34	0.34	0.33	0.31

^a Effect of Ex-post Private Control of Self-Dealing is subsumed by the country and legal origin dummies/ country level variables

^b Also includes Corruption, Efficiency of Judicial system, all of which are statistically insignificant

^c Also includes Tobin’s Q, Interest Expense/ Net Income and Long Term Debt/ Total Assets, all of which are statistically insignificant

Table 9: Firm Level Analysis of Determinants of Project Finance vs. Corporate Finance

The dependent variable in all the specifications equals one if the deal corresponds to Project Finance, and equals zero if the deal corresponds to either of Acquisition Lines, Equipment Purchase, Capital Expenditures or Takeovers. The sample of bank loans is drawn from the Loan Pricing Corporation's Dealscan database and includes deals over the period 1993 - 2003. All regressions are estimated using Logit. The control variables include the legal origin variables. When a particular legal origin variable is blank in a particular specification, the same was dropped due to the problem of multi-collinearity. The robust standard errors are clustered by country. ***, **, * represent coefficients that are statistically significant at the 1%, 5% and 10% levels respectively.

	(1)	(2)	(3) ^a	(4)
Ex-post private control of self-dealing	-8.766*	-11.350**		-5.601***
	(1.85)	(2.35)		(3.34)
Free Cash Flow / Assets	1.515***	1.652***	4.692***	
	(2.87)	(3.04)	(8.08)	
Free Cash Flows / Assets *	-1.572***	-1.713***	-4.850***	
Ex-post Private control of Self-dealing	(2.88)	(3.06)	(8.11)	
Creditor rights				-1.152***
				(2.64)
Ex-post Private control of Self-dealing *				1.597***
Creditor Rights				(2.81)
English legal origin dummy	20.070***			0.867
	(4.32)			(1.27)
French legal origin dummy	9.270***	-	-	0.172
		10.635***	17.626***	
	(3.00)	(3.44)	(7.43)	(0.29)
Scandinavian legal origin dummy	7.876**	-	-	0.370
		12.265***	22.646***	
	(2.13)	(4.09)	(8.12)	(0.54)
Tangibility	2.433***	2.194***	2.485***	2.015***
	(11.90)	(8.41)	(17.25)	(5.72)
LT Debt / Total Assets	0.949***	0.736***	0.734***	-0.380
	(10.23)	(3.99)	(9.47)	(0.96)
Rating - S&P	-0.091***	-0.042***	-0.071***	-0.025
	(6.91)	(3.29)	(4.68)	(0.47)
One if borrower not rated	-0.013	0.379**	0.090	-0.276
	(0.09)	(2.46)	(0.49)	(0.59)
Project Scale	-3.170***	-3.165***	-3.202***	
	(13.75)	(8.21)	(11.18)	
Log of Market Value of Firm	0.310***	0.268***	0.311***	
	(15.27)	(7.32)	(33.82)	
Country Fixed Effects	No	No	Yes	No
Industry Fixed Effects	No	Yes	No	No
Year Fixed Effects	No	Yes	Yes	No
Observations	815	630	813	1225
Pseudo R-Square	0.17	0.21	0.20	0.09

^a "Ex-post private control of self-dealing" gets subsumed in the country fixed effects

Table 10: Effect of Free Cash Flow, Protection against Self-Dealing and Creditor Rights on Project Finance vs. different modes of Corporate Finance

In each specification the sample is restricted to Project Finance deals and the respective category of Corporate Finance Deals. In each specification, the dependent variable equals the percentage of deals corresponding to project finance in a particular country, year, industry. The sample is generated by aggregating deals in a particular 4-digit SIC in a particular year in a country. The sample of bank loans is drawn from the Loan Pricing Corporation's Dealscan database and includes deals over the period 1993 - 2003. All regressions are estimated using OLS. The robust standard errors are clustered by country of the borrower. ***, **, * represent coefficients that are statistically significant at the 1%, 5% and 10% levels respectively.

	Panel A: Main Dependent Variable		Panel B: Project Finance vs. Acquisitions and Takeovers		Panel C: Project Finance vs. Capital Expenditures and Equipment Purchases	
	(1)	(2)	(1)	(2)	(1)	(2)
Ex-post private control of self-dealing	-0.881*** (6.96)	-0.635*** (3.80)	-0.477** (2.61)	-0.669*** (2.92)	-1.427*** (3.76)	-1.974*** (5.52)
Creditor rights	-0.071 (0.98)			-0.053 (0.66)		-0.160 (0.83)
Ex-post Private control of Self-dealing * Creditor Rights	0.206* (2.03)			0.164* (1.80)		0.455* (1.67)
Free Cash Flow / Assets		0.802* (1.69)	0.355 (0.52)		2.050* (1.97)	
Free Cash Flows to Assets * Ex-post Private control of Self-dealing		-1.018* (1.89)	-0.311 (0.42)		-2.743** (2.34)	
Observations	1609	1583	1583	1609	1583	1609
Adjusted R-squared	0.17	0.10	0.02	0.05	0.13	0.22

Table 11: Does Financial Development substitute for the effect of Protection against Self-dealing or the Effect of Creditor Rights on Project Finance vs. Corporate Finance?

The OLS regressions below add the interaction of measures of Financial development with Free Cash Flow/ Assets to the basic model examined in Tables 2. The dependent variable in all specifications is the percentage of deals corresponding to project finance in a particular country, year, industry group. We use the following proxies for Financial Development: (1) Accounting Standards is an Index created by Center for International Financial Analysis & Research examining and rating companies' 1990 annual reports on their inclusion or omission of 90 items from LLSV (1998), (2) Total Capitalization to GDP is the ratio of the sum of equity market capitalization (as reported by the IFC) and domestic credit (IFS line 32a-32f but not 32e) to GDP from Rajan and Zingales (1998), (3) Domestic Private credit to GDP is the ratio of domestic credit to the private sector, which is from IFS line 32d, over GDP from Rajan and Zingales (1998), (4) Log Private Credit to GDP per capita is the logarithm of the ratio of Domestic private credit (IFS line 32d) to the GDP per capita from LLSV(1998). The 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.

Panel A: Does Financial Development substitute for the effect of Ex-post private control of self-dealing?

Which Financial Development measure?	(1) Accounting standards	(2) Total Capitalization to GDP	(3) Domestic Private Credit to GDP
Financial Development Measure *	0.025*	1.155	-0.002
Free Cash Flow / Assets	(1.74)	(1.19)	(0.00)
Financial Development Measure	-0.006***	0.034	-0.167
	(3.53)	(0.32)	(0.97)
Free Cash Flow / Assets	0.248	1.153	1.558
	(0.27)	(1.23)	(1.38)
Ex-post private control of self-dealing	0.179	-0.056	-0.013
	(1.24)	(0.37)	(0.08)
Free Cash Flows to Assets *	-2.830***	-2.731***	-1.945*
Ex-post Private control of Self-dealing	(2.77)	(3.38)	(1.72)
Observations	627	498	498
Adjusted R-squared	0.02	0.01	0.01

Panel B: Is interaction between Creditor Rights and Protection against self-dealing robust to Financial Development?

Which Financial Development measure?	(1) Accounting standards	(2) Total Capitalization to GDP	(3) Domestic Private Credit to GDP
Financial Development Measure	-0.006***	0.092	-0.083
	(3.53)	(1.06)	(0.52)
Ex-post private control of self-dealing	-0.494***	-0.618***	-0.450**
	(3.79)	(3.56)	(2.79)
Creditor rights	-0.100*	-0.069	-0.042
	(1.76)	(1.32)	(1.11)
Ex-post Private control of Self-dealing *	0.203**	0.148**	0.107**
Creditor Rights	(2.58)	(2.34)	(2.48)
Observations	649	515	515
Adjusted R-squared	0.05	0.02	0.02

Table 12: Does Leverage substitute for the effect of Protection against Self-dealing or the Effect of Creditor Rights on Project Finance vs. Corporate Finance?

The OLS regressions below add the interaction of measures of Leverage with Ex-post private control of self-dealing, creditor rights or Efficiency of bankruptcy procedure to the basic specifications examined in Tables 3 and 5. The dependent variable in all specifications is the percentage of deals corresponding to project finance in a particular country, year, industry group. We use the following proxies for Leverage: (1) The Interest Coverage Ratio which equals Interest Expense to Net Income, and (2) Book Value of Long-term Debt to Book Value of Total Assets. These measures of leverage are computed at the 4-digit SIC level. The 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.

Panel A: Does leverage substitute for the effect of Ex-post private control of self-dealing?

Measure of Leverage is:	Interest Expense/ Net Income			Long Term Debt/ Total Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Ex-post private control of self-dealing	-0.583*** (5.55)	-0.382*** (3.72)	-0.443*** (4.00)	-0.704*** (5.36)	-0.395*** (4.05)	-0.461*** (4.24)
Free Cash Flow / Assets	1.355*** (2.94)	1.519*** (3.21)	1.345*** (3.18)	1.413*** (2.81)	1.893*** (4.20)	1.460*** (3.06)
Free Cash Flows to Assets * Ex-post Private control of Self-dealing	-1.625*** (2.79)	-1.726*** (3.12)	-1.615*** (2.96)	-1.671*** (2.79)	-2.089*** (4.07)	-1.723*** (2.97)
Leverage	-0.009 (0.33)	0.009 (0.53)	-0.001 (0.03)	-0.373 (0.75)	0.373*** (2.74)	-0.480 (0.69)
Ex-post private control of self-dealing * Leverage	0.041 (1.08)			0.630 (1.18)		
Creditor rights		0.092*** (5.07)			0.112*** (4.30)	
Creditor Rights * Leverage		0.013 (1.52)			-0.075 (0.97)	
Efficiency of Bankruptcy Procedure			-0.218** (2.26)			-0.351*** (2.67)
Efficiency of Bankruptcy Procedure * Leverage			0.032 (0.93)			0.817 (1.04)
Observations	1470	1470	1470	1470	1470	1470
Adjusted R-squared	0.10	0.15	0.10	0.10	0.16	0.10

Panel A: Is Creditor Rights' interaction with Ex-post private control of self-dealing robust to leverage?

Measure of Leverage is:	Interest Expense/ Net Income			Long Term Debt/ Total Assets		
	(1)	(2)	(3)	(4)	(5)	(6)
Ex-post private control of self-dealing	-0.810*** (4.11)	-0.828*** (4.21)	-0.540** (2.60)	-1.045*** (4.44)	-0.826*** (4.37)	-0.603** (2.96)
Creditor rights	-0.047 (0.66)	-0.077 (1.00)	-0.025 (0.34)	-0.061 (0.91)	-0.030 (0.40)	-0.045 (0.63)
Ex-post Private control of Self-dealing * Creditor Rights	0.180** (2.00)	0.209** (2.20)	0.163* (1.73)	0.201** (2.37)	0.181** (2.07)	0.191** (2.07)
Leverage	-0.005 (0.28)	-0.007 (0.64)	-0.008 (0.27)	-0.723** (2.35)	0.331** (2.47)	-0.679* (1.95)
Ex-post private control of self-dealing * Leverage	0.038 (1.56)			1.050*** (2.96)		
Creditor Rights * Leverage		0.022** (2.58)			-0.088 (1.07)	
Efficiency of Bankruptcy Procedure			-0.389*** (5.97)			-0.572*** (6.71)
Efficiency of Bankruptcy Procedure * Leverage			0.044 (1.33)			1.100** (2.54)
Observations	1583	1583	1583	1594	1594	1594
Adjusted R-squared	0.17	0.17	0.18	0.17	0.17	0.19

Appendix: Description of Variables and their Sources

Variables	Description	Sources
<i>Country Level Data</i>		
Ex-post private control of Self-dealing	Index of ex-post control over self-dealing transactions. Average of disclosure in periodic filings and ease of proving wrongdoing.	DLLS (2006)
Creditor Rights	An index aggregating four different credit rights: restriction for going into organization, no automatic stay on secured assets, secured creditors first and management does not stay	DMS (2005)
Restriction for going into reorganization	Equals 1 if the reorganization procedure imposes restrictions , 0 otherwise	LLSV (1998)
No automatic stay on secured assets	Equals 1 if the reorganization procedure does not impose an automatic stay on the assets of the firm on filing the reorganization petition , 0 otherwise	LLSV (1998)
Secured creditors first	Equals 1 if secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm, 0 otherwise	LLSV (1998)
Management does not stay	Equals 1 if an official appointed by the court, or by the creditors, is responsible for the business operation during reorganization, 0 otherwise	LLSV (1998)
Efficiency of Bankruptcy	The present value of the terminal value of a bankruptcy company at the conclusion of the insolvency proceedings, taking into account insolvency costs.	DHMS (2006)
Enforceability of Contracts	The real degree to which contractual agreements are honored and complications presented by language and mentality differences.	DLLS (2003)
Legal Origin	The legal origin of the company law or commercial code of each country	LLSV (1998)
Information Sharing	Equals 1 if either public registry or a private bureau operates, 0 otherwise	DMS (2005)
Legal Formalism Index (check-based)	Measures substantive and procedural statutory intervention in judicial cases at lower-level civil trial courts	DLLS (2003)
Accounting Standards	Index created by examining and rating companies' 1990 annual reports on their inclusion or omission of 90 items.	LLSV (1998)
GDP per capita	Real gross domestic product per capita	PWT-6.2

Appendix (continued)

Variables	Description	Sources
<i>Industry Level Data</i>		
Asset Tangibility	The median of "net PP&E / total assets" at 4-digit SIC codes	Worldscope
Tobin's Q	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 book value of deferred taxes plus the market value of equity.	Worldscope
Free Cash Flow to Assets	The median of "Free Cash Flow" computed as Operating Income before Depreciation minus Interest Payments minus Income Taxes minus dividends paid to preferred and common stock holders divided by the book value of assets at 4-digit SIC codes	Worldscope
Total Debt/ Assets	The median of "total debt over total assets" at 4-digit SIC codes	Worldscope
Interest Expense/ Net Income	The median of "Interest Expense/ Net Income " at 4-digit SIC codes	Worldscope
<i>Deal Level Data</i>		
Project Finance	Equals 1 if it is a non-recourse loan to finance a specific project, 0 if the specific purpose is one of the following: acquisition line, capital expenditures, equipment purchase, takeover finance	DEALSCAN
Acquisition Line	A loan for unspecified asset acquisitions	DEALSCAN
Capital Expenditures	A loan for capital expenditures purpose	DEALSCAN
Equipment Purchase	A loan for equipment purchase purpose	DEALSCAN
Takeover Finance	A loan to support the acquisition of a specified asset or company	DEALSCAN
Deal amount	The commitment amount at the loan origination, in billions of dollars	DEALSCAN
Number of lenders	The number of lenders	DEALSCAN
All-in-spread	The amount the borrower pays in basis points over LIBOR for each dollar drawn down	DEALSCAN
Maturity	Loan maturity, in years	DEALSCAN
Secured	Equals 1 if the bank loan is secured by collateral, 0 otherwise	DEALSCAN
Senior	Equals 1 if the lenders are senior creditors, 0 otherwise	DEALSCAN
S&P's rating	S&P' s senior debt rating at deal close	DEALSCAN