ARRANGER CERTIFICATION IN PROJECT FINANCE

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Abstract

Though highly plausible, empirical research has found little unambiguous evidence of third-party certification in capital market financings, due to confounding influences and multiple impacts. We examine certification by lead arrangers of project finance (PF) loans, because PF vehicle companies are stand-alone entities, created for a single purpose, so all valuation impacts will be contained in the project financing package. Using a sample of 4,122 project finance loans, worth $584 billion, arranged between 1991 and 2005, we show that certification creates economic value by reducing overall loan spreads. We find that more prestigious arranging banks (top-tier arrangers) are *not* compensated with higher fees, but instead are compensated by capturing larger market shares. This rejects the direct compensation hypothesis and supports the indirect compensation hypothesis—as does our finding that top-tier arrangers allow larger and more leveraged loans to be funded than could less prestigious arrangers.

Key words: international corporate governance, bank lending, project finance, syndication
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I. Introduction

Few ideas resonate as succinctly with financial economists as does the notion that trusted financial intermediaries can provide valuable quality certification for an unknown security issuer in new issues markets where information is inherently asymmetrically distributed. Despite this essential plausibility, there is very little empirical support for issuer certification in the finance literature. Early work by Blackwell, Marr and Spivey (1990) and Megginson and Weiss (1991) found some evidence of certification in, respectively, U.S. shelf registration and IPO issue markets. Numerous other studies examining certification in investment banking, especially IPO underwriting, such as Ng and Smith (1996), Puri (1999), Benzoni and Schenone (2005), and Li and Masulis (2006), present evidence the authors interpret as supporting underwriter certification, but Chemmanur and Loutskina (2006) find exactly the opposite result.

Unfortunately, the plausible results Megginson and Weiss (1991) present regarding venture capitalists reducing IPO underpricing during the 1980s were reversed during the 1990s—when venture capital backing and the involvement of prestigious underwriters was associated with *increased* IPO underpricing. While there are good institutional reasons why this relationship might have switched after 1991, particularly the growing market power of bulge-bracket investment banks and the death of penny stock underwriting (described in Beatty and Welch (1996)), this still leaves a void of empirical support for certification's value and uncertainty as to how certification might play out in practice. This is primarily due to the innate complexity and possibility of offsetting effects in real security markets. While top-quality investment banks (IBs) may be able to certify that all information about a new issuer is being disclosed, and its involvement puts the IB's reputational capital at stake, their growing market power and distributional abilities may mean that the IB will be able to capture all the benefit of certification (and more) in the form of greater underpricing--which the IBs are able to internalize through their control of the IPO share allocation process. Similar ambiguities will likely arise regarding IB certification in other new issues and M&A markets, venture capitalist certification in private equity financing, money center bank arrangements of syndicated loans, and with top legal and accounting certification of corporate information disclosures.

One market where the impact of certification should be identifiable and measurable is in the market for arranging project finance loans. Project finance is defined by the creation of a legally independent vehicle company (Special Purpose Vehicle or SPV) financed with non-recourse debt for the purpose of investing in an industrial asset, usually a highly leveraged and capital intensive investment with finite economic life. These are inherently complex projects with large risks and massive

informational asymmetries--yet which are funded with small amounts of private equity contributions by project sponsors and much larger amounts of non-recourse syndicated loans, which are the principal external, capital-market financing.[1] The commercial bank arrangers of these credits become insiders to the project through working with the PF vehicle company, and then must arrange the bulk of external financing (most PF project are financed 50-90% with syndicated loans) by attracting other banks to become members of the loan syndicate. We will thus use the ideal sample to test for certification, as PFs are totally self-contained financial entities, so *all* of the relevant pricing variables can be measured. This is true for no other corporate financing sample.

The difficult part of studying the certifying role of intermediaries will be specifying exactly how certification will express itself--as higher spreads (or fees) for top arrangers, as higher allowed debt-to-equity ratios for projects, as larger project sizes than lesser arrangers can arrange, as a lower retained share for top arrangers, as a smaller/larger syndicate, or some other measure. All of these effects are plausible and, unfortunately, few researchers have modeled/studied these factors, so we will need to develop many of the testable hypotheses on our own. While Cook, Schellhorn, and Spellman (2001) and Casolaro, Focarelli, and Pozzolo (2003) examine certification in syndicated lending, ours is the first to examine the subset of project finance loans.

Surprisingly, Kleimeier and Megginson (2000) show that PF loans have lower spreads than many other types of syndicated loans, despite being riskier non-recourse credits with longer maturities. Esty and Megginson (2003) show that PF loan arrangers structure the loan underwriting syndicate to balance deterrence incentives (discouraging borrower default) with renegotiation flexibility in the event that default occurs and the loan needs to be restructured.[2] Clearly, the loan arranger plays a key role in PF financing, and since this is the project's only external financing, other than sponsor equity, all of the costs and benefits of arranger certification should show up in these contracts. The importance of relationships in lending--between project sponsors (i.e., Shell, ExxonMobil, Bechtel, Samsung, the Chinese government) and the arranging banks (i.e., JP Morgan Chase, Citigroup, BNP Paribas, Deutsche Bank), and between arranging banks and banks invited to join the syndicate--should also be observable in these funding arrangements.

In this paper, we propose and test various hypotheses that can explain the certifying role of intermediaries. The valuable certification hypothesis (VCH) predicts that certification by prestigious

[1] In recent years, several project finance bond issues have been sold, as described in Dailami and Hauswald (2003). These have proven to be highly cyclical, however, and even in the peak years account for a small minority of PF debt financings. In 2005, Thomson One Banker reports for example a total amount of project finance loans of US$120 billion, compared to US$26.7 billion of project bonds.

[2] Other studies examining the impact that syndicate structure can have on loan pricing or the valuation of securities issues include Dennis and Mullineaux (2000), Pichler and Wilhelm (2001), Lee and Mullieaux (2004), and Sufi (2006).

arrangers will create economic value in that the loan can be arranged for a lower cost (spread) than would be required for a less prestigious arrangers. Specifically, once other factors related to project's risk are accounted for, loans arranged by prestigious banks should have lower spreads, so the coefficient on the arranger variable in a spread equation should be negative. If the valuable certification hypothesis is supported, we then move to a test of how arranging banks will be compensated for providing certification. The direct compensation hypothesis (DCH) implies that if a top arranger is part of the syndicate, the arrangers will be paid higher direct fees, ceteris paribus. The competing indirect compensation hypothesis (ICH) implies that a top arranger will *not* be paid higher fees, but will instead be compensated by capturing a larger share in the profitable project finance loan arranging market. There are also corollary predictions of the indirect compensation hypothesis, as follows: (1) Top arrangers should be able to directly increase their market share by arranging larger loans, (2) Top arrangers should be able to directly increase their market share by arranging more leveraged loans.

The remaining of the paper is organized as follows. Section II introduces our hypotheses. Section III illustrates data and methodology. Section IV reports our results and section V concludes.

II. How should certification show up in PF equity and debt contracts?

While certification appears to be a relatively simple concept, in practice it is anything but, particularly because there are always at least two ways that certification can be expressed. First, it can reduce the cost of arranging a particular financial transaction, which implies that "certified" projects will have lower overall financing costs than will projects arranged by less prestigious financiers. Alternatively, certification can allow a project to be implemented/funded that would not be created absent the intervention of a prestigious agent.

Let's start with economic first principles: In an environment characterized by asymmetric information between project sponsors (organizers) and capital providers, ***certification will create economic value only if it minimizes search and information costs***. Absent certification of project value by a trusted intermediary/certifier, each potential capital provider will feel compelled to independently analyze the project's value and cash flows. If project size or a desire for risk diversification prevents a single capital provider from financing the entire project, this need for individual project assessment will mean duplication of search efforts by two potential providers, tripling of effort by three, quadrupling by four, etc. At the very least, this multiplication of effort will raise the cost of arranging a project's financing, since the loan must be priced to cover all financiers' search costs; at worst, it will cause the project to fail because of excessive search costs.

Now assume there is a third party, that has both the expertise to accurately (on average) assess a project's true potential value and a large stock of reputational capital that will be forfeited if it falsely

assigns a high value to a project that *ex post* turns out to be of low value. The project sponsors have a clear incentive to contract with this third party and secure its commitment to assess project value, after fully disclosing all confidential information to this agent. Then, if the agent finds the project to be valuable, the agent can certify this to all potential capital providers. If this agent is trusted by other capital providers, they will rely on the certification thus provided and will forego their own full-scale assessments, thus minimizing search costs. This delegated monitoring will express itself by allowing certified projects to have lower overall financing costs than otherwise comparable non-certified projects.

We examine both whether certification works—whether it creates economic value--and how top arranging banks are compensated for their investment in reputational capital. We create a two-part test. First, we propose the **valuable certification hypothesis**, which predicts that certification by prestigious arrangers will create economic value in that the loan can be arranged for a lower cost (spread over leading money market rates such as LIBOR, Euribor or others) than would be required for a less prestigious arranger. Specifically, once we control for other factors, loans arranged by prestigious banks should have lower spreads. The alternative is that in a competitive market certification will have no value, or that banks will capture the surplus and spreads will be no lower than those arranged by lesser banks. We find that this hypothesis is strongly supported. Having a top-tier arranger involved significantly reduces the spread on a loan.

Return again to basic economics: Since certification can create value, it must be costly to acquire and the cost must be increasing in project risk (and decreasing in project value). Thus two criteria must be met: (1) certification must reduce overall financing costs or allow a project to be financed that otherwise would not be, and (2) it must be costly to obtain the certification, and this cost must be a decreasing function of fundamental project value. If the first criterion is not met, project sponsors would not have a reason to approach high-reputation certifiers, and if the second criterion isn't binding, all project sponsors (of both good and bad projects) would hire these agents. In public accounting, companies attract certifiers (Big 4 accounting/auditing firms) through payment of an explicit and large fee, and the same mechanism seems to work in investment banking—firms wishing to attract top-tier IBs must pay the highest underwriting costs. In banking markets, however, the certifying agent apparently must also put its own capital at stake to certify effectively. Which brings up the second question we use to motivate our study: *How are certifying agents (bank arrangers) compensated for providing certification for PF projects?*

We present two different, though not necessary conflicting hypotheses. The **direct compensation hypothesis** asserts that certifying agents will be compensated by direct payment, which most likely will express itself as higher fees for top-tier PF loan arrangers than fees paid to less-prestigious arrangers in otherwise similar projects. After adjusting for all other relevant factors, "certified projects" will have lower overall funding costs than "non-certified" projects, but the fees for the arranger will be higher.

Overall funding cost will be lower, because certification reduces spreads for the reasons discussed above. Cook, Schellhorn, and Pellman (2001) develop, test, and find support for a similar effect in general syndicated lending.

In contrast, the **indirect compensation hypothesis** asserts that certifying agents will be compensated principally with a greater market share in the overall PF loan market. If certification creates economic value, yet top banks are not paid directly, then they must capture the return on their reputational capital by capturing a higher share of all loans, assuming these are profitable. A greater market share can be obtained by financing larger projects or by making larger loans to projects of a given size, principally by increasing the project's leverage. The principal empirical prediction of this hypothesis is that certified projects will be larger and will have higher debt-to-equity ratios than otherwise comparable non-certified projects. This hypothesis is most similar to Tufano (1989), who shows that "innovators" (investment banks that develop new security products) take their compensation in the form of higher market share rather than in higher fees or costs for the first issues of the new securities. Mimicking banks actually charge higher fees for follow-on products. Casolaro, Focarelli, and Pozzolo (2003) find support for a similar effect in the syndicated loan market.

III. Data and Methodology

We employ a merged sample of project finance syndicated loans signed between January 1, 1991 and December 31, 2005 which is drawn from the Reuters/Loan Pricing Corporation's *Dealscan* database and the *ProjectWare* database. While the *Dealscan* database has been employed in many empirical syndicated loan studies,[3] the only study employing *ProjectWare* we know of is Corielli, Gatti, and Steffanoni (2006), and ours is the first to employ both databases. The reason for using two databases is that they each provide valuable information the other lacks. In fact, while *Dealscan* provides very detailed information about the syndicate structure and the pricing of the loans both in terms of spread and fees, *ProjectWare* has particularly rich data regarding the financial structure of the projects, especially project debt-to-equity ratios, and provides information about the key contracts that the SPV sets up to design, build and manage a venture.

A project finance loan typically consists of several tranches that fund the same project but often have different syndicates and thus also different arrangers. Therefore, we focus on the loan tranche as our basic observation. We collect detailed information about each loan tranche, including its size, spread, upfront fee, maturity, signing date, number and identity of bank arrangers and syndicate members, and syndicate structure. We also collect project-related variables, including measures of country risk and

[3] Examples of studies using Dealscan include Althunbaş and Gadanecz (2004), Carey, et al. (1998), Hainz and Kleimeier (2006), Ivashina (2005), Qian and Strahan (2005), and Sufi (2006).

creditor rights in the project's home country, industry risk, cash flow risk (cash flow currency different than loan currency), operational risk (the existence of general and financial covenants) and vehicle company structure--including equity contributions and, where available, project covenants and sponsor information. Note that all our proxies, except those describing the project's home country and the vehicle company structure, are obtained from *Dealscan*. Based on the borrower's name, host country, sponsor's name, and the year of loan signing, we identify those projects that are also reported in the *ProjectWare* database and add the vehicle company structure proxies to each matched loan tranche observation in our sample. Overall, we obtain a sample of 4,122 loan tranches from *Dealscan*, of which 472 can be matched with *ProjectWare*. Our proxies are explained in detail in Table A-1 of the appendix.

We draw on loan pricing and contracting studies and their methodologies presented in, among others, Booth (1992), Dennis et al. (2000), Altunbaş and Gadanecz (2004), Nini (2004), Vasavari (2006), and Gupta, Singh, and Zebedee (2006). First, we separate our observations into different quartiles based on the lead arranger market share and assess (by means of a Wilcoxon test) whether the average spread, fee, size or leverage of project finance loans with high lead arranger market share are different from PF loans with low lead arranger market share. Second, we conduct regression analyses to test our hypotheses using the spread, fee, loan size, and leverage proxies as our dependent variables. In particular, we analyze the impact of our lead arranger proxy (and other control variables) on all dependent variables using a reduced-form estimation that leads to unbiased coefficients. As Dennis, et al. (2000) point out, the characteristics of a loan contract are determined at the same time and are thus endogeneous. Therefore, a simultaneous estimation approach, which specifically models the interdependencies between these endogenous loan characteristics, is required. Since we focus in this paper on the impact of the lead arranger on the loan characteristics but not primarily on the interdependencies among the loan characteristics, a reduced-form estimation is sufficient. For each of our four loan features we estimate a single regression, which includes (besides the lead arranger proxy) only proxies that control for project risk. Note, however, that due to the lack of a better measure, we use loan maturity as a proxy for the project's life. In particular, we apply OLS estimation for spread and loan size (in logs). Fee and leverage are censored variables, which can only take values at or above zero, and we therefore apply a maximum likelihood estimation of a Tobit model. As goodness-of-fit measures we report adjusted R^2 for the OLS regressions and McKelvey-Zavoina pseudo R^2 for the tobit regressions. The latter measure has been chosen due to its superior properties, as shown by Veall and Zimmermann (1994).

Table 1 presents summary information about our sample of PF loans arranged over 1991-2005. The values are reassuringly similar to those reported in other empirical PF loan studies, including Kleimeier and Megginson (2000), Esty and Megginson (2003), Sorge and Gadanecz (2005), Corielli, Gatti, and Steffanoni (2006), and Hainz and Kleimeier (2006). The average (median) loan size is $141.68

million ($59.55 million), in 1991 dollars, and the mean spread is 169.2 basis points (bp) (140.0 bp) above the base lending rate, which is typically LIBOR. The average upfront fee is 69.4 bp (60.0 bp), and the mean loan maturity is 104.7 months (84 months). The mean and median year of loan signing is 2000, and the average rating of the 326 loans with S&P ratings is about BB, or slightly below investment grade. There are, on average, 7.5 banks (5 banks) participating in each loan syndicate, while there are 2.5 arrangers and 2.1 lead arrangers (median of 1 for both) organizing the average loan.

****** Insert Table 1 about here ******

Before turning to the all-important question of the prestige of the lead arranging bank in each loan syndicate, we must define how we compute arranger market share. We use two methods of computing share. The first is to average the share of each bank when there are two or more lead arrangers; the second is to sum the shares of multiple arrangers. We compute both measures over 1, 3, 5, and 7 year measurement periods *prior* to the signing date of each loan. These values are all presented in Table 1. Lead arrangers have a 1-year market share of 0.82 percent, computed as an average, and 1.73 percent computed as a sum. These values fall steadily over 3, 5, and 7 year measurement periods, to 0.55 percent (average) and 1.16 percent (sum) for the prior seven years. Median share values are roughly half the mean market shares, but show the same declining patterns over increasing measurement periods. In our regression analyses, we use the lead arranger market share in the three years prior to the signing of the loan. Besides preventing a reduction in sample size, this proxy also allow us to avoid any potential endogeneity problems between our lead arranger market share proxy and our size proxy.

The last section of Table 1 presents summary data about the projects for which these loans are extended. The typical PF loan is booked in a country with moderate risk, as measured by the *Euromoney* Country Risk Index, which assigns low-risk developed countries index values of near 100 and assigns extremely high-risk countries values close to zero. Loans are extended to borrowers headquartered in countries with an average (median) country risk value of 76.5 (80.65). In addition to country risk, which mainly reflects political risk and economic performance of a country, we also measure the quality of the creditor rights in the country in which the project is located. An average project is located in a country with a score of 2, reflecting only moderate creditor rights. These findings are in line with Hainz and Kleimeier (2006) who argue that PF is preferable over on-balance sheet syndicated loans when political and regulatory risks are relatively high and economic performance of the host country is relatively weak. In such circumstances, the limited recourse nature of PF provides incentives to lenders, especially multilateral development banks like the World Bank or national development banks, to actively manage the political risk of the project. As shown in most other PF studies, the typical project is characterized by higher leverage than typically observed among corporate borrowers. On average, the debt-to-equity ratio of PF vehicle companies is 3.41 (2.59) reflecting a 77 percent (72 percent) debt-to-total capital ratio. As

described by Esty (2002) and others, project finance involves heavily leveraging up capital-intensive projects that, once built, generate large amounts of free cash flow. The commitment to payout this cash flow as debt service minimizes the temptation for host country governments and sponsors to pre-empt this cash flow themselves. Finally, 47 percent of the projects have currency risk—the currency of the project's cash flow differs from the currency of debt repayment—while 16 percent of projects have financial covenants and between 11 and 33 percent have risk management contracts. Due to serious non-reporting biases, these values are almost certainly low estimates of the frequency of covenant and risk management usage.

Table 2 presents summary information about those banks that most frequently serve as lead arrangers for PF loans. Over the entire 1987-2005 estimation period, more than 1,000 banks served as lead arrangers for project finance loans. However, we only report the aggregate loan volumes for the top 45 leading arrangers. All of these banks served as lead arrangers for at least $11.7 billion worth of loans, and the median bank on this list arranged 62 loans over this fifteen-year period. Eight banks arranged at least 100 loans, while ABN AMRO Bank arranged an amazing 218 loans worth almost $50 billion. Table 2 also presents annual lead arranger market shares for 1987-2004. This is the basic measure on which our lead arranger prestige proxies are based. Market shares of individual banks vary widely from year to year, so a multi-year rather than a single-year market share proxy is therefore preferable for this study.

****** Insert Table 2 about here ******

IV. Results

A. Main results

The first evidence regarding the certification hypotheses comes from a simple distributional analysis of the main sample. In Table 3, we sort loan observations into quartiles based on lead arranger market shares to observe the spread, fee, size or leverage of project finance loans with more versus less prestigious lead arrangers (at different levels of lead arranger market share). Recall that project finance loans arranged by more prestigious arrangers – those with higher market shares – should have lower spreads (according to the VCH), higher fees (DCH), and should be larger and more levered (ICH). The findings in Table 3 regarding spreads strongly support the VCH as all four quartiles have significantly different means in the predicted direction. We can thus proceed with the analysis of DCH versus ICH.

The evidence for the DCH's implications regarding fees is mixed. While at first fees increase with arranger prestige, these begin to decrease once the lead arranger market share reaches moderate levels. Furthermore, not all of the differences between lead arranger market share quartiles are significant. The remaining two variables included in Table 3 allow us to test the ICH. Regarding size we find strong support for the ICH in the sense that more prestigious arrangers are associated with larger loans. The

leverage results also support the ICH, though less strongly. Here Panel A reveals that leverage is significantly higher only for more reputable arrangers with the highest certification ability—those arrangers in the highest market share quartile. When lead arrangers pool their certification ability, as illustrated in Panel B, the effects on leverage are mixed. However, the relatively small number of observations for leverage should caution us not to interpret these results too strongly. To illustrate, let's compare the loans with very low versus very high prestige arrangers. Whereas on average, less prestigious arrangers are associated with loans of $ 97.96 million in real size, a spread of 193.91 basis points (bp), an upfront fee of 70.17 bp, and a debt-to-equity ratio of 3.59, highly prestigious arrangers are associated with loans of $ 186.55 million in size with a spread of 156.12 bp, an upfront fee of 65.55 bp, and a debt-to-equity ratio of 4.08.

****** Insert Table 3 about here ******

These simple sample analyses, however, do not allow us to control for project risks. We therefore proceed with regression analysis where we can take these risks directly into account and are thus able to obtain better founded results for our certification hypotheses. The VCH predicts that certification by prestigious arrangers will create economic value in that the loan can be arranged for a lower cost (spread) than would be required for a less prestigious arranger. Table 4 shows that **spread** is negatively related to arranger after all other factors accounted for, strongly supporting the VCH. Having a top-tier arranger involved significantly reduces the spread on a loan, after other factors are accounted for. This is true for both lead arranger market share proxies in Panels A and B of Table 4.

Furthermore, this result is robust to sample selection. In Table 4 we report four regressions using different samples. For spread, as for all four dependent variables, we employ the largest possible sample in regressions (1) and (2). Regression (3) is based on a sample for which spread, size, fee and control variables are available and can thus be compared across dependent variables. Similarly, regression (4) is based on a sample for which spread, size, leverage and control variables are available. Looking now at the coefficients of the different risk proxies reveals exactly how these project features interact with spreads. Regarding the impact country characteristics, the negative coefficient of country risk shows that spreads are lower in low-risk countries whereas the negative coefficient of the creditor rights variable reveals that spreads are lower when creditors have stronger rights. Spreads thus include a general country risk premium as well as regulatory risk premium. Furthermore, spreads are significantly negatively related to cash flow or currency risk, so loans with such risk have lower spreads than those without. This finding is in line with Kleimeier and Megginson (2000) and Corielli et al. (2006). Since most loans are denominated in very liquid hard currency (US$, euros, UK pound, or yen) an arranger might find it easier to structure a syndicate denominated in hard currency teasing the borrower with lower spreads. It could be expected that a longer maturity, as a proxy for the project's life, reduces spread as loan repayments can

now be spread over a longer period of time and thus put less pressure on the project's cash flows. While we find that maturities are negatively related to spreads, these results are not statistically significant. Finally, projects with general covenants have loans with higher spreads. Note that general covenants have an impact similar to that found for collateral in other studies: they allow riskier projects to be funded and these have higher spreads but are employed only in low risk countries where enforcement is likely to be more important. In contrast, financial covenants have no effect.[4]

As our regression results support the VCH, we can continue to analyze the DCH versus ICH. The DCH makes the straightforward prediction that top arrangers will be "paid" with higher fees--even if the overall cost of the loan is reduced by certification. Our second key finding is that the ICH rather than the DCH is supported: the arranger coefficient in the fee regression in Panel A is negative and significant in two of the three regressions while the coefficient is insignificant in Panel B. Thus, top arrangers are not directly compensated in terms of higher fees and must thus be compensated indirectly. Recall that we use a different definition of lead arranger market share in Panel A – average market share across all lead arrangers – than in Panel B – sum of the market shares of all lead arrangers. Additionally, our control variables reveal that fees – just like spreads – are higher for projects in riskier countries. Stronger creditor rights, however, appear to lead to higher fees. Furthermore, lenders collect higher fees for projects with longer lives and for projects in all non-financial industries. Finally, while the existence of general covenants increases fees, the existence of financial covenants increases fees.

Finally, the remaining two regressions on size and leverage allow us to assess the ICH in more detail. **Size** is positively related to arranger reputation, supporting the corollary predictions of the ICH. Loans are larger for borrowers from low risk countries, as expected, and for projects with currency risk. This latter result implies that only the best and largest of such projects will be funded. Projects with a longer life and projects in the utilities sector also tend to be larger. The **leverage analysis** shows that a top arranger is associated with a more leveraged project. The findings are stronger in Panel A but the insignificant results in Panel B could be due to the small sample size as the arranger coefficient is still significant in regression (1) of Panel B. Overall, the results are in support of the ICH. Regarding the other coefficient in the leverage regression, only country risk appears to be significant ,indicating higher leverage in less risky countries.

****** Insert Table 4 about here ******

B. Robustness checks

[4] We also include dummies for our six risk management contract and the sponsor-dummy into the regressions. However, we find insignificant coefficients for all these proxies and thus do not report these results here although they are available upon request.

In order to test the robustness of our results, we investigate whether our results hold for different regions, different time periods--before versus after the Asian crisis--and for different project sizes. We already indirectly control for some of these factors in our basic analysis of Table 4. For example, regional effects are to some extent captured by our country risk and creditor rights proxies that are related to the project's home country. Similarly, country risk as a time-varying proxy captures the effects of the Asian crisis on the political and economic situation of the project's home country. Nevertheless, a more direct analysis of these three factors provides additional, valuable insights into the robustness of our results.

To investigate whether regional differences exist or not, we have broken down the whole sample according to the region where the project is located. Table 5 includes the results articulated in developing/developed countries and in three macro-regions (Asia, North America and Western Europe). Though the relevance of our control variables differ across regions, the lead arranger coefficient, which is of most interest to us, is consistent across regions: Lead arrangers coefficients in the spread regressions are negative and statistically significant for all regions except Western Europe. Here, however, the sample size is rather small. Coefficients in the fee regressions are either negative and statistically significant or positive but insignificant. Finally, coefficients in the size and leverage regressions are all positive as expected but significance can only be found in the size regressions. Again, the low number of observations for leverage must be considered. Overall, results seem to support both our DCH and ICH and they are robust using both the average and the sum of lead arranger market shares. The only relevant exceptions are the coefficients in the fee regression that are positive and statistically significant in North America and Western Europe where the competing DCH seems to be applicable. Regarding the control variables, the significant coefficients have the same sign across regions and are consistent with our general findings in Table 4. As for our global results, currency risk leads to lower spreads in developing countries and developed countries in aggregate as well as in Asia. In North American and Western Europe, however, currency risk increases spreads. Despite the difference in coefficient, this result is consistent with our global findings in Table 4. In these regions, the liquid hard currencies such as US$, euros, or UK pound are the home currencies and demanding a loan in another currency thus leads to higher spreads.

****** Insert Table 5 about here ******

Until 2001 PF investment had been steadily growing over time, yet the financial crises such as the Asian crisis in late 1997 or the subsequent Russian crisis in 1998 led to a drop in sponsor interest (Esty, 2002). Similar to PF sponsors, PF lenders and here in particular lead arrangers might have also changed their attitude to PF in terms of pricing and compensation. We are therefore investigating whether our results are robust over time by considering a pre-crisis period from 1991 to 1997, a crisis period from 1998 to 1999 which covers in particular the Asian and Russian crises, and a post-crisis period from 2000

to 2005. The results are presented in Table 6. The spread regressions reveal that our acceptance of the VCH is mainly driven by the post-crisis period as we can only find a negative coefficient for this sub-sample. In contrast, the fee regressions indicated that we can reject the DCH for all three periods – even though lead arrangers actually receive lower fees during the post-crisis period. The ICH can be generally supported as lead arranger share coefficient is significantly positive in all three size regressions and in the post-crisis leverage regression. Unfortunately, the small number of observations for leverage, i.e. the lack of data before 1998, does not allow for an in-depth analysis of leverage.

****** Insert Table 6 about here ******

Finally, size differences in loan values can be important in interpreting our results. Lead arrangers could try to accommodate sponsors of larger loans asking lower spread and giving up higher fees in order to gain higher market shares in highly leveraged projects or in riskier ventures, as argued by our ICH. On the other hand, prestigious arrangers could exploit their market power forcing sponsors of minor projects to accept less favorable conditions in terms of either spread or fees. In order to test whether the size of the loan changes our basic results, we have split the sample based on the median value of our loans sample – 59.55 million dollars – in two groups: small loans and large loans. Results are shown in Table 7. Lead arranger coefficients in the spread regressions remain negative using both average and sum of market shares for the two samples supporting again the VCH. The coefficients tend to be somewhat smaller for larger loans - possibly reflecting a somewhat higher bargaining power of sponsors of larger projects. Lead arranger coefficients in the fee regressions are negative although statistically significant only for smaller loans in Panel A. Overall, lead arranger coefficients for log size and leverage are positive, supporting again our ICH.On a minor note, the signs and significance of the control variables' coefficients are in line with our overall results in Table 4 – again indicating that our results are robust.

****** Insert Table 7 about here ******

V. Summary and Conclusions

Using a sample of 4,122 project finance loans, worth $584 billion, arranged between 1991 and 2005, we examine certification by lead arrangers of project finance loans. These are ideal because project finance vehicle companies are stand-alone entities, created for a single purpose, so all valuation impacts will be contained in the project financing package. We propose three hypotheses regarding the role of certification by lead arrangers: First, the valuable certification hypothesis predicts that certification by prestigious arrangers will create economic value in that the loan can be arranged for a lower cost than would be required for a less prestigious arranger. Second, the direct compensation hypothesis argues that top arrangers will be "paid" with higher fees, even if the overall cost of the loan is reduced by

certification. Third, the competing indirect compensation hypothesis implies that a top arranger will *not* be paid higher fees. Corollary to this third hypothesis, we expect that top arrangers should be able to capture a higher market share which expresses itself through larger or more leveraged loans.

Our findings strongly support the valuable certification hypothesis but there is no evidence for the direct compensation hypothesis. Overall, the indirect compensation hypothesis is supported as lenders pay lower fees to top arrangers – only when multiple top arrangers are part of the syndicate is there evidence of stable fees. Furthermore, top arrangers are able to assemble/fund larger and more leveraged loans, a result which supports the indirect compensation hypothesis. Finally, we also present the first comprehensive, large sample analysis of PF financial packages and find that (1) loans for projects in countries with lower political and economic risks have lower spreads; (2) loans for projects in countries with stronger creditor rights have lower spreads; (3) loans with currency risk have economically and statistically significantly lower spreads and are much larger. This also suggests that only the largest and best loans with currency risk can be funded; (4) longer term loans are larger, have higher fees, and stable spreads; (5) general covenants have an impact similar to that found for collateral in other studies: they allow riskier loans to be funded, e.g. loans with higher spreads and higher fees; (6) if believable, financial covenants have exactly the opposite effects; (7) spreads and fees differ across industries and loans are clearly larger in the utility sector.

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Table 1: Descriptive Statistics for the Project Finance Loan Sample, 1991 - 2005

In our primary sample, each loan tranche is considered as a separate observation. For a definition of the variables see Table A.1. The lower number of observations for the 5- and 7-year lead arranger market shares are caused by the fact that league tables only start in 1987 and thus no 5- and 7-year market shares can be calculated for loans signed in 1991 and in 1991 to 1993, respectively.

	Percent of total sample	mean	median	standard deviation	minimum	maximum	number of obser-vations
loan tranche characteristics							
tranche size ($m real)		141.68	59.55	374.34	0.29	16,253.14	4,067
spread (in bp over base-rate)		169.18	140.00	131.18	-295.00	1,400.00	2,635
upfront fee (in bp)		69.40	60.00	56.95	0.00	750.00	1,319
maturity (in months)		104.71	84.00	80.76	2.00	2,352.00	3,557
tranche rating		12.25	13.00	4.30	1.00	25.00	236
year of loan signing		2,000.02	2,000.00	3.53	1,991.00	2,005.00	4,122
number of lenders		7.48	5.00	7.87	1.00	62.00	4,122
number of arrangers		2.49	1.00	2.69	1.00	26.00	2,475
number of lead arranger		2.13	1.00	2.30	1.00	36.00	4,122
market share of lead arrangers - average across all lead arrangers							
in prior year		0.82	0.40	1.27	0.00	18.11	4,122
average across prior 3 years		0.71	0.36	1.02	0.00	8.36	4,122
average across prior 5 years		0.62	0.27	0.92	0.00	11.79	4,099
average across prior 7 years		0.55	0.22	0.84	0.00	9.18	3,979
market share of lead arrangers - sum of all lead arrangers							
in prior year		1.73	0.60	2.98	0.00	38.92	4,122
average across prior 3 years		1.50	0.48	2.59	0.00	33.93	4,122
average across prior 5 years		1.31	0.40	2.22	0.00	23.25	4,099
average across prior 7 years		1.16	0.34	1.94	0.00	18.25	3,979
project characteristics							
country risk		76.53	80.65	17.47	24.32	100.00	4,100
creditor rights		2.10	2.00	1.02	0.00	4.00	4,031
leverage (debt-to-equity ratio)		3.41	2.59	2.56	0.11	14.71	187
projects with currency risk	47.06						4,122
projects with general covenants	3.93						4,122
projects with financial covenants	15.87						4,122
projects with risk management contracts							472
construction contract	15.47						
EPC construction contract	32.84						
off-take contract	22.88						
supply contract	18.64						
equipment contract	18.22						
O&M contract	11.02						
number of contracts		1.19	1.00	1.32	0.00	5.00	472
projects where sponsors are SPV counter-parties	19.49						472
projects in major industry group							4,122
Banks & Financial Services	1.63						
Corporate	58.20						
Government	3.30						
Media & Communication	3.66						
Utilities	19.87						
Unknown Industry	13.34						

Table 2: League Table for Lead Arrangers in Project Finance Loans Signed between January 1, 1987 and December 31, 2005

This table is obtained from Dealscan's predefined league table for all project finance loan tranches which includes all deals and assigns full credit to all lenders. Here we report only the top 45 banks that were active as lead arrangers in the global project finance loan market between 1987 and 2005. The total tranche amount represents the size of the tranche which the bank has arranged. In case of multiple lead arrangers, the full tranche amount is allocated to both banks.

		total tranche amount in	number of loan	annual market shares (in %)													
rank	lead arranger	millions of US$	tranches	1987	1989	1991	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
1	ABN AMRO Bank NV	49,806	218	0.0	0.0	0.0	4.7	1.2	2.3	3.5	5.0	3.8	1.7	1.7	1.3	1.4	2.1
2	BNP Paribas SA	47,182	189	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	4.8	6.3	2.8	4.0
3	Citibank	46,789	142	31.4	19.1	2.4	0.8	4.6	3.3	0.9	3.6	1.6	2.5	8.1	8.4	0.0	0.0
4	Le Credit Lyonnais SA	38,693	122	0.0	0.0	0.0	2.5	3.6	0.3	1.9	1.6	1.4	2.3	1.5	1.0	1.4	0.4
5	Societe Generale	33,598	112	0.0	0.0	0.0	2.3	0.1	0.8	1.1	1.9	1.4	7.1	7.2	3.8	1.1	0.4
6	Royal Bank of Scotland Plc	33,530	122	0.0	0.0	0.0	0.0	0.1	0.1	1.0	2.2	0.2	0.0	1.1	0.6	1.9	2.4
7	Gulf International Bank BSC	27,100	47	0.0	0.0	0.0	0.0	0.0	1.3	2.2	0.5	0.0	0.0	0.1	0.0	2.1	1.3
8	EBRD	27,038	79	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.1	0.6	0.4	0.4
9	SG Corporate & Investment Banking	25,916	79	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	3.1
10	BNP Paribas	25,057	38	0.0	0.0	0.0	2.3	3.3	0.3	1.6	0.6	0.6	0.1	0.0	0.0	0.0	0.0
11	Calyon Corporate & Investment Bank	25,048	92	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
12	Sumitomo Mitsui Banking Corp	23,179	77	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.5	1.5	1.8	3.6
13	Chiao Tung Bank	22,632	37	0.0	0.0	0.0	0.0	0.0	1.4	0.1	0.4	0.0	10.4	0.5	0.6	0.2	0.1
14	Chase Manhattan Bank	22,541	86	8.9	8.2	8.4	0.7	1.9	1.1	3.3	1.9	0.5	1.3	0.0	0.0	0.0	0.0
15	Barclays Bank Plc	22,327	74	3.1	0.0	3.8	0.4	3.2	0.3	1.4	1.8	0.0	1.3	0.3	2.9	0.1	0.5
16	ANZ Investment Bank	21,857	145	0.0	0.0	0.0	0.0	0.4	0.0	1.8	1.4	3.6	2.1	0.9	1.5	1.6	0.7
17	HSBC	21,821	79	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.3	3.8	2.3
18	Industrial Bank of Japan Ltd	21,798	69	0.0	0.0	0.0	4.1	4.1	2.7	2.1	0.9	0.9	0.0	1.8	1.0	0.0	0.0
19	Bank of Taiwan	21,768	62	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.4	4.2	9.3	1.4	1.1	0.5	0.0
20	National Westminster Bank Plc	21,628	24	4.5	0.0	3.6	0.1	0.0	1.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	Banco Bilbao Vizcaya Argentaria SA	21,378	120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.1	2.3	1.4	1.2
22	WestLB AG	19,527	66	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.1	0.8	1.5	2.1	1.3
23	Credit Suisse First Boston	19,291	62	0.0	0.0	0.0	0.2	0.0	0.0	0.7	2.6	4.0	2.4	3.4	2.7	0.0	0.0
24	Banque Indosuez	19,282	12	0.0	0.0	0.0	2.3	1.5	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	International Commercial Bank of China	17,889	50	0.0	0.0	0.0	0.0	0.0	0.5	0.0	1.1	1.5	9.4	0.6	0.6	0.5	0.3
26	Midland Bank Plc	17,145	13	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0
27	Standard Chartered Bank	16,979	62	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.0	0.6	0.5	0.3	0.4	1.2
28	Deutsche Bank AG	16,381	64	0.0	0.0	1.3	1.3	0.5	0.4	1.1	2.2	0.2	0.4	0.8	0.8	2.2	0.4
29	Citigroup	16,100	39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.1	1.7
30	Bank of America	15,981	68	3.7	0.0	0.0	0.5	0.8	0.1	1.3	1.8	1.6	2.6	0.4	2.0	0.1	0.0
31	Fuji Bank Ltd	15,789	59	0.0	4.4	1.6	6.4	3.9	1.9	0.4	1.0	2.3	0.5	0.2	0.9	0.0	0.0
32	Union Bank of Switzerland	15,482	67	11.7	3.6	4.0	2.3	3.8	0.2	1.4	1.5	0.3	0.0	0.0	0.0	0.0	0.0
33	Sumitomo Bank	14,683	69	0.0	5.2	3.8	2.3	0.6	0.9	1.8	1.7	1.2	0.8	0.1	0.0	0.0	0.0
34	Mizuho Corporate Bank	13,835	41	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.3	1.6

Table 2 continued

rank	lead arranger	total tranche amount in millions of US$	number of loan tranches	annual market shares (in %)													
				1987	1989	1991	1993	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
35	Arab Petroleum Investments Corp	13,399	21	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.5	0.0	0.0	0.0	0.0	0.5	1.5
36	Commerzbank AG	13,361	41	0.0	0.0	0.0	2.2	0.4	1.0	0.0	0.2	0.7	0.1	2.9	1.2	0.7	0.5
37	BNP Paribas	12,881	55	0.0	0.0	2.9	2.4	1.9	0.1	2.1	1.6	0.3	0.2	0.0	0.0	0.0	0.0
38	Bank of Tokyo-Mitsubishi Group	12,681	35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.2
39	Caja Madrid	12,464	46	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.0	1.4	0.8
40	Banc of America Securities Asia Ltd	12,458	55	0.0	0.0	0.0	0.0	4.0	1.1	1.3	0.6	0.1	0.5	0.5	0.0	0.6	0.0
41	Arab Banking Corp BSC	12,343	21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.4	0.0	0.0	1.0
42	Barclays Capital	12,329	41	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.0	1.5	0.4	1.4	0.2	1.2
43	ING Bank	11,998	64	0.0	0.0	0.0	2.3	0.4	0.0	0.1	0.0	0.2	0.0	0.0	2.1	1.5	1.3
44	Kreditanstalt fur Wiederaufbau	11,746	37	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.2	0.1	0.3	0.0	0.8	0.8
45	Dresdner Bank AG	11,719	42	0.0	0.0	0.0	0.0	0.0	0.7	2.6	0.3	1.1	0.7	1.0	0.1	0.0	0.1

Table 3: Test for Differences in Project Finance Characteristics for Different Levels of Lead Arranger Market Share

This table reports statistics for project finance characteristics which are separated into quartiles based on the lead arranger market share. Since several tranches can have the same lead arranger market share, the number of observations is slightly different across the different quartiles. The analyses use all observations with non-missing values for the lead arranger market share and the respective dependent variable. Standard deviations are reported in the column 'std dev' and number of observations in the column 'obs'. The Wilcoxon test is a non-parametric test which assesses the difference in means between the current quartile and the next quartile quartile of the dependent variable based on a one-sided probability. ***, **, * indicate that normality or equality of means can be rejected at the 1%, 5%, and 10% significance level, respectively. For a definition of the variables see Table A.1.

dependent variable	lead arranger market share quartile	lead arranger market			dependent variable							
		mean	median	std	mean	median	std dev	test for		Wilcoxon z-		obs
Panel A: Average prior 3-year lead arranger market share (average across all lead arranger market shares)												
spread	very low	0.01	0.00	0.01	193.91	160.00	142.35	0.85	***	2.72	***	660
	moderately low	0.18	0.18	0.09	177.30	150.00	135.21	0.82	***	-4.21	***	670
	moderately high	0.62	0.59	0.19	148.72	127.50	107.04	0.80	***	-1.79	**	648
	very high	2.08	1.66	1.25	156.12	135.00	132.22	0.70	***			659
fee	very low	0.00	0.00	0.01	70.17	60.00	65.18	0.63	***	1.70	**	332
	moderately low	0.12	0.11	0.07	74.32	65.00	53.53	0.88	***	1.94	**	329
	moderately high	0.50	0.48	0.16	67.57	60.00	51.91	0.89	***	0.82		329
	very high	1.80	1.39	1.08	65.55	50.00	56.06	0.80	***			329
size	very low	0.01	0.00	0.01	97.96	39.96	219.30	0.36	***	-5.03	***	1017
	moderately low	0.18	0.17	0.09	122.26	54.86	210.25	0.51	***	1.74	**	1019
	moderately high	0.59	0.56	0.17	160.10	63.44	595.50	0.16	***	5.85	***	1017
	very high	2.07	1.69	1.22	186.55	92.86	330.88	0.47	***			1014
leverage	very low	0.05	0.00	0.07	3.59	2.41	3.33	0.74	***	-0.46		47
	moderately low	0.30	0.31	0.07	3.26	2.92	2.12	0.90	***	1.16		47
	moderately high	0.97	0.98	0.43	2.76	2.10	1.95	0.69	***	2.99	***	48
	very high	3.27	2.50	1.27	4.08	3.20	2.51	0.86	***			45
Panel B: Average prior 3-year lead arranger market share (sum of all lead arranger market shares)												
spread	very low	0.01	0.00	0.02	196.50	162.50	143.35	0.85	***	2.04	**	660
	moderately low	0.27	0.25	0.14	183.22	150.00	136.90	0.81	***	-4.18	***	664
	moderately high	1.20	1.14	0.42	154.19	132.50	103.73	0.83	***	2.43	***	656
	very high	5.01	3.76	3.74	142.34	125.00	129.91	0.67	***			657
fee	very low	0.01	0.00	0.01	70.10	60.00	65.28	0.62	***	1.18		332
	moderately low	0.20	0.18	0.12	73.02	63.75	53.49	0.88	***	1.47	*	328
	moderately high	0.99	0.92	0.38	66.64	60.00	50.74	0.88	***	-0.33		330
	very high	5.10	3.57	4.40	67.87	55.00	57.22	0.81	***			329
size	very low	0.01	0.00	0.02	95.39	39.70	217.62	0.36	***	-2.37	***	1017
	moderately low	0.26	0.25	0.13	119.53	45.17	553.43	0.11	***	6.45	***	1022
	moderately high	1.08	1.04	0.38	145.33	73.98	297.06	0.38	***	-6.68	***	1013
	very high	4.61	3.50	3.54	206.71	99.79	333.31	0.53	***			1015
leverage	very low	0.07	0.00	0.09	3.15	2.41	2.81	0.70	***	-1.43	*	47
	moderately low	0.44	0.39	0.15	3.77	2.96	2.67	0.86	***	1.51	*	47
	moderately high	1.61	1.56	0.55	2.92	2.08	2.13	0.76	***	2.08	**	47
	very high	4.30	4.07	1.33	3.82	2.91	2.53	0.84	***			46

Table 4: Regression Analysis of the Valuable Certification, Direct Compensation, and Indirect Compensation Hypotheses

The regressions for spread and size are estimated with OLS and adjusted R^2 are reported as goodness-of-fit measures. The regressions for fee and leverage are estimated as a tobit model with maximum likelihood and McKelvey-Zavoina pseudo R^2 are reported as goodness-of-fit measures. ***, **, and * indicate that the coefficients are significantly different from zero at the 1%, 5% or 10% level, respectively. For a definition of the variables see Table A.1. All available industry dummies are used except those for banks and financial services, which serve as the benchmark. Regressions (1) and (2) use the maximum number of observations for which the regression variables are available. Regression (3) uses a common sample for which spread, fee, size and the independent variables are available. Regression (4) uses a common sample for which spread, size, leverage and the independent variables are available.

dependent variable	spread								fee							
regression	(1)		(2)		(3)		(4)		(1)		(2)		(3)			
independent variable																
Panel A: 3-year prior lead arranger market share (average across all lead arrangers)																
intercept	176.67	***	404.06	***	283.16	***	1088.83	***	72.59	***	98.18	***	88.40	***		
lead arranger market share	-10.44	***	-9.16	***	-16.83	***	3.00		-5.70	***	-4.65	***	-2.84			
country risk			-2.59	***	-2.05	***	-8.67	***			-1.01	***	-0.94	***		
creditor rights			-11.69	***	-11.15	***	-36.37	**			7.64	***	7.02	***		
cash flow risk (currency risk)			-44.81	***	-21.92	***	-202.16	***			3.26		4.37			
project life (maturity)			-0.04		-0.05		-0.34				0.07	**	0.07	**		
operational risk dummies																
general covenants			83.62	***	112.69	***	164.18	***			55.11	***	39.51	***		
financial covenants			-16.64	**	0.20		22.42				-12.25	***	-11.48	**		
industry risk dummies																
corporate			24.92		82.24	***	-50.11				24.09	**	27.41	**		
utilities			-0.17		67.50	***	-121.77	**			27.57	**	29.52	***		
media & telecommunication			47.90	*	98.98	***	-13.62				22.89	*	29.19	**		
government			21.58		96.01	***	-177.72				35.27	**	42.67	***		
unknown			24.92		62.83	***					20.80	*	24.45	**		
adjusted / pseudo R^2	0.006		0.095		0.129		0.329		0.010		0.130		0.087			
number of observations	2637		2452		1131		126		1319		1246		1131			
Panel B: 3-year prior lead arranger market share (sum of all lead arrangers)																
intercept	179.70	***	400.70	***	275.22	***	1097.55	***	68.94	***	95.99	***	86.62	***		
lead arranger market share	-6.53	***	-5.95	***	-4.77	***	-3.36		0.14		-0.37		-0.14			
country risk			-2.63	***	-2.15	***	-8.77	***			-1.02	***	-0.94	***		
creditor rights			-10.37	***	-8.37	**	-35.52	**			8.19	***	7.36	***		
cash flow risk (currency risk)			-41.05	***	-16.86	**	-202.29	***			4.09		4.97			
project life (maturity)			-0.04		-0.05		-0.29				0.06	**	0.06	**		
operational risk dummies																
general covenants			79.35	***	111.46	***	167.18	***			55.52	***	39.79	***		
financial covenants			-10.63		5.55		17.54				-11.94	***	-11.43	**		
industry risk dummies																
corporate			28.02		84.61	***	-47.92				24.10	**	27.42	**		
utilities			5.67		67.17	***	-119.10	**			26.14	**	28.62	**		
media & telecommunication			50.00	**	100.42	***	-11.47				22.44	*	28.89	**		
government			25.23		94.34	***	-175.99				34.67	**	42.63	***		
unknown			27.32		65.24	***					21.32	*	24.78	**		
adjusted / pseudo R^2	0.018		0.103		0.126		0.330		0.000		0.127		0.085			
number of observations	2637		2452		1131		126		1319		1246		1131			

Table 4 continued

dependent variable	log(size)								leverage					
regression	(1)		(2)		(3)		(4)		(1)		(2)		(4)	
independent variable														
Panel A: 3-year prior lead arranger market share (average across all lead arrangers)														
intercept	3.90	***	2.20	***	1.55	***	1.67	*	2.90	***	-1.19		-0.75	
lead arranger market share	0.21	***	0.19	***	0.20	***	-0.03		0.45	***	0.50	***	0.59	***
country risk			0.01	***	0.02	***	0.02	***			0.04	***	0.04	**
creditor rights			-0.01		0.09	**	0.05				0.09		0.26	
cash flow risk (currency risk)			0.35	***	0.16	*	0.59	*			0.56		0.64	
project life (maturity)			0.00	***	0.01	***	0.01	***			0.00		0.00	
operational risk dummies														
general covenants			0.11		0.11		-0.24				0.17		0.31	
financial covenants			-0.11	*	-0.07		0.32				-0.32		-0.56	
industry risk dummies														
corporate			0.38	**	0.27		0.12				-0.18		-0.36	
utilities			0.36	*	0.17		-0.55				0.64		0.44	
media & telecommunication			0.81	***	0.71	**	-0.20				-0.68		-1.07	
government			0.03		0.11		0.46				1.81		1.11	
unknown			0.24		0.05									
adjusted / pseudo R^2	0.023		0.064		0.118		0.122		0.034		0.161		0.196	
number of observations	4067		3414		1131		126		187		157		126	
Panel B: 3-year prior lead arranger market share (sum of all lead arrangers)														
intercept	3.88	***	2.32	***	1.60	***	1.51		3.12	***	-0.82		-0.35	
lead arranger market share	0.11	***	0.11	***	0.11	***	0.08		0.18	*	0.14		0.18	
country risk			0.01	***	0.02	***	0.03	***			0.04	**	0.04	**
creditor rights			-0.03		0.05		0.03				0.07		0.22	
cash flow risk (currency risk)			0.29	***	0.08		0.58	*			0.50		0.52	
project life (maturity)			0.00	***	0.01	***	0.00	***			0.00		0.00	
operational risk dummies														
general covenants			0.17		0.16		-0.29				0.43		0.59	
financial covenants			-0.18	***	-0.20	*	0.40				-0.67		-0.89	
industry risk dummies														
corporate			0.32	*	0.21		0.08				-0.04		-0.21	
utilities			0.26		0.10		-0.60				0.68		0.55	
media & telecommunication			0.77	***	0.65	**	-0.24				-0.61		-0.95	
government			-0.02		0.15		0.43				1.84		1.25	
unknown			0.18		0.02									
adjusted / pseudo R^2	0.044		0.083		0.152		0.133		0.034		0.140		0.115	
number of observations	4067		3414		1131		126		187		157		126	

Table 5: Regional Differences in the Lead Arranger's Position

See notes to Table 4. Each regression uses the maximum number of observations for which the regression variables are available. The number of observations for Africa, Eastern Europe and CIS, Latin America and the Caribbean, and Middle East and Turkey are too few to allow for a separate regression analysis. The same applies to leverage regression of North America and Western Europe.

dependent variable	spread										fee									
region	developing countries		developed countries		Asia		North America		Western Europe		developing countries		developed countries		Asia		North America		Western Europe	
independent variable																				
Panel A: 3-year prior lead arranger market share (average across all lead arrangers)																				
intercept	501.50	***	257.29	***	543.91	***	1162.81	***	63.21		99.50	***	20.17		150.94	***	384.60		428.74	**
lead arranger market share	-9.70	*	-8.94	***	-15.58	***	-8.60	**	-0.15		-6.98	*	-2.46		-7.14	***	2.30		2.16	
country risk	-3.71	***	-0.65	*	-5.46	***	-8.27	***	0.83	**	-1.09	***	0.05		-2.27	***	-3.31		-4.61	**
creditor rights	3.77		-14.09	***	19.64	***	-169.84		6.26		10.16	***	9.90	***	24.81	***			14.07	***
cash flow risk (currency risk)	-106.41	***	-20.17	**	-44.13	***	87.09	***	0.10	***	-13.92	*	5.81		6.86	*	164.99	***	-13.76	
project life (maturity)	-0.12		0.00		0.04		-0.03				0.20	***	0.02		0.15	***	-0.10		0.01	
operational risk dummies									63.99	***										
general covenants	79.15	*	66.46	***	71.44		17.38		7.79		31.36		48.29	***			25.83	**	61.00	*
financial covenants	-27.56	*	-1.82		-21.01	**	25.41	*			-24.13	***	-0.82		-10.97	**	6.09		5.15	
industry risk dummies									-46.34	*										
corporate	35.21		-7.72		15.85		11.39		-37.13		29.32	**	2.97		10.84		-5.87		9.30	
utilities	29.35		-41.46		-16.59		-54.53		-44.88		31.28	**	6.29		11.24		0.36		18.78	
media & telecommunication	16.75		27.96		23.65		61.84		-39.07		25.13		2.29		29.28	*	-28.99		18.15	
government	24.37		0.24		73.54	*	1.15				48.78	**	-14.38		-1.01				-35.71	
unknown	22.24		6.12		-0.97		12.51				35.33	***	-7.20		5.00					
adjusted / pseudo R^2	0.121		0.078		0.149		0.169		0.076		0.115		0.088		0.271		0.326		0.417	
number of observations	876		1576		1237		518		376		593		653		908		121		96	
Panel B: 3-year prior lead arranger market share (sum of all lead arrangers)																				
intercept	486.94	***	260.39	***	532.58	***	1182.80	***	71.06		92.51	***	14.45		150.04	***	529.17	**	385.54	**
lead arranger market share	-5.78	***	-6.31	***	-6.04	***	-7.24	***	-0.46		-0.78		1.17		-0.05		7.63	**	4.29	***
country risk	-3.75	***	-0.69	*	-5.50	***	-8.33	***	0.58		-1.04	***	0.07		-2.30	***	-4.86	*	-4.17	*
creditor rights	6.76		-12.89	***	21.94	***	-178.53		5.01	*	11.13	***	10.24	***	25.54	***			13.83	***
cash flow risk (currency risk)	-100.55	***	-17.34	**	-39.09	***	86.91	***	5.32		-14.29	*	5.91		8.00	**	163.08	***	-18.59	*
project life (maturity)	-0.08		0.00		0.05		-0.03		0.09	***	0.20	***	0.02		0.13	***	-0.09		0.03	
operational risk dummies																				
general covenants	70.55		64.14	***	53.60		16.91		66.47	***	30.23		49.66	***			26.59	**	62.91	*
financial covenants	-11.34		-0.33		-16.14		25.44	*	8.01		-21.57	**	-0.91		-12.04	**	7.65		7.61	
industry risk dummies																				
corporate	39.56		-8.41		20.25		5.99		-41.18		29.58	**	3.33		10.77		-8.34		4.20	
utilities	35.01		-38.54		-12.32		-58.29		-30.95		30.57	**	4.62		9.25		-12.83		10.28	
media & telecommunication	17.01		26.87		25.32		55.72		-33.24		24.02		2.38		28.54	*	-31.24		8.82	
government	29.97		-1.05		75.98	*	-5.87		-36.32		46.93	**	-10.71		0.64				-32.87	
unknown	26.92		4.15		3.40		7.11				35.83	***	-5.67		5.44					
adjusted / pseudo R^2	0.133		0.082		0.153		0.170		0.081		0.102		0.089		0.262		0.368		0.425	
number of observations	876		1576		1237		518		376		593		653		908		121		96	

Table 5 continued

dependent variable	log(size)										leverage									
region	developing countries			developed countries			Asia		North America		Western Europe		developing countries			developed countries			Asia	
independent variable																				
Panel A: 3-year prior lead arranger market share (average across all lead arrangers)																				
intercept	2.07	***		2.55	***		2.21	***	-1.81		1.73		1.27			2.63			-0.60	
lead arranger market share	0.16	***		0.20	***		0.17	***	0.17	***	0.20	***	-0.23			0.70	***		0.82	***
country risk	0.01	***		0.01	*		0.01	***	0.05		0.02		0.03			0.00			0.05	*
creditor rights	-0.05			0.01			0.18	***	0.30		-0.03		-0.76	**		0.04			-0.06	
cash flow risk (currency risk)	0.29	***		0.46	***		0.12	*	0.70	**	0.85	***	0.32			0.72			-0.24	
project life (maturity)	0.01	***		0.00	***		0.00	***	0.00	***	0.00	***	0.00			0.00			0.00	
operational risk dummies																				
general covenants	-0.14			0.17			1.23		0.14		-0.04		0.33			0.40				
financial covenants	-0.01			-0.21	***		-0.08		-0.39	***	0.02		-1.52			-0.10			-0.11	
industry risk dummies																				
corporate	0.32	*		0.51			0.20		0.97	*	0.27		0.97			-0.39			-0.75	
utilities	0.28			0.44			0.29		1.21	**	-0.11		1.76			0.46			0.41	
media & telecommunication	0.91	***		0.87	**		0.94	***	0.86		0.92		1.25			-0.87			-3.04	
government	-0.09			0.17			-0.29		0.06		0.17		3.31	*						
unknown				0.33			0.07		0.75		1.71									
adjusted / pseudo R^2	0.134			0.050			0.068		0.085		0.099		0.285			0.138			0.231	
number of observations	1341			2073			1744		619		511		50			107			73	
Panel B: 3-year prior lead arranger market share (sum of all lead arrangers)																				
intercept	2.31	***		2.52	***		2.30	***	-2.07		1.44		0.68			-1.40			1.36	
lead arranger market share	0.08	***		0.14	***		0.11	***	0.19	***	0.09	***	-0.07			0.27			0.26	
country risk	0.01	***		0.01	**		0.01	***	0.05		0.02		0.04			0.04			0.02	
creditor rights	-0.07	*		-0.02			0.16	***	0.27		-0.01		-0.62	**		0.29			0.03	
cash flow risk (currency risk)	0.25	***		0.40	***		0.06		0.73	**	0.83	***	0.15			0.79			-1.24	
project life (maturity)	0.01	***		0.00	***		0.00	***	0.00	***	0.00	***	0.00			0.00			0.00	
operational risk dummies																				
general covenants	-0.05			0.21			1.38		0.15		0.10		0.08			0.65				
financial covenants	-0.11			-0.24	***		-0.14	*	-0.37	**	-0.02		-1.37			-0.37			-0.18	
industry risk dummies																				
corporate	0.25			0.54			0.15		1.15	**	0.43		0.62			-0.46			-0.80	
utilities	0.20			0.39			0.19		1.30	**	-0.04		1.60			0.54			0.96	
media & telecommunication	0.85	***		0.91	**		0.92	***	1.03	*	1.08		1.01			-0.89			-3.02	
government	-0.15			0.21			-0.28		0.26		0.32		2.95	*						
unknown	0.12			0.38			0.01		0.94	*	1.86									
adjusted / pseudo R^2	0.152			0.067			0.099		0.107		0.103		0.259			0.158			0.256	
number of observations	1341			2073			1744		619		511		50			107			73	

Table 6: Impact of the Asian Crisis on the Lead Arranger's Position

See notes to Table 4. Each regression uses the maximum number of observations for which the regression variables are available. Leverage data is only available as off 1998.

dependent variable	spread						fee					
period	pre-crisis		crisis		post-crisis		pre-crisis		crisis		post-crisis	
independent variable												
Panel A: 3-year prior lead arranger market share (average across all lead arrangers)												
intercept	352.76	***	627.09	***	315.72	***	189.92	**	64.02		-17.38	
lead arranger market share	0.70		10.86		-18.84	***	4.10		0.07		-10.47	***
country risk	-2.76	***	-3.65	***	-2.43	***	-2.02	***	-1.15	***	-0.09	
creditor rights	4.83		-21.28	**	-16.09	***	12.60	***	5.24		6.27	**
cash flow risk (currency risk)	-28.01	***	-64.97	***	-51.93	***	-17.74	***	19.94	**	29.71	***
project life (maturity)	0.19	**	-0.23		-0.04		0.13	***	0.04		0.01	
operational risk dummies												
general covenants	43.93	*	154.42	***	80.13	***	68.86	**	49.98	***	62.68	***
financial covenants	-8.44		-44.41		-15.63	*	-36.99		-4.07		-11.79	**
industry risk dummies												
corporate	13.77		-87.33		118.14	***	6.15		54.47		78.13	***
utilities	-2.03		-116.12		89.68	*	-5.51		65.71	*	86.52	***
media & telecommunication	23.38		-68.97		167.42	***	1.67		60.45		67.06	**
government	-25.04		-96.01		125.62	***	41.28	*	84.55	**	57.42	*
unknown	6.58		-93.62		131.94	***	1.00		75.78	**	62.32	**
adjusted / pseudo R^2	0.054		0.167		0.115		0.186		0.221		0.137	
number of observations	824		382		1246		607		230		409	
Panel B: 3-year prior lead arranger market share (sum of all lead arrangers)												
intercept	345.95	***	641.80	***	304.69	***	190.86	***	63.16		-25.14	
lead arranger market share	-1.53		-3.92		-9.94	***	0.91		3.25		-2.30	***
country risk	-2.67	***	-3.73	***	-2.46	***	-1.99	***	-1.12	***	-0.13	
creditor rights	4.64		-21.06	**	-13.93	***	11.86	***	4.47		8.36	***
cash flow risk (currency risk)	-26.71	***	-63.37	***	-42.59	***	-18.59	***	18.69	**	33.69	***
project life (maturity)	0.20	***	-0.24		-0.04		0.13	**	0.04		0.00	
operational risk dummies												
general covenants	42.45	*	160.45	***	71.90	***	69.22	**	49.15	***	63.94	***
financial covenants	-9.32		-50.48		-5.47		-38.11		-3.31		-7.88	
industry risk dummies												
corporate	14.03		-86.59		125.68	***	5.98		52.15		79.71	***
utilities	1.23		-110.76		99.96	**	-4.67		62.38	*	86.29	***
media & telecommunication	24.54		-63.24		169.54	***	0.96		56.65		68.37	**
government	-21.54		-85.92		130.48	***	41.73	*	80.99	*	58.63	*
unknown	6.61		-93.83		137.74	***	1.02		75.41	**	64.48	***
adjusted / pseudo R^2	0.056		0.166		0.131		0.187		0.227		0.131	
number of observations	824		382		1246		607		230		409	

Table 6 continued

dependent variable	log(size)						leverage					
period	pre-crisis		crisis		post-crisis		pre-crisis		crisis		post-crisis	
independent variable												
Panel A: 3-year prior lead arranger market share (average across all lead arrangers)												
intercept	1.46	***	1.54	***	2.55	***	0.01		-0.63			
lead arranger market share	0.16	***	0.19	**	0.17	***	-0.18		0.58	***		
country risk	0.01	***	0.02	***	0.01	***	0.04	*	0.04			
creditor rights	0.05		0.02		-0.03		-0.20		0.25			
cash flow risk (currency risk)	-0.08		0.60	***	0.49	***	1.28	*	0.13			
project life (maturity)	0.01	***	0.01	***	0.00	***	0.01		0.00			
operational risk dummies												
general covenants	0.23		0.29		-0.25		-1.13		2.15			
financial covenants	0.10		-0.03		-0.08		1.68		-1.03			
industry risk dummies												
corporate	0.64	***	0.22		0.24		-0.51		-0.18			
utilities	0.71	***	0.04		0.15		-0.85		1.28			
media & telecommunication	0.98	***	0.33		0.65		-0.71		-2.11			
government	0.74	**	-0.67		-0.13		-0.10		5.09	**		
unknown	0.56	**	0.25		-0.06							
adjusted / pseudo R^2	0.174		0.132		0.045		0.145		0.406			
number of observations	1035		470		1909		74		83			
Panel B: 3-year prior lead arranger market share (sum of all lead arrangers)												
intercept	1.70	***	1.52	***	2.68	***	-0.13		-0.24			
lead arranger market share	0.10	***	0.16	***	0.10	***	-0.12		0.09			
country risk	0.01	***	0.02	***	0.01	***	0.04	*	0.03			
creditor rights	0.01		-0.03		-0.04		-0.16		0.29			
cash flow risk (currency risk)	-0.17	*	0.59	***	0.44	***	1.34	*	0.11			
project life (maturity)	0.01	***	0.01	***	0.00	***	0.01		0.00			
operational risk dummies												
general covenants	0.20		0.29		-0.19		-1.20		3.76			
financial covenants	0.11		-0.04		-0.15	**	1.76	*	-1.83			
industry risk dummies												
corporate	0.63	***	0.16		0.12		-0.50		0.31			
utilities	0.65	***	-0.08		-0.01		-0.84		1.55	*		
media & telecommunication	0.96	***	0.23		0.55		-0.67		-2.31			
government	0.58	*	-0.65		-0.21		-0.08		4.80	**		
unknown	0.56	**	0.15		-0.17							
adjusted / pseudo R^2	0.198		0.154		0.061		0.153		0.379			
number of observations	1035		470		1909		74		83			

Table 7: Size Differences in the Lead Arranger's Position

See notes to Table 4. We split the sample into two parts. One containing small loans with a below median real size of less than $ 59.55 million, the other containing the larger-than-median loans. Each regression uses the maximum number of observations for which the regression variables are available.

dependent variable	spread				fee				log(size)				leverage			
tranche size	large		small		large		small		large		small		large		small	
independent variable																
Panel A: 3-year prior lead arranger market share (average across all lead																
intercept	470.28	***	415.85	***	70.86	**	117.07	***	4.16	***	2.67	***	0.31		-1.05	
lead arranger market share	-7.88	***	-8.26	*	-1.79		-8.65	***	0.06	***	0.04		0.37	**	0.74	***
country risk	-1.77	***	-3.15	***	-0.99	***	-1.18	***	0.01	***	0.00	**	0.02		0.05	**
creditor rights	-6.75	**	-17.51	***	7.31	***	8.06	***	0.00		-0.03		0.20		-0.13	
cash flow risk (currency risk)	-30.45	***	-54.06	***	-2.40		6.60		0.14	***	0.25	***	0.02		0.65	
project life (maturity)	0.00		-0.04		0.09	***	0.03		0.00	***	0.00		0.00		0.00	
operational risk dummies																
general covenants	59.85	***	130.98	***	33.01	***	82.97	***	-0.06		-0.26	**	-0.16		0.74	
financial covenants	2.22		-37.63	***	-	**	-10.62		0.00		-0.12	**	-0.91		0.82	
industry risk dummies																
corporate	-147.44	***	90.80	***	53.27	**	15.36		0.14		-0.04		0.54		-1.08	
utilities	-157.43	***	50.17	*	55.93	**	22.55	*	0.21		-0.15		0.71		0.65	
media & telecommunication	-113.92	***	106.74	***	51.01	*	23.87		0.18		0.11		0.47		-1.44	
government	-159.63	***	96.09	***	64.42	**	27.23		0.01		-0.09		2.05			
unknown	-133.00	***	75.91	***	48.43	*	14.04		0.03		-0.01					
adjusted / pseudo R^2	0.075		0.127		0.124		0.168		0.039		0.021		0.108		0.309	
number of observations	1255		1197		590		656		1680		1734		86		70	
Panel B: 3-year prior lead arranger market share (sum of all lead arrangers)																
intercept	467.19	***	415.38	***	70.25	**	111.24	***	4.20	***	2.68	***	-0.30		1.23	
lead arranger market share	-4.49	***	-7.23	***	-0.26		-0.83		0.04	***	0.03	***	0.05		0.36	**
country risk	-1.84	***	-3.16	***	-1.01	***	-1.17	***	0.01	***	0.00	**	0.03		0.03	
creditor rights	-5.53	*	-16.41	***	7.55	***	9.15	***	-0.01		-0.03		0.27		-0.45	
cash flow risk (currency risk)	-26.77	***	-51.89	***	-2.18		8.61		0.11	**	0.25	***	0.36		0.01	
project life (maturity)	0.00		-0.04		0.09	***	0.01		0.00	***	0.00		0.00		0.00	
operational risk dummies																
general covenants	56.48	***	126.22	***	32.79	***	85.83	***	-0.04		-0.24	**	0.17		0.77	
financial covenants	7.35		-31.83	***	-	**	-9.59		-0.03		-0.13	**	-1.28	*	0.54	
industry risk dummies																
corporate	-141.65	***	91.12	***	53.60	**	15.65		0.11		-0.04		0.66		-1.39	
utilities	-149.82	***	54.26	*	55.86	**	20.42		0.16		-0.17		0.84		0.31	
media & telecommunication	-110.29	***	107.49	***	51.34	*	24.52		0.16		0.10		0.57		-2.03	*
government	-152.07	***	95.99	***	64.54	**	25.60		-0.02		-0.09		1.95			
unknown	-127.67	***	75.50	***	48.78	*	14.91		0.00		-0.01					
adjusted / pseudo R^2	0.083		0.133		0.126		0.160		0.050		0.023		0.110		0.309	
number of observations	1255		1197		590		656		1680		1734		86		70	

Table A-1: Definitions of Variables

variable	description	source	variable type
spread	spread over the base rate in basis point	Dealscan	dependent variable
fee	upfront fee in basis points	Dealscan	dependent variable
size	Real size of the loan tranche converted into millions of US dollar. To facilitate the comparison of loan signed in different years, the loan size is converted into real values using the IFS's GDP deflator for the US (USY99BIRH)	Dealscan	dependent variable
leverage	debt-to-equity ratio of the project calculated as (loans+bonds)/equity	ProjectWare	dependent variable
lead arranger market share	The annual market share of each arranger is calculated as the individual lead arrangers amount in percent of the total amount of all lead arrangers. Based on the year of loan signing, 1-, 3-, 5-, and 7-year prior average market shares are calculated. For loan tranches with multiple lead arrangers, both the sum as well as the average of all individual lead arranger market shares is used.	Dealscan	control variable
country risk	Country risk score ranging from 0 for the country with the higest risk to 100 for the country with the lowest risk. The country risk score is based on political risk (25%), economic performance (25%), debt indicators (10%), default / rescheduled debt (10%), credit ratings (10%), bank finance access (5%), short term finance access (5%), capital markets access (5%). and forfaiting (5%). Weights of each component are given in parentheses.	Euromoney	control variable
creditor rights	An index aggregating creditor rights, following La Porta and others (1998), provided by Djankov, McLiesh and Shleifer. A score of one is assigned when each of the following rights of secured lenders are defined in laws and regulations: First, there are restrictions, such as creditor consent or minimum dividends, for a debtor to file for reorganization. Second, secured creditors are able to seize their collateral after the reorganization petition is approved, i.e. there is no "automatic stay" or "asset freeze." Third, secured creditors are paid first out of the proceeds of liquidating a bankrupt firm, as opposed to other creditors such as government or workers. Finally, if management does not retain administration of its property pending the resolution of the reorganization. The index ranges from 0 (weak creditor rights) to 4 (strong creditor rights) and is constructed as at January for every year from 1978 to 2003. As the creditor rights index is relatively stable over time, loans signed in 2004 and 2005 are assigned the creditor rights index for 2003.	Djankov, McLiesh, Shleifer "Private credit to 129 countries", available at http://www.andrei-shleifer.com/data.html	control variable
currency risk	Dummy equal to 1 for loans that are denominated in a currency different from the currency in the borrower's home country.	Dealscan	control variable

Table A-1 continued

variable	description	source	variable type
EPC construction contract	Operational risk management contract dummy. Dummy equal to 1 if EPC construction contract exists.	ProjectWare	control variable
off-take contract	Operational risk management contract dummy. Dummy equal to 1 if off-take contract exists.	ProjectWare	control variable
supply contract	Operational risk management contract dummy. Dummy equal to 1 if supply contract exists.	ProjectWare	control variable
equipment contract	Operational risk management contract dummy. Dummy equal to 1 if equipment contract exists.	ProjectWare	control variable
O&M contract	Operational risk management contract dummy. Dummy equal to 1 if O&M contract exists.	ProjectWare	control variable
sponsors as SPV counterparties	Dummy equal to 1 for projects where sponsors are counterparties in the special purpose vehicle company.	ProjectWare	control variable
maturity	life of the loan in months	Dealscan	control variable
general covenants dummy	Dummy equal to 1 for loans that have general covenants.	Dealscan	control variable
financial covenants dummy	Dummy equal to 1 for loans that have financial covenants.	Dealscan	control variable
broad industry group dummies	Dummies equal to 1 if loan finances project in a certain industry. For each of the following industry groups, a dummy is created: Corporate, government, media & telecommunication, utilities, unknown industry. The control group includes banks and financial services.	Dealscan	control variable
number of lenders	Number of banks in the syndicate. All roles are included here.	Dealscan	descriptive variable
number of arrangers	Number of arrangers	Dealscan	descriptive variable
number of lead arranger	Number of lead arrangers	Dealscan	descriptive variable
year	year in which loan is signed	Dealscan	descriptive variable
rating	Loan rating based on the S&P and Moody's bank loan rating at close. If missing, S&P and Moody's senior debt rating at close are used. If both rating are available, the average rating is calculated. The rating is converted as follows: AAA+=Aaa1=1, AAA=Aaa2=2, and so on until D=28.	Dealscan	descriptive variable