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POLITICAL RISK IN SYNDICATED LENDING: THEORY AND EMPIRICAL EVIDENCE REGARDING THE USE OF PROJECT FINANCE

by

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ABSTRACT

Why do banks grant project finance loans to borrowers in risky countries? Our double moral hazard model predicts that the use of project finance increases with the degree of managers' moral hazard, projects' political risk and banks' influence over the political risk exposure of projects. We test these predictions with two samples of project finance loans from 1980 to 2003, one global sample and one sample of loans to borrowers in transition countries. We find empirical support for our predictions regarding moral hazard and political risk. With the exception of the IFC, the bank's role is, however, insignificant.

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Over the last 30 years, project finance (PF) has become an important financing tool for public and private ventures around the world. Interestingly, it is used heavily in countries that exhibit a high level of political risk. This observation is even more surprising when the nature of PF as limited or non-recourse financing of a new project through the establishment of a vehicle company is taken into account. Why do banks offer PF loans for projects that entail a high level of political risk? Is it efficient to use this contractual arrangement in risky countries? In this paper we investigate these questions from both a theoretical as well as an empirical perspective.

The key characteristics of PF can be described as follows: A PF deal encompasses the whole contractual structure of the project including, for example, ownership structure or operational and financial risk management, and is thus not simply a funding contract.[1] As such, the venture's business risk is shared by sponsoring owners, contractors, host governments, suppliers, customers, and even creditors who commonly would not bear equity risk.[2] The majority of the funding for the project is raised in the form of debt, i.e. as internationally syndicated loans where the loan is obtained strictly for the project itself with no or only limited recourse to the corporate or government sponsor.[3]

Although some type of limited recourse financing of stand-alone projects has been available for centuries (Kensinger and Martin (1988)), the modern history of PF began in the 1970s with the development of the North Sea oil and gas fields. From these successful beginnings, PF has found its application in various industries including the development of natural resources, electric power, or transportation ventures. Its geographic spread has been worldwide, embracing countries in all continents.[4] Since 1980, US dollar ($) 962,652 million (m) has been raised in the global syndicated loan market to fund 6,344 PF deals in 140 different countries.

It appears that PF is just one financing alternative among many for firms in developed countries. However, in the developing world PF seems to have become a widely used financing

method for many governments. These governments have few financial resources otherwise due to, for example, low tax revenues or high budget deficits. Particularly striking for PF in developing countries is the high political risk of the projects. The success of the projects depends crucially on the host government's political decisions, for instance, on its policy concerning energy or regulations. For political reasons, the acquisition of ownership stakes through foreigners is severely restricted or even impossible. This proviso applies particularly for projects in the natural resource and infrastructure sectors since these are considered by the government to be strategically important. Finally, the syndicate for such types of PF loans now includes not only different Western commercial banks but also international lending organizations (ILOs) such as IFC, EBRD or national export-import banks.

In this study, we therefore investigate the relationship between political risk and the use of PF as a preferred financing choice in contrast to on-balance-sheet syndicated loans (SL). We focus on PF in transition economies where political risk is high and the role of ILOs can be studied in detail. In the first step, we develop a theoretical model of the incentive effects of PF on borrowers and lenders. In particular, our model factors in double moral hazard. Severe problems of asymmetric information prevail which cause a moral hazard problem for the firm's manager as well as for the lender. The latter arises because banks are able to influence the outcome of the project by, for example, influencing government decisions. Generally, our model shows that there is a trade-off between the incentives for the firm and the bank when the degree of the recourse is determined. Our model predicts that a non-recourse credit provides the best incentives to the bank and we can thus explain the use of PF in countries with a high degree of political risk. In the second step, we test the propositions of our model on a global sample of countries in general and on transition countries of Eastern Europe and the Commonwealth of the Independent States (CIS) in more depth. Our results provide overall support of our predictions regarding firm moral hazard

and political risk for the global sample as well as the transition economy sample. However, examination of the bank's role, i.e. its influence over the host government and thus the political risk exposure of the financed project, reveals that among the ILOs, only the influence of the IFC is significant.

Our study is related to the existing evidence on PF in a clear way. Despite the growing importance of PF, very few academic studies of PF, both theoretical as well as empirical exist. Empirical academic work is limited to loan pricing studies (Nguyen and Ross (2002), Kleimeier and Megginson (1998, 2000, 2002)) or syndicate structure analysis (Esty and Megginson (2003)), all of which find a clear relevance of political risk in the context of PF. All loan-pricing studies agree that political risk is reflected in the spread of the loan. Nguyen and Ross even find evidence of a political risk premium for Australian PF loans, though it is of relative low importance compared to other risk premia. Their argument that "[it] is likely that a much higher level of importance would be attached to political risk by Australian lenders for projects conduced in developing countries where political violence, nationalization and expropriation of the property, or foreign exchange transfer blockage and currency inconvertibility often occur" will be directly addressed in our study. The structural choice analyses included in Kleimeier and Megginson's studies indicate that PF is more likely the higher the political risk of the host country.[5] Finally, Esty and Megginson investigate the syndicate structure of PF loans and find that in countries with high political risk, i.e. weak creditor rights and poor legal enforcement, syndicates are particularly large and diffuse in order to deter strategic default. In contrast, in countries with strong and enforceable legal rights, syndicates are structured to ensure monitoring and low-cost re-contracting. Thus, the syndicate structure is a direct result of the political risk. Our theoretical model addresses this lender-risk relationship in a slightly different way by assuming that certain

types of banks can directly mitigate political risk. In the empirical part of our study, we then test which type of bank or syndicate is actually able to modify this risk factor in practice.

Furthermore, our analysis is related to the theoretical literature on PF, bank moral hazard, and double moral hazard problems. The theoretical models on PF study different aspects of this particular form of finance. In an early theoretical paper, it has been shown that in the case of asymmetric information, riskier projects receive PF because the tax advantage is thereby maximized (Shah and Thakor (1987)).[6] Another theoretical model by John and John (1991) is also driven by tax benefits of debt and, in addition, by agency cost of debt, which is related to underinvestment. In their model, PF leads to an optimal distribution of debt between the existing firm and the project so that the agency costs are reduced and the tax-benefits are increased as compared to the on-balance sheet debt case. Focusing on private benefits of control, Chemmanur and John (1996) illustrate how the organizational design of a corporation where lenders have limited or no recourse to one of the projects can be used to maximize the management's control benefits. Povel's (1997) model is driven by inefficiencies in the bank loan market. He argues that by syndicating the credit, banks commit to not rescue the debtor. If the banks fail to determine how to share debt forgiveness, a firm in distress is liquidated. This inefficiency can be used as a commitment device by the banks and prevents some firms with bad projects from demanding credit. Finally, Habib and Johnson (1999) develop a model in which assets can be employed in different uses. Their value in the bad state of the world depends on how much the redeployer has invested *ex ante*. Here, PF can be optimal as it prevents *ex post* bargaining over the value of the assets between the firm and the bank, who is the redeployer of the assets. As such, PF prevents *ex ante* investment distortions.[7]

We take a different approach by studying the effort choice of the firm and the bank and analyze in more detail the resulting double moral hazard problem. In the literature, different types

of bank moral hazard are studied as a bank is assigned different tasks. Rajan and Winton (1995) investigate the bank's incentive to gather unverifiable information on the future prospects of the firm after credit is granted. As banks have a right to claim pre-specified additional collateral, collateralization improves their incentive. Manove et al. (2001) study the bank's incentive to exert costly effort for screening projects *ex ante*. For high screening costs, banks screen too little because the low risk-entrepreneurs are not screened but signal their type by accepting a fully collateralized credit.[8] More realistically, the bank's as well as the firm's efforts are unobservable, resulting in a double moral hazard problem. If the double moral hazard problem exists because the bank has to monitor the effort of the firm, it is optimal to finance firms by a mix of bank credit and external capital (Besanko and Kanatas (1993)). Double moral hazard also arises in venture capital arrangements where the entrepreneur and the venture capitalist have to exert effort (Schmidt, (2003)).[9] Neither pure equity finance nor pure debt finance solves both problems simultaneously. Instead, a convertible security with an appropriately set price gives both parties an incentive to exert first best effort.

In contrast to the existing literature, we do not take a firm's liability as given. It is an interesting challenge to investigate the precise decision on the liability of a debtor with its implications for the boundaries of a firm. We restrict the analysis to the mode of bank finance, i.e., full recourse loans versus PF. In the context of international financing this is justified because it is virtually impossible for foreigners to acquire ownership stakes or, even more, foreign majority ownership.

This paper proceeds as follows. In section I, we study a model with a double moral hazard problem. The incentives resulting from different degrees of recourse are analyzed for banks as well as firms. In section II, we develop empirically testable hypotheses and present the data sources. Section III provides a description of the global use of PF followed by the discussion of

the empirical results for our global and transition economy samples in sections IV and V respectively. Section VI concludes.

I. A Double Moral Hazard Model of Project Finance

A. The Basic Model

The firm has to finance a project, which yields a payoff of X in the case of success and of 0 in the case of failure. It is assumed that the project's assets have a liquidation value of 0.[10] The project costs I. We assume that the investment project is credit financed. The probability of the project's success p is determined by the effort of the firm, denoted by e, as well as by the effort of the bank, denoted by b. On the one hand, the firm's manager determines, for instance, the technical realization of the project. On the other hand, the bank can increase the probability of success by, for example, assisting a firm to get access to markets or experts like an auditor or by influencing government decisions. For simplicity we assume that the impact on the probability of success is independent of the action of the respective other agent.[11] If the firm's manager exerts effort e, the probability of success increases from $\underline{p}$ to $\bar{p}$. Similarly, if the bank decides to exert effort b, the probability of success increases from p_L to p_H. Accordingly, the probabilities of success can be $\overline{\overline{p_H}}$, $\overline{\overline{p_L}}$, $\underline{\underline{p_H}}$ or $\underline{\underline{p_L}}$.

The sponsoring firm that decides on the realization and financing of a new project has wealth of W. This wealth includes all assets of the firm and the cash flows generated by all other projects of the firm. To keep the analysis as simple as possible we assume that assets are not firm specific.[12]

The timing is as follows: The firm decides whether to incorporate the project within the sponsoring firm or separately. At time 0, the bank offers the credit contract, which specifies the repayment R in the case of success and V in the case of failure, where V is determined by the degree of recourse. The contract is then signed by the bank and the firm. Next, the firm as well as the bank can exert effort. At time 1, the payoff of investment, i.e. X or 0, is realized and the bank receives repayment R in the case of success or V in the case of failure. Figure 1 illustrates the timing of these events.

The decision on how to incorporate the project determines the debtor's liability, the degree of recourse, and therefore the bank's payoff if the project fails. If the project is incorporated separately, it receives a non-recourse credit unless the sponsor grants limited recourse in the form of, for example, additional equity or the reduction of dividend or royalty payments. If the project is incorporated within the sponsoring firm, a traditional full-recourse credit is granted. Note that, as Table I shows, in the case of full recourse the bank receives R even if the project fails and generates 0. However, in the case of limited or non-recourse, the bank only receives V if the project fails with $X > V > 0$ in the limited-recourse case and V=0 in the non-recourse case.

[Insert Figure 1 and Table I about here]

The analysis is restricted to welfare increasing projects characterized by the assumption

$$p(e,b)\,X - I - e - b \geq 0 \tag{1}$$

Although it is socially efficient to exert effort because $\left(\bar{p} - \underline{p}\right)X > e$, there exists an incentive problem of the firm because with a non-recourse credit the expected net return for the firm's manager is lower than its effort costs:

$$\left(\bar{p}-\underline{p}\right)\left(X-\frac{I}{\underline{p}}\right)<e. \tag{2}$$

Furthermore, we assume that it is possible to solve the bank's moral hazard problem since the highest expected return from exerting effort covers the bank's effort costs:

$$\left(p_H-p_L\right)\frac{I}{\underline{p}}>b. \tag{3}$$

In a first best world with symmetric information, the effort levels of the firm as well as the bank can be observed, verified by the court, and therefore stipulated in a contract. In practice, these effort levels are not contractible. Thus, the credit contract has to be designed in a way that both parties have an incentive to exert effort.

B. The Moral Hazard Problem of the Bank

The bank can increase the probability of success by exerting effort b, for example, in the bargaining process with the government. It decides to do so if

$$\begin{aligned} &p_H R+\left(1-p_H\right)V-b\geq p_L R+\left(1-p_L\right)V \\ &\text{or} \\ &\left(p_H-p_L\right)\left(R-V\right)\geq b \end{aligned} \tag{4}$$

The incentive compatibility constraint of the bank (IC-B) of equation (4) is more easily fulfilled if the difference in the bank's state-contingent payoffs is high. Consequently, increasing R and simultaneously decreasing V improves the bank's incentive to exert costly effort. We restrict our analysis to parameters that fulfill the bank's participation constraint (PC-B) given by:

$$\overline{p_H}R+\left(1-\overline{p_H}\right)V-I-b\geq 0 \tag{5}$$

Proposition 1: The moral hazard problem of the bank can always be solved by granting a non-recourse credit, i.e. V=0.

Proof:

Depending on the parameter constellation two cases can be distinguished:

- Case A

$$(p_H - p_L)(R - V) \geq b \qquad \text{for } V \geq 0$$

- Case B

$$(p_H - p_L)R \geq b \qquad \text{for } V = 0$$

In Case A, non-recourse as well as limited recourse credits solve the incentive problem. In contrast to Case B, non-recourse is not a prerequisite for solving the bank's moral hazard problem. In Case B, the bank needs higher-powered incentives since the benefits of effort on the probability of success is not as easily reaped, because effort b is either more expensive or not as powerful in terms of increasing the probability of success, i.e. (p_H - p_L). In order to induce the bank to exert effort, the project has to be incorporated separately and therefore the firm is not liable at all in the case of failure. If it is not possible to induce the bank to exert effort by separately incorporating the project, the moral hazard problem of the bank cannot be solved, which we exclude by assumption (3). Q.E.D.

C. The Moral Hazard Problem of the Firm

The firm's manager also has to decide whether to exert effort e or not. Therefore, the management considers the expected payoff that is influenced by the probability of success, the repayment R in the case of success, and the repayment V in the case of failure. Effort is exerted if

$$\bar{p}(W+X-R)+(1-\bar{p})(W-V)-e \geq \underline{p}(W+X-R)+(1-\underline{p})(W-V)$$
or
$$(\bar{p}-\underline{p})(X-R+V) \geq e \qquad (6)$$

By inspecting the incentive constraint of the firm (IC-F) of equation (6) in more detail, we obtain the following implication for its liability.

Proposition 2: The moral hazard problem of the firm can always be solved by making the debtor fully liable, i.e. R=V.

Proof:

As for the bank, the design of the optimal contract depends on the parameter constellation. The following cases have to be distinguished:

- Case 1

$(\bar{p}-\underline{p})(X-R+V) \geq e$ for $R \geq V$

- Case 2

$(\bar{p}-\underline{p})X \geq e$ for $R = V$

In Case 1, the first best solution can be reached with limited or full recourse credit. Full recourse is not necessary to solve the problem because either the difference in state-contingent payoffs of the project, X – 0, is high or the influence of e on the probability of success is large, i.e. ($\bar{p}$ - $\underline{p}$), which provides strong incentives to the firm's manager. In Case 2, full recourse is necessary to induce the firm's manager to exert effort e. By increasing the debtor's liability, the payoff in the case of failure is reduced and thus, the difference in state-contingent payoffs increases.[13] Q.E.D.

D. Double Moral Hazard

The empirical facts suggest that both parties, banks and firms, have to contribute to the success of an investment project. From Propositions 1 and 2 we know that the debtor's liability influences both the bank's as well as the firm's incentive to exert costly effort. On the one hand, limited recourse increases the bank's incentive. On the other hand, limited recourse has a negative impact on the firm's incentive. In this section we inspect in more detail how both moral hazard problems can be addressed simultaneously. The solution depends on the parameter constellations. In the Case 1 and Case A there exists a parameter constellation where both problems can be solved.

Proposition 3: If both incentive problems are less severe, i.e. $X \geq \frac{1}{\overline{p_H} - \underline{p_H}} e + \frac{1}{\overline{p_H} - \overline{p_L}} b$ in Case 1 and Case A, limited recourse, i.e. R>V>0, solves both problems.

Proof:

See Appendix A.

If the incentive problems are not severe, it is possible to design a credit contract that solves both incentive problems. The exact terms depend on how slack the incentive compatibility constraints are. Since banking here is assumed to be perfectly competitive, the contract always generates an expected profit of zero to the bank, i.e. $\overline{p_H} R + \left(1 - \overline{p_H}\right) V - I - b = 0$. Therefore, the relationship between R and V is deduced as $R = \frac{I + b - \left(1 - \overline{p_H}\right) V}{\overline{p_H}}$. If the bank's incentive compatibility

constraint but not the firm's incentive compatibility constraint is binding, the credit contract stipulates $\left\{R = I + b\frac{1-\overline{p_L}}{\overline{p_H}-\overline{p_L}}; V = I - b\frac{\overline{p_L}}{\overline{p_H}-\overline{p_L}}\right\}$. Both bank and firm have an incentive to exert effort only if the condition stated in proposition 3 holds. For all other parameter constellations it is impossible to design a contract that solves both moral hazard problems. In such cases, the contract should grant an incentive to the party for whom the moral hazard problem is solved most efficiently. We study more formally which of the moral hazard problems should be solved in the following proposition.

Proposition 4: If it is not possible to solve both incentive problems, i.e.

$X < \frac{1}{\overline{p_H}-\underline{p_H}}e + \frac{1}{\overline{p_H}-\overline{p_L}}b$, and the project bears a high degree of political risk, i.e.

$\left(\underline{p_H}-\underline{p_L}\right)X - b > \left(\overline{p_L}-\underline{p_L}\right)X - e$, it is optimal to solve the incentive problem of the bank by PF via separately incorporating the new project and via granting a non-recourse credit, i.e. V=0.

Proof:

See Appendix A.

For most parameter constellations, it is not possible to design a contract that gives both parties appropriate incentives. Therefore, the optimal contract solves the incentive problem of the party whose effort has a relatively higher impact on the probability of success. Accordingly, it is optimal to solve the bank's incentive problem if $\left(\underline{p_H}-\underline{p_L}\right)X - b > \left(\overline{p_L}-\underline{p_L}\right)X - e$. For example, if e and b have the same size and b increases the probability of success more than e, then it is optimal to give the bank the incentive to exert effort. To induce the bank to exert effort, the

difference in state-contingent payoffs has to be high which is reached by separately incorporating the new investment project. Then the bank receives no return in the case of failure as the payoff of investment is 0 and there is no recourse on the assets of the firm which sponsors the project.

II. Data and Testable Hypotheses

Our theory answers several questions, the most basic of which is whether or not political risk matters in the design of the credit contract and is as such reflected in the choice between PF and full-recourse SL. This relationship between political risk and financing structure lies at the core of the theoretical model. It is, for example, reflected in the assumption that the bank's effort affects the framework in which the project operates, i.e. the political and government environment. If the foundations of our theorem are correct, we would expect to see a relationship between the use of PF and the political risk in the borrower's country. In particular, PF should be used more frequently for loans to borrowers from countries characterized by high political risk. Focusing on an aggregate country level and recalling our assumption that the investment project is credit financed imply the following testable hypothesis:

Testable Hypothesis 1: There exists a relationship between the use of PF and the political risk in the borrower's country. In particular, the higher the political risk of a country, the larger the fraction of PF loans among all syndicated loans made to borrowers of that country.

However, in our double moral hazard model, the likelihood of an investment being financed with PF depends not only on the level of political risk but also on other factors. In principle, more specific testable hypotheses can be developed from all four propositions. Propositions 1 and 2 are

derived from 'single' moral hazard models with incentives problems for only the bank or the firm respectively, and as such might be less likely to reflect reality. Propositions 3 and 4, which are derived from the double moral hazard model with incentive problems for both bank and firm, are the most realistic starting points. We use Proposition 4 as the foundation for our empirical analysis because the incentive problems in reality are severe.

An economic interpretation of proposition 4 relates the use of PF to three factors: the degree of political risk, the firm's moral hazard problem, and the influence of the bank on the host government in the following way:

- The firm's moral hazard problem is reflected in our model by the influence of managerial effort on the probability of success, i.e. $\left(\bar{p} - \underline{p}\right)$, in relation to the effort costs e. Projects financed by syndicated loans are usually well-standardized operations and do not use innovative technologies. Therefore, the impact of effort on the probability of success is low and the firm's manager has to be provided with rather strong incentives if he should exert effort.
- Political risk is reflected in our model by $(p_H\text{-}p_L)$. The more the government's actions can influence the probability of success of a project, the higher the difference between p_H and p_L will be. On the one hand, the probability of success of the project without any effort by the bank, p_L, will be low in countries with high government involvement and high political risk. On the other hand, once the bank exerts effort, the success probability of the project can be significantly increased. Thus, the higher the political risk, the larger the difference between p_H and p_L, and the larger the impact of the bank's effort.
- The bank's influence on the host government is reflected in b. The higher the bank's influence on the host government, the lower are the costs of b which a given increase in

the project's success probability will be achieved with. In other words, the lower b, the cheaper it is to constrain politically adverse moves.

Regarding the direction of the relationship between these three factors and the use of PF, note the following. According to proposition 4, it is optimal to solve the moral hazard problem of the bank if $(\underline{p}_H - \underline{p}_L)X - b > (\overline{p}_L - \underline{p}_L)X - e$. This condition will be more likely to hold the larger the expression on the left hand side. This will be the case if political risk is high, i.e. $(p_H\text{-}p_L)$ large, or the influence of the banks is high, i.e. b low. In international finance, bank effort has a high impact on the probability of success relative to managerial effort when the political risk of the project is high. In this case, international banks together with international organizations can use their leverage vis-à-vis the government to prevent the government from making decisions which jeopardize the success of credit-financed investment projects. Therefore, projects with a high degree of political risk receive PF. Finally, we can conclude that PF will become more likely the more severe the incentive problem of the firm. The incentive problem of the firm is more severe if the effort cost e increases or the effect of effort on the probability of success, $(\overline{p} - \underline{p})$, decreases. Thus, if the incentive problem increases, the expression on the right hand side of the above expression decreases, which renders the solution of the bank's moral hazard problem relatively more profitable. Alternatively, the effort costs can be interpreted as private benefits, which a manager receives by not pursuing the best corporate strategy, i.e. the one that has a probability of success of $\underline{p}$. In an international comparison one would expect that the private benefits or the effort costs to be higher in countries with a less developed legal framework. In these economies there are much fewer restrictions and much fewer punishments if a manager deviates from the best corporate strategy. Since the difference in the probability of success is

about the same for all projects, independent of the country where it is undertaken, the firm's moral hazard problem is higher in countries with a poor legal framework.

To illustrate the role of banks of our model, consider the following situation: If the government perceives a bank to be unimportant to the country – apart from the investment project under consideration – it might be more willing to engage in actions against the project compared to a situations where the government fears far-ranging consequences of its actions. The government could, for example, be concerned that negative actions regarding one project could spill over onto other projects financed by the same bank. In simple terms, a government might abstain from negative actions against a project if the bank is lending to a large number of other projects in the country. From the bank's point of view, any project-specific benefits from its effort will thus be larger if the bank is relatively important to the government and country.

Therefore, ILOs like the European Bank for Reconstruction and Development (EBRD), the International Financial Corporation (IFC), a member of the World Bank Group, or Germany's Kreditanstalt für Wiederaufbau (KfW, Bank for Reconstruction) are frequently among the banks granting syndicated loans. Their bargaining power is due to their special position as they finance many other projects and decide on financial aid. Therefore, they are called "political umbrellas" as they have a high leverage vis-à-vis the government (Buljevich and Park (1999)). Moreover, as a number of international commercial banks are financing the investment project, the government owes them substantial amounts of money. Thus, a group of banks together can exert pressure on the government, for instance, because they have to agree on a rescheduling of sovereign debt. In addition, banks from countries of major trading partners possess collective bargaining power, which "(...) may give banks sufficient implied leverage to constrain adverse political moves." (Smith and Walter (1997)). For commercial banks, Esty and Megginson (2003) find support for their deterrence hypothesis which states that in countries with weak and non-enforceable legal

rights, syndicates are particularly large and diffuse in order to deter strategic default. This finding would imply that commercial banks too could influence the host government and thus reduce political risk. Considering all these factors, we propose a second testable hypothesis:

Testable Hypothesis 2: The fraction of PF loans among all syndicated loans made to borrowers of a country is larger, the higher the political risk in the borrower's country, the higher the moral hazard problem of the manager, and the higher the influence of the lending bank over the host government.

For our empirical analysis, we collect two sets of data – one for each testable hypothesis. The first dataset is based on the Loanware database and is obtained from Dealogic.[14] It contains loans made in the international syndicated loan market, which have been signed between January 1980 and March 2003 and provides information on the aggregate annual number and US dollar volume of all syndicated loans and, in particular, PF loans by country of the borrower and year of signing. This dataset is used in the first step of our empirical analysis where we investigate the link between political risk and the use of PF on a country level. As a proxy of political risk, we use Euromoney's country risk ratings and ranks available since 1982.

The second dataset combines data from the Loanware database with data obtained from Euromoney and the EBRD. For this dataset, we start with a list of all PF loans to borrowers in the transition economies of Eastern European and the CIS signed between January 1980 and February 2003 for which particular information is available for the borrower (project)'s name and country, signing date, name of the providers and names of all involved banks. Based on the listing of involved banks, we are able to derive proxies for the political influence of the bank. The country specific reform indicators that can be used to derive sector specific political risk proxies

and moral hazard proxies are taken from EBRD Transition Reports.[15] The variables will be explained in detail in section V.

III. Project Finance and the Global Market for Syndicated Loans

Between January 1980 and March 2003, companies from 184 countries raised funds in the global syndicated loan market amounting to a total of 100,940 loans worth $ 20,333,087 m. Of these loans, 6,344 were PF loans worth $ 962,652 m which reflected a wide geographical spread of borrowers from 140 different countries. Figure 2 illustrates this absolute and relative growth of PF over time.[16] Starting from approximately 100 to 150 loans per year in the 1980s, PF reached its peak in 2000 with 559 loans worth $ 139,590 m. While the growth has been steady during most of the 1980s and early 1990s, the most recent figures show more volatility with reductions in PF lending in 1997-98 and again in 2001-02 as financial crises affect PF supply and demand (see Esty and Christov (2002)). Based on the 38 loans totaling $ 8,523 m signed in the first three months of 2003, it is unclear whether this downward trend is already reversing. As impressive as the absolute growth of PF lending is, the syndicate loan market as a whole has grown even more, leading to a slightly falling share of PF loans in the overall market. As opposed to the 1980s, when PF loans amounted to as much as 10% of the syndicated loan market in numbers and volume, their share has fallen to 2% and 6% respectively for 2000 and beyond.

[Insert Figure 2 about here]

Regarding country and the implied political risk features of PF lending, preliminary analysis reveals that a majority of the 184 countries with access to the global syndicated loan

market has access to the PF segment of the syndicated loan market also. Borrowers from 130 countries borrow both on and off balance sheet, whereas borrowers from 44 countries seem to borrow on balance sheet only and borrowers from as few as 10 countries access the PF loan market exclusively. These latter two groups, however, seem to consist of infrequent borrowers. The median (mean) numbers of loans per country for the off-balance-sheet-only group equals 2 (2.4) and for the on-balance-sheet-only group equals 3 (5.9) compared to the much more active borrowers in both segments of the syndicated loan markets with a median (mean) of 13 (48.6) off-balance-sheet PF loans and 80 (774.2) SL per country. Focusing on the number of countries with access to the PF loan market over time supports Esty and Christov's (2002) argument that the geographic reach of PF has been expanding. Our sample reveals that in the five-year periods from 1986-90, 1990-95, and 1996-00, the number of countries with first time PF borrowers equaled 20, 21 and 16 respectively. Thus, comparing the national reach of PF in 1985 of 80 countries with that in March 2003 of 140 countries shows a total increase of 75%.

Table II provides more details regarding the relative use of PF and all syndicated loans (SL) by borrower nationality.[17] The first four columns provide the total $ volume of PF and SL in millions from January 1980 to March 2003 as well as the relative size of PF to the country's total SL and to the total global PF lending during this period. The remaining columns provide the same information for four five-year periods spanning the 1980s and 1990s. This table can answer several questions: Which countries are dominating the PF market? Which countries prefer PF over on-balance-sheet SL or vice versa? Are these geographic patterns stable over time?

Regarding the first question, it becomes clear that over the whole sample period, PF funds were mainly allocated to borrowers in Western Europe, North America, and Asia. Their share in the overall PF market amounted to 29%, 21%, and 22% respectively. Whereas While the PF market share of borrowers from Western Europe and North America has been relative stable,

Asian borrowers' market share has been steadily increasing from 1981 to 1995 but suffered a reduction caused by the financial crises of the late 1990s.

However, looking only at the market shares of different regions is misleading due to the obvious fact that larger countries might naturally have greater demand for loans. Looking, therefore, at a country's PF borrowing relative to its total SL borrowing controls for this possibility and reveals that in comparison to their total syndicated lending, PF is not a very important source of funds for Western European and North American borrowers. In the US, for example, only 2% of all syndicated lending is in the form of PF and figures for Europe are only slightly larger with 6 to 7%. A quite different group of borrowers from Latin American, Eastern European, Middle Eastern, African, and South-East Asia displays a reverse pattern. Despite their total market share in the PF market of 1% to 9% being small, PF is a main source of funds accounting for 16% to 30% of the total SL. As this latter group of countries appears to include countries with higher political risk, we have the first indication that political risk influences the PF versus on-balance sheet lending decision of banks and borrowers.

[Insert Table II about here]

IV. Global Project Finance and Political Risk

To support this first impression of the predominant use of PF in high-risk countries and to test our empirical hypothesis 1, each country's relative PF borrowing is matched to the Euromoney country risk indicator in the year of signing of the loan. In particular, the following

proxies for the relative use of PF are calculated as $PF\_vol_{it} = \frac{PF^{\$}_{it}}{SL^{\$}_{it}} * 100$ or

$PF\_no_{it} = \frac{PF^{\#}_{it}}{SL^{\#}_{it}} * 100$ where

$PF^{\$}_{it}$ = total volume of PF loans in $ million of all borrowers of country i in year t

$SL^{\$}_{it}$ = total volume of SL in $ million of all borrowers of country i in year t

$PF^{\#}_{it}$ = total number of PF loans of all borrowers of country i in year t

$SL^{\#}_{it}$ = total number of all SL of all borrowers of country i in year t

Three alternative proxies measure political risk:[18] $rank_{it}$, $rel\_rank_{it} = \frac{rank_{it}}{countries_t} * 100$, and

$score_{it} = 100 - EMscore_{it}$ where

$rank_{it}$ = Euromoney's country risk rank of country i in year t where the safest country is ranked first and the riskiest country is ranked last,

$countries_t$ = number of countries rated by Euromoney in year t,

$EMscore_{it}$ = Euromoney's country risk score for country i in year t. EMscore ranges from 0 for the highest risk to 100 for the lowest risk.[19]

Note that Euromoney has published its country risk ratings and scores annually in the autumn of each year from 1982 to 1991 and semi-annually in March and September from 1993 to 2002.[20] The autumn rating has been used for this study as this is the one most commonly available. However, in 1993 and 2003 only the March rating is available and this has been used instead. Furthermore, the number of countries rated by Euromoney increased over time from 58 in 1980 to 112 in 1982 and finally 185 in 2002. Thus, the same level of country risk could be reflected in 1983 by a rank of 15 but in 1993 by a rank of 30. To improve the comparability of the rankings over time, the second proxy rel_rank_{it} is calculated which re-scales the country risk to 0 to 100. Finally, as ratings increase with an increase in country risk, Euromoney's score

decreases with an increase in country risk. To enhance the comparability of the coefficients in the later panel regression analysis, the score has been redefined so that it also increases with the increase in country risk.

The resulting panel dataset contains 970 country- and year-specific observations as described in Table III. Note that based on the total of 184 countries and 23 years only those observations which fulfilled all of the following criteria are included: (1) at least one of the political risk proxies rank, rel_rank, or score is available for the country and year under consideration, and (2) in a given year, there was at least one PF loan made to a borrower of the given country. These requirements explicitly exclude all countries which access the SL market but do not borrow in the form of PF in a given year.

As Table III shows, the total sample covers the whole span of the political risk range with a minimum country risk score of 0.00 and a maximum score of 93.00. The average score of 34.88 roughly reflects the country risk of Thailand and China in 1993 or Greece and United Arab Emirates in 1999. Overall, about one third of all loans and funds are raised via PF.[21] However, splitting the sample into quartiles based on the score proxy reveals a clear relationship between political risk and the use of PF. As the political risk increases from low to moderately low, the relative use of PF rises from about 10% to 25% in both volume and number. For countries with moderately high and high political risk, PF becomes even more important as a financing source and amounts to 37% and 59% respectively. To illustrate the strength of our results, note that the mean values for two consecutive quartiles are significantly different based on a t-test.

[Insert Table III about here]

To investigate this relationship in more depth, an OLS panel regression is conducted with the results reported in Table IV. The most basic specifications are represented in regressions 1, 5, and 9 using PF_no_{it} as the dependent variable and regressions 13, 17, and 21 using PF_vol_{it} instead. The results are somewhat more striking when considering PF loan numbers than volume. Nevertheless, for all six regressions the results are consistent and in line with the previous findings of Table III and our empirical hypothesis 1: *More syndicated loan funds are raised in the form of PF in countries with higher political risk.* For example, the estimated coefficient of the political risk proxy score in regression 21 of 0.83 indicates that an increase of a country's score by 10 points is associated with an 8.3% higher use of PF. Two sample observations illustrate this relationship well: Whereas Hong Kong in 1990 with a score of 28.8 (Euromoney's score of 71.2) borrowed 11% of all SL funds in the form of PF, India in 1994 with a score of 40.3 (Euromoney's score of 59.7) borrowed 19% of all SL funds in the form of PF.

Several additional proxies are included as explanatory variables in the regression in order to analyze whether the results are robust over time and across countries. In particular, the dummy d_emerging is coded as 100 if the borrower originates from a developing country (Africa, Asia, Eastern Europe, Latin America, the Middle East, or the Carribean) and zero otherwise (Australia, North America, Western Europe, and all supranational borrowers). Furthermore, additional political risk proxies for the 1990s only are constructed. Rank_90s is set equal to the rank proxy in all years after 1989 and to zero otherwise. The same applies to score_90s and rel_rank_90s. These three proxies allow us to investigate whether the relationship between PF use and political risk has become stronger or weaker over time.[22] As the estimated coefficients in Table IV reveal, there is some slight evidence that the relationship is stronger for developing-country borrowers. However, the estimated coefficient is small in comparison to the main political risk proxy coefficient and is only significant in the regressions including rank and rel_rank. This can be

interpreted as evidence of a slightly non-linear relationship. This relationship is more apparent when the score proxies rather than the rank based proxies for political risk are considered. Regarding the robustness of the results over time, the positive and significant coefficients of the additional proxies rel_rank_90s and score_90s reveal that the relationship has indeed become stronger over time. Thus, based on the data available so far, we cannot support Esty and Christov's (2002) argument that due to the effects of the Asian, Russian financial crises and economic problems in Latin American, PF has and will further shift to safer countries. Overall, the explanatory power of the regressions in the range of 30% to 40% is high. This difference is mainly driven by the use of number versus volume of PF but not by the alternative time and regional variables included. Thus, our conclusion of an increasing role of PF in countries with high political risk appears robust.

[Insert Table IV about here]

V. Project Finance in the Transition Economies of Eastern Europe and CIS

A. The Use of Project Finance

In the second part of our empirical analysis we focus on the transition economies of Eastern Europe and CIS which have attracted growing amounts of foreign capital since the early 1990s. The annual total net capital flows have increased more than tenfold from 1986 to 1997 (Lankes and Stern, 1998). An important source of capital is syndicated lending by commercial banks, which has been growing continuously and amounted to a total of $ 175 billion (bn) for Eastern Europe alone as Table II shows. As for other high risk countries, the share of PF is substantial, averaging 18.2% for the region. Table V illustrates the use of PF in all transition economies in

more detail. The total volume of PF lending of just below $ 31 bn[23] is primarily financing projects in Russia (34% of total PF volume), Poland (26%) and to a lesser extent the Czech Republic and Hungary (11% each). In transition economies, PF is particularly important to finance infrastructure projects in the telecommunication and power sectors. In these sectors, which were owned and are often still owned by the state, decisions of the government are of great importance. Thus, these kinds of projects bear a high degree of political risk and would, according to our model, be financed with PF. This theoretical prediction is supported by the industry distribution of PF with 51% of the total number (59% of known sectors) in these sectors. Whereas in some countries, such as Croatia or Hungary, PF is spread across several sectors, others exhibit very specific patterns. Azerbaijan, for example, raises PF funds to exclusively finance its oil industry. Bulgaria and Slovenia use PF primarily for the development of the power and telecom sector respectively.

[Insert Table V about here]

In order to investigate the link between PF and political risk, moral hazard and bank influence proposed in hypothesis 2, we proceed as follows: First, we define alternative proxies for each of the three factors. Second, we run regressions with one right-hand-side variable at a time to investigate which of the alternative proxies can best explain the use of PF. Third, we select those proxies with the highest explanatory power and construct indicators of political risk, moral hazard and bank influence which will then be used in a multiple regression. However, we easily obtain a first impression by simply replicating the regression 9 and 21 of Table IV for the transition economy sample. As expected, the aggregate measure of country risk based on Euromoney's country risk score is highly significant. In the regression using the number of PF,

the score coefficient equals 0.91 and is significant. The 22.7% explanatory power of this model is slightly lower than that for the global regression 21 in Table IV. Corresponding to regression 9 for PF volume, the transition economy sample leads to a significant score coefficient of 0.93 with a lower adjusted R-square of 19%. In both regressions, the lower explanatory power is most likely driven by the lower variation in country risk among transition economies as compared to the global sample of Table IV. With more specific risk measures defined in the remainder of this section, we should be able to better explain the use of PF in transition economies.

B. The Relevance of Bank Influence

In order to investigate the role of banks in PF and in particular their influence on the host government, we obtain a list of all lenders and their function within the syndicate for each PF loan to an transition-economy borrower from Dealogic. The financial institutions that we consider to be best able to influence political risk are not necessarily commercial banks, but rather the ILOs. Investigating this type of lenders in detail reveals that the EBRD is the most prominent lender participating in 79 of the 295 PF loans and lending to projects in 13 of the 18 transition economies. Other ILOs participating in more than 10 PF loans in our sample include the IFC with 24 PF loans to 6 countries, De Nationale Investerings Bank NV (DNB) with 24 PF loans to 6 countries, Nordic Investment Bank (DNI) with 21 PF loans to 7 countries, Export Development Canada (EDC) with 17 PF loans to 6 countries, KfW with 13 PF loans to 5 countries. Thus, we design proxies that measure to what extent these ILOs participate within the syndicate: $name_{\$,participant}$ is defined as the $ volume of PF loans in which an ILO participates in any role relative to total $ volume of PF loans. These variables are defined for all ILOs, i.e. EBRD, IFC, DNI, NIB, EDC or KfW, separately. Similarly, $name_{\#,participant}$ is defined based on

the number of PF loans. Note that all proxies are aggregates by country and year and are scaled from 0 to 100. The results for these variables will lead us to investigate the role of the IFC in more detail. As such, we define the $ volume of all PF loans in which the IFC participates as a provider ($IFC_{\$,provider}$) or as an arranger without providing funds ($IFC_{\$,arranger\ but\ not\ provider}$) relative to total $ volume of PF loans. Similarly, $IFC_{\#,provider}$ and $IFC_{\#,arranger\ but\ not\ provider}$ are defined based on the number of PF loans.

In order to investigate whether commercial banks as a group are able to influence the host government and thus reduce political risk, we include three proxies related to the syndicate structure: *allbank* is defined as the average number of total banks in a PF deal with the average taken across all PF loans to country i in year t; *arrbank* is defined as the average number of arranging banks across all PF loans to country i in year t; and finally *provbank* is defined as the average number of providing banks across all PF loans to country i in year t.

These proxies are comparable to Esty and Megginson's (2003) syndicate size proxies based on total number of banks, number of arranging banks, and number of providing banks on a loan level. They find evidence in favor of their deterrence hypothesis. In particular, banks form dispersed syndicates in countries with legal uncertainty. This makes default more costly for borrowers and thus, should deter adverse behavior. In contrast to Esty and Megginson, we do not study legal uncertainty, but political risk instead. Nevertheless, in the context of our study, their findings would indicate that the higher the number of banks in a syndicate, the higher the influence on governments. As this deterrence effect might be restricted to those banks that are specializing or dominant in PF, we define as additional variables $top10_{arranger}$, $top10_{lead\ manager}$, and $top10_{provider}$ which measure the average number of arrangers, lead manager, or providers in the syndicate which are also ranked among the top-ten arrangers, lead manager, or providers respectively.[24]

Table VI presents the results of regressing our bank influence proxies on the relative number of PF loans. Our expectation that PF is indeed used more often when banks can exert power over the host government and thus influence the political risk of the host country is confirmed only for the IFC but not for any other ILOs or commercial bank. Regarding the ILOs, there are different possible explanations for the surprising result that only the IFC is able to mitigate political risk. Whereas the results for DNI, NIB, EDC, or KfW can possibly be justified by their relative small size and funding resources, the differences in results between the EBRD and IFC should be discussed in more detail. Note that the influence of an ILO should depend on its reputation. If we assume that it takes time to build up a reputation as a tough creditor, the IFC has a clear advantage because it had been operating for 35 years already when the EBRD was founded in 1991. Furthermore, the IFC is able to reap reputational benefits from the fact that it is part of the World Bank Group, which also includes the International Bank for Reconstruction and Development (IBRD), the International Development Agency (IDA) and the Multilateral Investment Guarantee Agency (MIGA). All of these financial organizations of the World Bank Group work together on the same PF and thus pool not only their comparative advantages,[25] but also their reputational capital. From a sovereign borrower's perspective, adverse behavior in one project is very likely to have spillover effects onto other activities funded by the Group and deterrence is thus very high. Finally, since the EBRD's mission is to support the transition process in Eastern Europe and the former Soviet Union[26], the threat not to grant future credits or fund certain projects in the future may be less credible. This mission is reflected in our sample by the fact that the EBRD funds PF loans in virtually all of the transition economies whereas the IFC seems to be much more selective. Moreover, the share of ownership of transition countries should be higher in the EBRD because the number of EBRD members is lower than that of the IFC.

Regarding commercial banks, the regression results show that they cannot mimic the IFC. The negative and significant coefficients of all top10 proxies rather imply that in countries with a high share of PF, bank syndicates are smaller. Note that not only are the correlations between PF and all commercial bank proxies negative – and thus driving the negative regression coefficients – the correlations between our country risk proxies and the commercial bank proxies are also negative. This result is contradictory to the deterrence hypothesis as it implies that in countries with high political risk, commercial banks form smaller syndicates.

[Insert Table VI about here]

C. The Relevance of Political Risk

Although the global analysis has shown that the country risk proxies have a high explanatory power and are thus good proxies for political risk, they include not only political but also economic risk elements and are as such not very specific. Given that a more specific Euromoney political risk index and a wide variety of EBRD transition indicators are available for transition economies since the beginning of the 1990s, it is possible to isolate and investigate the nature of the political risk.

In principle, political risk can be divided into three broad categories - traditional political risk, regulatory risk, and quasi-commercial risk (Smith (1998)).[27] The first category of traditional political risk includes such risks relating to expropriation, currency convertibility and transferability, and political violence such as war, sabotage, or terrorism. The second category of regulator risk covers risks arising from un-anticipated regulatory changes. These include taxation or foreign investment laws applicable to the whole economy but can also be industry specific. A

substantial part of PF funds is invested in infrastructure as Table V shows. A typical example is the price setting in the utility sector where both the commercial operator and the lender are interested in setting a sufficiently high price to allow for profitable operation of the project whereas the government prefers to keep prices low in order to gain popular support or to avoid civil unrest. Finally, quasi-commercial risks reflect those risks that arise when the project is facing state-owned suppliers or customers, whose ability or willingness to fulfill their contractual obligations towards the project is questionable. This is again especially important in the infrastructure sector. To capture these risks, we define the following proxies[28]:

pol_risk = 25 - Euromoney political risk score for country x in year t.

forex_trade = EBRD index of foreign exchange and trade liberalization.

democrat = EBRD's measure of cumulative democracy (years since free and fair elections).

state_cap = EBRD state capture index (aggregate of different EBRD indices).

gov_chg = EBRD's initial government turnover (in early 1990s) with Yes=3, No=2, War=1.

Pol_risk is an overall political risk measure provided by Euromoney and defined as "the risk of non-payment or non-servicing of payment for goods or services, loans, trade-related finance and dividends, and the non-repatriation of capital. … This does not reflect the risk of individual counterparties" (Euromoney, methodological notes to country risk ratings). As such, pol_risk relates more to the traditional political risk category. More specific EBRD indices are available such as forex_trade, which measures convertibility and transferability risk, democrat and gov_chg, which are most closely related to regulatory risks, and state_cap, which can be interpreted as a proxy for quasi-commercial risks. As many of the PF loans are used to fund infrastructure projects, a proxy for industry-specific regulatory risks can be relevant. Thus, an indicator is constructed to link the industry distribution of PF per country and year to the reform process in these industries by using industry-specific reform indicators provided by the EBRD.

Since 1990, an index of enterprise reform and an aggregate index of infrastructure reform have been available. Since 1998, specific indicators have been available for the infrastructure sectors power, rail, and telecommunication. In addition, since 1999, road and water sector indicators have been available too.[29] These indicators are used in the empirical analysis as

$$\text{indicator}_{\#} = \frac{\sum_{j} \text{reform\_index}_{\text{sector=j}} * \text{PF\_no}_{\text{sector=j}}}{\sum_{i} \text{PF\_no}_{\text{sector=j}}} \quad \text{and}$$

$$\text{indicator}_{\$} = \frac{\sum_{j} \text{reform\_index}_{\text{sector=j}} * \text{PF\_vol}_{\text{sector=j}}}{\sum_{j} \text{PF\_vol}_{\text{sector=j}}}$$ where $\text{reform\_index}_{\text{sector=j}}$ equals the EBRD reform index for specific sector j for country i in year t, and $\text{PF\_no}_{\text{sector=j}}$ and $\text{PF\_vol}_{\text{sector=j}}$ are the number and $ volume of PF loans to projects in sector j for country i in year t respectively.

Four such sector-based political risk indicators are calculated. Note that the sector 'other' contains all non-infrastructure projects, which are matched to the EBRD enterprise reform index. For projects for which the industry sector cannot be established (unknown), the reform indicator is calculated as the average of the EBRD infrastructure and enterprise reform index.[30] Thus, sector_infra includes PF in infrastructure sectors j = power, rail, road, telecom, and water. Sector_industry includes PF in non-infrastructure sector j = other only. Sector_all includes PF in all sectors j = power, rail, road, telecom, water, other and unknown. Finally, sector_known includes PF in known sectors j = power, rail, road, telecom, water, and other.

The results of the regressions regarding political risk are shown in Table 7. In both panels, the traditional political risk measure, pol_risk, is positive and significant. Among the other political risks, it appears that only foreign exchange and trade liberalization (forex_trade) and the democratic process (democrat) are relevant. State capture (state_cap) or initial government change (gov_chg) do not seem to matter. Among the sector-specific political risk indicators, all

proxies are positive as expected. The strongest result can be found for the broadest indicator sector_all. The fact that the coefficient of the infrastructure reform indicator sector_infra is insignificant can either be interpreted as resulting from a measurement problem (for example, only aggregate infrastructure reform indices are available before 1998) or as conveying actual economic information: Apparently, for non-infrastructure projects the lower the reform progress in the industry, the more influence the state can exert, and accordingly, the higher the political risk of this sector. These factors contribute to more PF being used. For infrastructure projects this does not hold true. It is possible that there are two offsetting effects at work which lead to the overall insignificance of the infrastructure reform index. On the one hand, infrastructure projects could be like industry projects with more risk leading to more PF. On the other hand, there could be an additional demand side effect. Here, the less often reforms are undertaken, the less dynamic the sector and the less investment is made. These translate into less PF.

[Insert Table VII about here]

D. The Relevance of Moral Hazard

To measure moral hazard, we employ the following proxies, which are based on findings by Dyck and Zingales (DZ 2001) regarding the empirical estimation of private benefits of control[31]: EBRD index of price liberalization (price_lib), EBRD index of small-scale privatization (small_privat), EBRD index of large-scale privatization (large_privat), EBRD index of competition policy (comp_policy), EBRD rating of legal extensiveness for company law (law_ext), EBRD rating of legal effectiveness for company law (law_eff), a dummy equal to 100 if the primary method is direct sale based on EBRD's privatization method indicator in 2002

(privat_1), a dummy equal to 100 if primary or secondary method is a direct sale based on EBRD's privatization method indicator in 2002 (privat_12), stock market capitalization as percent of GDP as indicated by EBRD ($eqmkt_{gdp}$), broad money to GDP as indicator of financial development as indicated by EBRD ($m3_{gdp}$), the number of foreign banks as percent of total banks in the country (foreign_banks), and foreign direct investment as percent of GDP (FDI_{GDP}).

The proxies price_lib, small_privat, large_privat, comp_policy measure product market competition and thus follow DZ's argument that product market competition reduces private benefits of control. Note, however, that DZ do not find a significant coefficient in their analysis. The proxies law_ext and law_eff reflect DZ's results that a higher degree of law enforcement is associated with lower private benefits of control. Privat_1 and privat_12 are included due to DZ's findings that private sales in privatizations reflect higher private benefits whereas public sales reflect lower private benefits. Finally, $eqmkt_{gdp}$ and $m3_{gdp}$ reflect DZ's findings that less financial market development reflects higher private benefits. Along similar lines, the presence of foreign banks and foreign companies as evidenced by FDI activity might present a higher level of corporate governance; foreign banks are likely to be more competent at monitoring and foreign shareholders might impose stricter corporate governance procedures.

[Insert Table VIII about here]

The results in Table VIII indicate that most coefficients except privat_12 are positive as expected. Looking at the significance of individual proxies, we find support for hypothesis 2 based on moral hazard proxies for market competition and financial market development but not for law enforcement, privatization method, or the FDI proxy. For specific proxies, the following limitations should be noted. Our proxy for large-scale privatization large_privat might suffer

from an endogeneity problem in our analysis. As PF in its organizational dimension clearly leads to private sector operations of a project, it might go hand in hand with the privatization of a sector. Regarding small-scale privatization, it should be noted that small firms, with the possible exceptions of hotels, clearly do not qualify for PF loans. However, small-scale privatization is interpreted here as an indication of competition in the market, with more small-scale privatization implying more competition. The results for law_ext and law_eff are insignificant. This is possibly due to the design of the indicators as perception indicators. They are derived from interviews with lawyers in the transition countries and at the EBRD. The EBRD itself advises use of these indicators only together with other indicators. Therefore, while time-series comparisons seem to be feasible, cross-country comparisons are particularly difficult. [32]

E. The Joint Relevance of Bank Influence, Political Risk, and Moral Hazard

From the simple regressions, various proxies appear to be significant and can thus be included in a multiple regression model that tests hypothesis 2 as a whole. However, with the exception of the IFC proxy, all proxies are highly correlated with each other with correlation coefficients typically exceeding 0.7. Thus, we proceed by first combining individual proxies into 3 indicators for moral hazard, bank influence, and political risk. Based on the results reported in Table VI, the bank influence indicator is simply defined as IFC participation. Political risk and moral hazard indicators are each calculated in different ways: An adjusted R^2 based indicator, identified by subscript rsq(all), is defined using all proxies with a single-regression adjusted R^2 of more than 0%. This indicator is calculated as the weighted average of all included proxies and uses as weights the adjusted R^2 reported in tables VII and VIII. This design is based on the idea that a proxy that explains more of the variation in PF should have a higher weight in the

indicator. However, such indicators could suffer from the problem that proxies with small R^2 might reduce the overall explanatory power of the indicator. As an alternative, an adjusted R^2 based indicator, identified by subscript rsq(best), is defined using only those proxies with a single-regression adjusted R^2 of more than 10% in Panel A of Table VII or more than 10% in Panel A of Table VIII. Thus, for this latter alternative the moral hazard indicator is based on the proxies large_private, small_privat, and $eqmkt_{gdp}$ whereas the political risk indicator is based on the proxies sector_all and pol_risk. In the second step, the 3 indicators are orthogonalized[33], identified by subscript ortho, and included in the regression model[34] as follows:

$$PF\_no = \beta_0 + \beta_1\ bank\_influence_{\#} + \beta_2\ moral\_hazard_{\#} + \beta_3\ political\_risk_{\#}$$

Finally, we allow for yet unspecified country risk characteristics to have explanatory power regarding the use of PF. Thus, we also conduct the following 2-step regression approach where res_score is the estimated residual of the first regression and as such reflects the unspecified country risk characteristics[35].

$$\text{Step 1: } score = \delta_0 + \delta_1\ bank\_influence_{\#} + \delta_2\ moral\_hazard_{\#} + \delta_3\ political\_risk_{\#} + res\_score_{\#}$$

$$\text{Step 2: } PF\_no = \mu_0 + \mu_1\ bank\_influence_{\#} + \mu_2\ moral\_hazard_{\#} + \mu_3\ political\_risk_{\#} + \mu_4\ res\_score_{\#}$$

The results of regressions 1 to 5 and 10 to 14in Table IX are consistent with the earlier results from tables VI to VIII in terms of coefficients and explanatory power. The results of the remaining multiple regressions reveal that each of the 3 factors is individually relevant in explaining the use of PF in transition economies. Here the results for the "best" indicators appear more convincing due to possible definition problems mentioned above and supported by the

higher adjusted R-squares for these indicators. Overall, we find support for our theoretical model of PF as the solution to the double moral hazard problem as stated in hypothesis 2: *The higher the political risk in the country of the borrower, the larger the moral hazard problem of the firm's manager and the larger the influence of the bank, the more syndicated loan funds are raised in the form of PF*. However, the significance of the country risk residual res_score and the intercept indicate that there might be additional, yet unspecified factors driving the use of PF.

[Insert Table IX about here]

VI. Conclusion

We started this paper with the observation that countries with a high political risk receive relatively more PF loans than less risky countries. In order to explain this surprising empirical fact, we developed a double moral hazard model that allows us to study the incentives of banks and firms to exert costly effort. In the simple single moral hazard cases, a non-recourse loan would always solve bank moral hazard and a full recourse loan would always solve firm moral hazard. Thus, in a more realistic double moral hazard setting, the incentive effects for bank and firm have to be traded off in order to determine the optimal degree of recourse. From these theoretical results we predict that higher political risk of a country should lead to a larger fraction of PF loans among all syndicated loans. This hypothesis is strongly supported in a global sample of syndicated loans signed between 1980 and 2003. With a restricted sample of syndicated loans to borrowers in transition countries, we test the hypothesis that the share of PF loans increases the higher the firm's moral hazard problem, the higher the political risk, and the higher the influence of the bank syndicate is. In a first step, all three factors are tested individually and the results

support the hypothesis regarding political risk and firm moral hazard. With respect to bank influence only the involvement of the IFC increases the share of PF loans significantly. In a second step, the hypothesis is tested in a multiple regression framework and our previous results are confirmed. However, residual country risk is still significant indicating that there remains an as yet unidentified level of country risk.

Overall, our paper shows that the non- and limited-recourse nature of syndicated loans is an efficient structure if political risk is high. This result has interesting policy implications for example for the current reform of the Basel Capital Accord. In the current proposal, PF loans are perceived as riskier than other corporate loans. PF loans have higher capital requirements due to their low degree of recourse (Esty and Christov (2002)). Depending on the market situation at the time when the new capital requirements become effective, one can expect that either the interest rates on PF loans increase to cover the higher cost associated with increased capital requirements or that PF loans will be used less widely as cost become prohibitively high for both banks and borrowers. However, when determining the capital requirement based on the riskiness of a loan it should be taken into account that the structure of the PF loans helps to reduce particular risks. As our study has shown, PF loans are optimal when lending to borrowers in high political risk countries. Their non- or limited-recourse feature, which is under the current Basel reform perceived as the source of risk, should be viewed rather as the very feature that reduces risk. As such, PF loans are less risky than they appear and deserve more careful consideration under the new Basel proposals.

Appendix: Proofs of Propositions 3 and 4

Proof of Proposition 3:

Parameter constellations as in Case A and Case 1

$$\text{Case A: } (p_H - p_L)(R - V) \geq b \qquad \text{for } V > 0 \qquad (A.1)$$

$$\text{Case 1: } (\bar{p} - \underline{p})(X - R + V) \geq e \qquad \text{for } R > V \qquad (A.2)$$

contain the cases in which both incentive problems can be solved simultaneously. Limited liability solves the firm's problem and the positive payoff for the bank in the case of failure does not destroy the bank's incentive.

The optimal credit contract specifies R and V according to the solution of the following optimization

$$\begin{aligned} \max_{R,V,e,b} \quad & p_H(W + X - R) + (1 - p_H)(W - V) - e \\ \text{s.t.} \quad & (\overline{p_H} - \underline{p_H})(X - R + V) - e \geq 0 \qquad (\text{IC - F}) \\ & (\overline{p_H} - \overline{p_L})(R - V) - b \geq 0 \qquad (\text{IC - B}) \\ & \overline{p_H} R + (1 - \overline{p_H}) V - I - b \geq 0 \qquad (\text{PC - B}) \end{aligned}$$

The bank's participation constraint is strictly binding because there is perfect competition in the banking sector. Accordingly, the terms of the contract are given by

$$\begin{aligned} R &= \frac{I + b - (1 - \overline{p_H})V}{\overline{p_H}} \text{ or} \\ R - V &= \frac{I + b - V}{\overline{p_H}} \end{aligned} \qquad (A.3)$$

From the incentive compatibility constraints the difference between the state contingent payoffs is determined by:

$$R - V \geq \frac{b}{\bar{p}_H - \bar{p}_L} \qquad \text{from (IC - B)}$$

$$R - V \leq X - \frac{e}{\bar{p}_H - \underline{p}_H} \qquad \text{from (IC - F)}$$

The condition, which has to hold to solve both problems simultaneously, is given by

$$X \geq \frac{1}{\bar{p}_H - \underline{p}_H} e + \frac{1}{\bar{p}_H - \bar{p}_L} b .$$

If the bank's incentive compatibility constraint but not the firm's incentive compatibility constraint is binding, the credit contract determines $\left\{ R = I + b\frac{1-\bar{p}_L}{\bar{p}_H - \bar{p}_L}; V = I - b\frac{\bar{p}_L}{\bar{p}_H - \bar{p}_L} \right\}$.

Q.E.D.

Proof of Proposition 4

In the following cases it is always impossible to solve both incentive problems.

- Case 1 and Case B:

  Due to the incentive problem of the bank it is necessary that V=0. This implies for Case 1 $\left(\bar{p} - \underline{p}\right)(X - R) - e \geq 0$ where $R = \frac{I}{\bar{p}}$. This is, however, ruled out by assumption as in this case there would be no incentive problem of the firm.

- Case 2 and Case A or Case B:

  Case 2 requires R=V. But this cannot solve the bank's incentive problem as $(p_H - p_L)0 \geq b$ is not fulfilled.

The firm maximizes its profit by solving the moral hazard problem which has the higher return.

(1) Return of managerial effort

To solve this problem the contract has to specify R=V. Thus the effect of e is:

$$\left[\overline{p_L}(W+X-R)+(1-\overline{p_L})(W-V)-e\right]-\left[\underline{p_L}(W+X-R)+(1-\underline{p_L})(W-V)\right]=$$
$$(\overline{p_L}-\underline{p_L})(X-R+V)-e=$$
$$(\overline{p_L}-\underline{p_L})X-e$$

(2) Return of bank effort

To solve this problem the contract has to specify V=0 and R where R is such that $\bar{p}R - I - b = 0$.

Thus, the effect of b is

$$\left[\underline{p_H}\left(W+X-\frac{I+b}{\underline{p_H}}\right)+(1-\underline{p_H})W\right]-\left[\underline{p_L}\left(W+X-\frac{I}{\underline{p_L}}\right)+(1-\underline{p_L})W\right]=$$

$$(\underline{p_H}-\underline{p_L})X-b$$

Depending on which expression is higher, the firm's manager decides which incentive problem to solve:

If $(\overline{p_L}-\underline{p_L})X-e>(\underline{p_H}-\underline{p_L})X-b$, the firm's incentive problem should by solved by a credit contract specifying R=V. For parameters like in Case 1, the contract might also specify R>V.

If $\left(\overline{p_L} - \underline{p_L}\right)X - e < \left(\underline{p_H} - \underline{p_L}\right)X - b$, the bank should be granted an incentive to exert effort by a credit contract specifying V=0. In Case A, the bank also gets the first best incentive when it has limited recourse, V>0. Q.E.D.

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Endnotes

[1] For details on the contractual structure of PF see Nevitt and Fabozzi (1995) or Kleimeier (1995).

[2] Fahrholz (1998), CEO of Dresdner Bank, one of the leading German banks in project financing, describes PF as loans where "the (non-recourse) creditors rely solely on the cash flow and the assets of the project alone. In fact, they partially take over entrepreneurial risk." (own translation).

[3] In the United States, firms financed $ 68 billion (bn) with PF in 2001. The PF market is also much larger than the $ 36 bn invested by venture capitalists (Esty and Christov (2002)).

[4] For a detailed description of PF arrangements see Kleimeier and Megginson (2000). While these authors survey a long-term sample from 1980 to 1999 and focus on specific features only, Esty (1999) and Esty and Christov (2002) discuss a larger variety of PF characteristics for the more recent period starting in the mid 1990s.

[5] Indirectly related to the PF loans pricing studies is the work by Altunbaş and Gadanecz (2003) that investigates the pricing of syndicated loans to developing country borrowers but control for loan types including that of PF. Overall, they find that countries with weaker macro-economic fundamentals and higher sovereign risk pay higher loan spreads. Consistent with findings by Kleimeier and Megginson (2000, 2002), they find that PF have lower spreads than other syndicated loans.

[6] We find Shah and Thakor's conclusion not entirely convincing because the default risk of a biotech or internet start-up, which typically receive finance from venture capitalists, is certainly higher than the risk of a power plant, which is granted PF. What is more striking is that the project-financed investments bear a high degree of political risk.

[7] Brealey, Cooper, and Habib (1996) provide an excellent summary of the theoretical papers (except Povel) and also present the impact of PF in a Modigliani-Miller-world in a clear fashion.

[8] Manove et al. (2001) also consider a monopolistic banking model, when the bank has the first best incentive to screen. Schnitzer (2002) obtains the same result in a model with screening but without collateralization.

[9] Nöldeke and Schmidt (1998) study a more general case of the hold-up problem, when two parties sequentially undertake relationship-specific investments. They show that a contingent ownership structure induces first best investment levels.

[10] The payoff in the case of failure is normalized to zero. Allowing higher liquidation values could change some of the parameter ranges in which a certain result is obtained, but would not change the main insights of our analysis.

[11] Thus, we do not model the bank in its traditional role as a monitor.

[12] The impact of asset specificity on the industry structure of the credit market is studied in more detail in Hainz (2003).

[13] The positive effect that increasing the firm's liability through collateralization can have on incentives has been investigated by, for example, Stiglitz and Weiss (1981) and Holmström (1996).

[14] Loanware was formerly provided by Capital DATA. Whereas project finance data is available from different commercial vendors, Loanware provides a very extensive database of syndicated loans and has as such been used in a number of empirical studies including Altunbaş and Gadanecz (2003), Esty and Megginson (2003), IFC (1999), or Kleimeier and Megginson (2000, 2002).

[15] Other sources of information are the governance indicators provided by Kaufmann, Kraay, and Zoido-Lobatón (1999, 2002) and Kaufmann, Kraay, and Mastruzzi (2003) or indicators of private

benefits of control provided in Dyck and Zingales (2001). However, these indicatores are typically available only for a selected number of countries and/or years. In contrast, EBRD provides detailed data for all transition economies since the early 1990s as well as various indicators. The EBRD's statistical data are comparable across countries. Although the national statistics, on which most EBRD data is based, have been "distorted" by the transition process, the quality of data improved significantly during the last years.

[16] Note that Figure 1 does not include the data for 2003 as this only covers to the first three months of the year.

[17] Note that PF loans are a subset of syndicated loans. As such, our syndicated loans (SL) sample consists of PF loans and on-balance sheet loans.

[18] These country risk measures are rather rough proxies of political risk as they contain both political as well as economic risk factors. The latter could very well reflect moral hazard. Separate listings for political and economic risk are available only since 1993. Thus, in the interest of maintaining a long sample period, the country risk measures are used here. The results now attributed to political risk could thus be read to also reflect moral hazard.

[19] As all proxies employed in this study are given by year t and country i, the subscript it is omitted in the remainder of the paper.

[20] Ranks are also available in 1980 and 1981. However, the number of countries rated is significantly lower with 58 and 67 countries in 1980 and 1981 respectively. Due to this incomparability of the data, these two years are not included. Note that Euromoney themselves have taken a similar decision when not including these two years in their online database of country risk ranks and score. Regressions including these ranks reveal lower explanatory power but in general the same results.

[21] Note that this average is higher than the average of 5% reported in Table II as all those countries that do not borrow in form of PF in any given year are excluded.

[22] Various versions of these and additional country and year specific dummies that are not reported here were also tested but did not change the overall results. Furthermore, the sample size was expanded to up to 1100 observation by filling in missing political risk proxies with those of the nearest available year. Again the results remain unchanged.

[23] This figure is larger than the $ 31.9 bn reported in Table II due to the fact that some of the CIS states are coded to belong to Asia.

[24] The top-10 rankings have been obtained from various issues of ProjectFinance, a journal published by Euromoney Plc. Based on the Dealogic Loanware database, ProjectFinance reports various league tables on an annual basis.

[25] For a discussion see Benoit (1996, 1997).

[26] See for example the EBRD's own mission statement as given on their homepage: "The European Bank for Reconstruction and Development was established in 1991 when communism was crumbling in central and eastern Europe and ex-soviet countries needed support to nurture a new private sector in a democratic environment. Today the EBRD uses the tools of investment to help build market economies and democracies in 27 countries from central Europe to central Asia."

[27] Schnitzer (2002) distinguishes between outright expropriation through, for example, nationalization and "creeping expropriation" through increases in taxes or import/ export duties. She analyzes how the choice of the entry mode of foreign firms, which are licensing and credit financing or foreign direct investment, is influenced by the different forms of expropriation.

[28] Note that the forex_trade and state_cap indicators are originally scaled by the EBRD from 0.7 to 4.3 with a higher number indicating more liberalisation, privatisation, or reform. For our

analysis, the direction has been reversed via (4.3 – variable). Note that for democrat the direction has been reversed via (13-variable) and for gov_chg via (3 – variable). Now, higher proxies indicate more political risk and positive coefficients are expected. Finally, all proxies are re-scaled from 0 to 100.

[29] The indicators are also originally scaled by EBRD from 0.7 to 4.3 and have been converted accordingly.

[30] In order to create a sector indicator, which is available for each country and year, the following has been done to avoid missing values: In 1990 to 1997 only the EBRD overall infrastructure and enterprise reform indices are available. Thus, the infrastructure reform index has been used for all infrastructure sectors. In 1998, the specific infrastructure sector indices have been used for power, telecom, and rail but the overall EBRD infrastructure reform index has been used for road and water sectors. In 1999 and later, all specific infrastructure sector indices have been used with the 2002 EBRD indices used for PF loans signed in 2003.

[31] As for all proxies before, the EBRD original scale runs from 0.7 to 4.3 for all indices and is converted here to a scale of 0 to 100 with higher number indicating more moral hazard.

[32] Hainz (2003) has, for example, shown for a cross-country comparison of Estonia and Romania that the indicators can be misleading.

[33] Note that in order to orthogonalize the three indicators and thus eliminate multicollinearity from the above regression, we apply the principal components method to extract 3 components from the 3 variables. After this initial component extraction, the components are uncorrelated with each other. To aid interpretation, the components can be rotated, that is a nonsingular linear transformation can be applied. Note that if the transformation is orthogonal, the rotated components are also uncorrelated. Among the different orthogonal transformation methods available, we opted for the 'varimax' rotation method. By applying this rotation, we achieve a

matrix of correlations between variables and the components that is close to a diagonal identity matrix. In other words, correlations of each component are close to zero for 2 of the 3 variables and close to 1 for the remaining variable. As such, each component can be easily attributed to one of the underlying variables. In the case of regressions 7 in Table IX Panel A, the correlations for one component are 0.099 for the moral hazard indicator, 0.115 for the political risk indicator, and 0.993 for the bank influence indicator. As such, this component can be interpreted as reflecting bank influence.

[34] As in all previous regressions, the subscripts $ and # indicate that the indicators are based on volume and number of PF, respectively. The volume-based proxies are used for the regression using PF_vol as the dependent variable. The regression equations correspond to those shown here for the number-based proxies. As before, the subscripts i and t for country and year, respectively, are omitted to simplify the equations.

[35] The idea of using regression residuals as proxies for unobserved risk has been used in other studies. For example, Eichengreen and Mody (2000) use a country credit rating residual when investigating the pricing of syndicated loans. In the context of syndicate structure analysis, Esty and Megginson (2003) use the residual of a regression of loan spreads on project risk factors in order to measure unobserved project risks.

Table I
Payoffs at Time 1

This table illustrates the cash flows to the project, sponsoring firm, and bank under different types of recourse in our 1-period, 2-states of the world model. In state 1, the project is successful and pays a cash flow of X. In state 2, the project fails and pays zero. The loan contract specifies that the bank receives R in state 1 and V in state 2. V indicates the amount of inside collateral and depends on the recourse structure of the loan. The project costs, which are fully loan-financed amount to I. The sponsoring firm has cash flows unrelated to the project in the amount of W.

		inside	cash flows to		
recourse structure	state	collateral	project	sponsor	bank lender
full recourse	1	V=R	X	W+X -R	R-I
	2	V=R	0	W-R	R-I
limited recourse	1	0<V<R	X	W+X -R	R-I
	2	0<V<R	0	W-V	V-I
non recourse	1	V=0	X	W+X -R	R-I
	2	V=0	0	W	0-I

Table II
Geographic Distribution of Syndicated Loans including Project Finance

This table reports the aggregate amount of syndicated loans (SL), and in particular, of project finance loans (PF) for five time periods and for ten geographic region including supranational borrowers. The data are aggregated by year of loan signing into five periods: The total sample period from January 1980 to March 2003, and four five-year subperiods from January to December of the following years: 1981-1985, 1986-1990, 1991-1995, and 1996-2000. For each of the five periods, the first and second columns report the total volume of PF and SL in billions of US dollar, respectively. The third and fourth columns report the total PF dollar volume for the given period as a percentage of total national SL or global PF, respectively. Global PF can be found in the last row of this table. For each geographic region, aggregate numbers are reported. Additionally, the countries with large amounts of SL and PF are listed individually. Note that the PF and SL loans listed under Russia include all loans, which were made to the USSR before 1992.

	January 1980 - March 2003				1981-85				1986-90				1991-95				1996-00			
region	PF	SL	PF as % of		PF	SL	PF as % of		PF	SL	PF as % of		PF	SL	PF as % of		PF	SL	PF as % of	
country	$bn	$bn	SL	PF	$bn	$bn	SL	PF	$bn	$bn	SL	PF	$bn	$bn	SL	PF	$bn	$bn	SL	PF
Africa	**21.13**	**109.77**	**19.2**	**2.2**	**4.28**	**20.18**	**21.2**	**8.1**	**1.88**	**11.03**	**17.1**	**1.8**	**6.76**	**25.29**	**26.8**	**2.9**	**3.17**	**32.98**	**9.6**	**0.8**
South Africa	4.63	38.96	11.9	0.5	5.50	3.28	16.8	1.0	0.12	1.01	12.1	0.1	1.30	5.33	24.8	0.6	1.18	20.70	5.7	0.3
Algeria	4.19	21.89	19.2	0.4	1.31	5.42	24.2	2.5	0.58	2.95	19.5	0.6	2.11	11.25	18.8	0.9	0.00	0.28	0.0	0.0
Nigeria	3.56	10.73	33.2	0.4	1.29	5.69	22.7	2.4	0.00	1.78	0.0	0.0	0.33	0.35	94.5	0.1	0.19	0.48	39.6	0.0
Asia	**211.30**	**1250.94**	**16.9**	**22.0**	**8.34**	**74.49**	**11.2**	**15.8**	**20.569**	**100.17**	**20.5**	**19.9**	**75.97**	**250.80**	**30.3**	**32.1**	**82.00**	**501.11**	**16.4**	**19.8**
China	39.48	103.45	38.2	4.1	0.33	4.46	7.4	0.6	5.49	16.24	33.8	5.3	13.79	32.86	42.0	5.8	8.34	35.28	23.6	2.0
Indonesia	32.29	90.27	35.8	3.4	1.22	8.08	15.1	2.3	4.45	11.33	39.2	4.3	13.25	32.50	40.8	5.6	12.93	34.78	37.2	3.1
Hong Kong	27.76	231.52	12.0	2.9	1.41	11.19	12.6	2.7	3.40	24.51	13.9	3.3	9.53	51.26	18.6	4.0	11.32	93.72	12.1	2.7
Taiwan	22.04	81.09	27.2	2.3	0.00	1.70	0.0	0.0	0.14	2.78	4.9	0.1	2.20	8.41	26.2	0.9	17.96	50.96	35.2	4.3
Malaysia	21.50	83.04	25.9	2.2	0.29	7.94	3.7	0.6	2.43	6.60	36.4	2.4	10.34	25.67	40.3	4.4	6.62	30.71	21.5	1.6
Thailand	20.54	73.75	27.9	2.1	0.10	3.77	2.6	0.2	1.87	6.05	30.8	1.8	12.51	31.64	39.5	5.3	4.78	24.74	19.3	1.2
India	10.65	47.09	22.6	1.1	0.93	4.38	21.1	1.8	1.03	6.88	14.7	1.0	1.66	8.60	19.3	0.7	6.92	21.88	31.6	1.7
Philippines	9.75	33.20	29.4	1.0	0.67	4.33	15.3	1.3	0.10	0.40	24.2	0.1	3.95	5.63	70.1	1.7	4.44	16.57	26.8	1.1
South Korea	9.44	116.17	8.1	1.0	2.61	21.65	12.1	4.9	0.88	6.98	12.6	0.9	3.01	26.24	11.5	1.3	1.79	39.71	4.5	0.4
Japan	4.20	311.78	1.3	0.4	0.33	1.83	18.1	0.6	0.05	8.99	0.5	0.0	0.00	5.50	0.0	0.0	1.92	126.34	1.5	0.5
Australia & Pacific	**54.52**	**438.73**	**12.4**	**5.7**	**12.19**	**59.02**	**20.6**	**23.0**	**6.77**	**102.82**	**6.6**	**6.6**	**5.98**	**89.23**	**6.7**	**2.5**	**19.84**	**118.00**	**16.8**	**4.8**
Australia	50.53	369.84	13.7	5.2	11.27	47.17	23.9	21.3	6.46	87.48	7.4	6.3	4.98	76.31	6.5	2.1	18.72	101.49	18.4	4.5
Papua New Guinea	1.74	3.39	51.5	0.2	0.80	1.19	67.5	1.5	0.10	0.34	29.4	0.1	0.74	1.18	62.8	0.3	0.10	0.46	21.5	0.0
New Zealand	1.66	52.28	3.2	0.2	0.07	10.27	0.7	0.1	0.20	13.46	1.5	0.2	0.24	9.46	2.5	0.1	0.63	7.83	8.1	0.2

Table II continued

Caribbean	**6.60**	**125.13**	**5.3**	**0.7**	**0.04**	**3.49**	**1.2**	**0.1**	**0.26**	**12.21**	**2.1**	**0.3**	**1.51**	**27.54**	**5.5**	**0.6**	**4.40**	**60.52**	**7.3**	**1.1**
Eastern Europe	**31.91**	**175.34**	**18.2**	**3.3**	**0.45**	**20.02**	**2.3**	**0.9**	**1.84**	**23.45**	**7.8**	**1.8**	**7.20**	**25.44**	**28.3**	**3.0**	**18.45**	**70.76**	**26.1**	**4.4**
Russia	12.23	74.54	16.4	1.3	0.09	6.86	1.3	0.2	1.61	1.813	8.9	1.6	3.23	13.16	24.5	1.4	7.05	24.38	28.9	1.7
Poland	8.63	27.659	31.9	0.9	0.00	4.71	0.0	0.0	0.09	0.26	36.5	0.1	1.04	2.03	51.1	0.4	5.69	11.86	48.0	1.4
Czech Republic	3.42	17.13	20.0	0.4	0.00	0.986	0.0	0.0	0.00	0.81	0.0	0.0	1.64	3.83	42.6	0.7	1.72	10.61	16.2	0.4
Latin America	**82.42**	**501.71**	**16.4**	**8.6**	**5.71**	**93.44**	**6.1**	**10.8**	**4.50**	**20.74**	**21.7**	**4.4**	**13.55**	**66.82**	**20.3**	**5.7**	**42.58**	**232.08**	**18.3**	**10.3**
Brazil	18.40	100.70	18.3	1.9	2.32	24.74	9.4	4.4	0.53	1.68	31.4	0.5	0.59	5.84	10.0	0.2	9.34	46.89	19.9	2.2
Mexico	17.36	151.31	11.5	1.8	0.21	32.90	0.6	0.4	0.50	9.56	5.2	0.5	3.74	28.18	13.3	1.6	9.82	56.18	17.5	2.4
Argentina	11.03	72.70	15.2	1.1	1.05	5.25	19.9	2.0	1.01	1.35	74.6	1.0	2.02	9.21	21.9	0.9	5.58	47.24	11.8	1.3
Venezuela	8.72	46.80	18.6	0.9	0.36	15.26	2.4	0.7	1.50	2.05	73.4	1.5	2.58	7.65	33.8	1.1	3.29	10.57	31.1	0.8
Chile	8.09	50.05	16.2	0.8	0.15	3.77	4.0	0.3	0.56	1.66	34.1	0.5	1.39	3.66	38.1	0.6	4.10	32.68	12.6	1.0
Colombia	7.03	30.16	23.3	0.7	0.99	4.65	21.4	1.9	0.35	3.25	10.8	0.3	2.69	6.30	42.7	1.1	2.46	13.17	18.7	0.6
Middle East	**79.85**	**268.30**	**29.8**	**8.3**	**5.74**	**27.74**	**20.7**	**10.9**	**3.61**	**22.97**	**15.7**	**3.5**	**19.66**	**70.79**	**27.8**	**8.3**	**36.00**	**103.78**	**34.7**	**8.7**
Turkey	19.42	80.24	24.2	2.0	0.60	5.34	11.3	1.1	2.24	11.77	19.0	2.2	6.72	16.65	40.4	2.8	7.83	36.41	21.5	1.9
Saudi Arabia	16.64	62.17	26.8	1.7	2.55	7.28	35.0	4.8	0.06	1.02	5.5	0.1	3.19	20.75	15.4	1.3	8.71	24.02	36.3	2.1
Qatar	12.67	18.66	67.9	1.3	0.00	0.18	0.0	0.0	0.40	0.60	66.7	0.4	5.57	6.39	87.2	2.4	4.57	6.93	65.9	1.1
North America	**199.03**	**12826.19**	**1.6**	**20.7**	**5.13**	**385.98**	**1.3**	**9.7**	**30.20**	**1155.51**	**2.6**	**29.3**	**56.48**	**2813.03**	**2.0**	**23.9**	**82.15**	**6154.54**	**1.3**	**19.8**
United States	176.28	12202.77	1.4	18.3	3.28	333.69	1.0	6.2	26.16	1092.18	2.4	25.4	49.53	2699.31	1.8	20.9	73.16	5880.52	1.2	17.6
Supranational	**0.85**	**31.66**	**2.7**	**0.1**	**0.01**	**12.86**	**0.1**	**0.0**	**0.00**	**9.19**	**0.0**	**0.0**	**0.73**	**5.00**	**14.7**	**0.3**	**0.00**	**1.33**	**0.0**	**0.0**
Western Europe	**275.02**	**4598.37**	**6.0**	**28.6**	**10.93**	**178.61**	**6.1**	**20.7**	**33.51**	**541.80**	**6.2**	**32.5**	**48.675**	**691.64**	**7.0**	**20.6**	**126.56**	**2035.52**	**6.2**	**30.5**
United Kingdom	127.55	1913.59	6.7	13.2	5.42	29.03	18.7	10.3	28.42	350.11	8.1	27.6	24.673	294.93	8.4	10.4	48.69	859.73	5.7	11.7
Italy	31.67	318.40	9.9	3.3	0.31	28.88	1.1	0.6	0.36	33.25	1.1	0.3	2.242	44.91	5.0	0.9	15.88	124.01	12.8	3.8
Germany	26.39	363.44	7.3	2.7	0.15	4.721	3.1	0.3	0.19	14.63	1.3	0.2	2.802	35.26	7.9	1.2	19.29	161.79	11.9	4.6
Spain	22.96	286.17	8.0	2.4	0.57	22.10	2.6	1.1	0.00	13.37	0.0	0.0	4.438	72.32	6.1	1.9	7.75	106.25	7.3	1.9
Netherlands	15.84	297.02	5.3	1.6	0.52	5.74	9.1	1.0	0.59	18.53	3.2	0.6	3.246	40.01	8.1	1.4	9.63	169.20	5.7	2.3
Portugal	11.11	53.44	20.8	1.2	0.05	8.28	0.6	0.1	0.18	4.32	4.2	0.2	3.186	10.73	29.7	1.3	5.90	19.94	29.6	1.4
France	10.63	517.19	2.1	1.1	0.00	24.54	0.4	0.2	2.35	36.49	6.4	2.3	2.279	46.98	4.8	1.0	5.51	255.11	2.2	1.3
Total	**962.63**	**20326.14**	**4.7**	**100.0**	**52.80**	**875.82**	**6.0**	**100.0**	**103.16**	**1999.98**	**5.2**	**100.0**	**236.52**	**4065.58**	**5.8**	**100.0**	**415.15**	**9310.62**	**4.5**	**100.0**

Table III
The Distribution of Project Finance Across Global Country Risk Quartiles

This table provides descriptive statistics for the use of project finance in relation to political risk. The total sample of 970 observations reflects the global sample of countries with at least one PF loan in a given year from 1980 to 2003. As such, each observation is country and year specific. Political risk is measured with three proxies: (1) score = the country risk score scaled from 0 to 100 with riskier countries receiving lower scores, (2) rank = country risk rank as reported by Euromoney with riskier countries ranking higher, (3) rel_rank = relative country risk rank defined as country risk rank divided by the total number of countries ranked in the given year. The use of project finance is represented by four measures: (1) PF_no = the relative number of PF loans as % of all syndicated loan, (2) $PF^{\#}$ = the absolute number of PF loans, (3) PF_vol = relative volume of PF loans in % of total syndicated loan volume, (4) $PF^{\$}$ = the absolute volume of PF loans in US$ million. - Key descriptive statistics including sample size (obs), mean, standard deviation (std dev), minimum (min), and maximum (max) are reported on these variables for the total sample as well as four subsamples. The subsamples reflect the four quartiles based on the country risk score. The t-test in the last column is a one-sided test for differences in mean between the current quartile and the next higher quartile and assumes unequal variances. *, **, and *** indicate significant differences in mean at the 1%, 5%, and 10% level, respectively.

	obs	mean	std dev	min	max	t-test for differences in mean versus next higher quartile
Total sample	970					
score		34.88	22.09	0.00	93.00	
rank		46.06	34.73	1.00	175.00	
rel_rank		29.10	21.44	0.53	100.00	
PF_no		32.39	31.02	0.54	100.00	
$PF^{\#}$		6.18	10.33	1.00	96.00	
PF_vol		34.05	33.79	0.02	100.00	
$PF^{\$}$		959.13	2244.38	1.00	37036.08	
Low country risk quartile	243					
score		7.08	3.82	0.00	13.88	-38.448*
rank		10.49	6.41	1.00	24.00	-29.579*
rel_rank		6.37	3.73	0.53	14.29	-32.836*
PF_no		10.74	11.40	0.54	100.00	-8.298*
$PF^{\#}$		9.54	14.66	1.00	96.00	2.146**
PF_vol		11.31	14.86	0.02	100.00	-8.280*
$PF^{\$}$		1920.98	3658.76	8.90	37036.08	3.550*
Moderately low country risk quartile	241					
score		24.73	6.03	14.00	34.99	-38.324*
rank		29.19	7.46	9.00	48.00	-27.860*
rel_rank		19.23	4.81	6.92	32.76	-25.421*
PF_no		23.74	21.51	0.85	100.00	-5.467*
$PF^{\#}$		7.05	10.59	1.00	65.00	1.576
PF_vol		27.45	26.40	0.13	100.00	-4.029*
$PF^{\$}$		991.78	1799.75	2.00	17415.98	1.987**

Table III continued

	obs	mean	std dev	min	max	t-test for differences in mean versus next higher quartile
Moderately high country risk quartile	243					
score		43.64	4.74	35.00	52.12	-31.959*
rank		52.08	10.39	3.00	79.00	-19.921*
rel_rank		31.97	6.14	1.67	47.41	-24.240*
PF_no		35.82	26.84	1.94	100.00	-8.177*
PF[#]		5.69	8.22	1.00	95.00	5.823*
PF_vol		37.88	30.44	0.50	100.00	-6.838*
PF[$]		702.88	1367.19	10.00	17727.87	5.273*
High country risk quartile	243					
score		63.97	8.71	52.37	93.00	
rank		92.34	29.74	51.00	175.00	
rel_rank		58.75	16.09	31.95	100.00	
PF_no		59.20	35.58	1.89	100.00	
PF[#]		2.46	2.68	1.00	22.00	
PF_vol		59.51	38.79	0.13	100.00	
PF[$]		221.15	398.63	1.00	3440.84	

Table IV
Testing Hypothesis 1

This table reports the results of pooled OLS regressions using a global sample of 970 country- and year-specific observations for all those countries with at least one PF loan in a given year from 1980 to 2003. In Panel A, the dependent variable, PF_no, is defined as the total number of PF loans relative to the total number of syndicated loans. In Panel B, the dependent variable is defined similarly for the US dollar volume of loans. In both panels, the independent variables include three direct measures of political risk: (1) $rank_{it}$ = country risk rank as reported by Euromoney with riskier countries ranking higher, (2) rel_rank_{it} = relative country risk rank defined as country risk rank divided by the total number of countries ranked in the given year, (3) $score_{it}$ = the country risk score scaled from 0 to 100 with riskier countries receiving lower scores. In addition, the effect of political risk during the 1990s is investigated to allow for changes in the impact of political risk on PF over time. Thus, rank_90s equals zero for observations for 1980-1989 and is set equal to rank for observations from 1990-2003. Rel_rank_90s and score_90s are defined correspondingly. d_emerging is a dummy variable set to 1 if the observation refers to a developing country (from Africa, Asia, Eastern Europe, Latin America, Middle East, or the Caribbean) and zero otherwise. For each independent variable, the estimated coefficient is reported in the top row whereas the t-statistic is reported in italics in the bottom row.

Panel A: Number of Project Finance Loans

regression	1	2	3	4	5	6	7	8	9	10	11	12
intercept	7.35	7.04	5.91	5.78	7.30	6.83	5.76	5.58	2.64	2.57	3.37	3.36
	5.59	*5.29*	*3.88*	*3.78*	*5.41*	*5.12*	*3.72*	*3.65*	*1.78*	*1.75*	*2.14*	*2.15*
rank	0.54	0.60	0.51	0.56								
	23.87	*13.87*	*18.33*	*11.66*								
rank_90s		-0.06		-0.05								
		-1.42		*-1.18*								
rel_rank					0.86	0.69	0.81	0.65				
					23.08	*13.95*	*17.47*	*11.72*				
rel_rank_90s						0.26		0.26				
						5.38		*5.26*				
score									0.85	0.74	0.90	0.79
									23.80	*15.16*	*18.19*	*13.43*
score_90s										0.15		0.15
										3.29		*3.34*
d_emerging			0.04	0.04			0.04	0.04			-0.03	-0.04
			1.85	*1.67*			*2.01*	*1.67*			*-1.38*	*-1.50*
adjusted R^2	37.0%	37.1%	37.1%	37.2%	35.4%	37.2%	35.6%	37.4%	36.8%	37.5%	36.9%	37.6%

Table IV continued

Panel B: Volume of Project Finance Loans												
regression	13	14	15	16	17	18	19	20	21	22	23	24
intercept	9.66	9.34	7.27	7.15	9.68	9.22	7.18	7.00	4.98	4.91	4.97	4.96
	6.38	*6.09*	*4.15*	*4.07*	*6.24*	*5.99*	*4.04*	*3.98*	*2.93*	*2.90*	*2.75*	*2.76*
rank	0.53	0.58	0.48	0.52								
	20.19	*11.78*	*14.88*	*9.43*								
rank_90s		-0.06		-0.04								
		-1.26		*-0.91*								
rel_rank					0.84	0.67	0.75	0.60				
					19.52	*11.78*	*14.13*	*9.40*				
rel_rank_90s						0.25		0.24				
						4.47		*4.29*				
score									0.83	0.73	0.83	0.73
									20.23	*12.88*	*14.63*	*10.74*
score_90s										0.14		0.14
										2.77		*2.77*
d_emerging			0.07	0.06			0.07	0.06			0.00	0.00
			2.67	*2.52*			*2.85*	*2.58*			*0.01*	*-0.09*
adjusted R^2	29.6%	29.6%	30.0%	30.0%	28.2%	29.6%	28.7%	30.0%	29.6%	30.1%	29.6%	30.0%

Table V
Project Finance in Transition Economies

This table reports descriptive statistics for project finance loans to borrowers in transition economies signed between January 1990 and March 2003. Thus, the total volume of PF loans is different from the total reported for Eastern Europe in Table II. This is due to the fact that in Table II, the sample starts earlier and that Azerbaijan, Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan are included under Asia. All characteristics are reported on a country level and include the absolute and relative number and dollar volume of PF loans in columns 2 to 5 and the time frame during which PF was used in each country in columns 6 and 7. In column 8, the average country risk is defined as 100 minus the Euromoney country risk score such that higher numbers indicate more risk. The national averages are equally weighted across all years in which PF loans were signed. The remaining columns report the distribution of PF across national industries with particular focus on infrastructure sectors. Due to rounding, the industry percentages do not always add up to 100% for all countries.

								Percent of all national PF by industry									
								based on PF number					based on PF $ volume				
	PF number		PF volume		PF signing year		average country	infrastructure			non-infra		infrastructure			non-infra	
country	absolute	in % of SL	in $m	in % of SL	first	last	risk	telecom	power	other	structure	unknown	telecom	power	other	structure	unknown
Azerbaijan	2	100	200	100	1999	1999	66.6	0	0	0	100	0	0	0	0	100	0
Bulgaria	5	71	378	95	2000	2003	53.3	20	60	0	20	0	18	61	0	20	0
Croatia	10	15	774	18	1997	2002	45.4	30	10	50	0	10	16	20	42	0	23
Czech Republic	35	27	3421	23	1993	2001	32.7	26	29	3	31	11	19	34	0	39	7
Estonia	4	67	347	81	2001	2001	40.7	0	25	0	75	0	0	73	0	27	0
Hungary	50	23	3297	20	1990	2002	35.2	30	22	14	24	10	35	26	17	16	7
Kazakhstan	4	80	411	58	1992	1995	72.5	0	0	0	25	75	0	0	0	12	88
Kyrgyzstan	4	100	323	100	1993	2002	76.6	0	0	0	75	25	0	0	0	77	23
Latvia	2	50	28	47	1994	1999	59.8	0	0	0	100	0	0	0	0	100	0
Lithuania	3	27	209	47	1996	2000	45.9	33	0	0	67	0	45	0	0	55	0
Moldova	2	100	50	100	1996	1999	68.7	50	0	0	50	0	50	0	0	50	0
Poland	75	40	7900	46	1991	2001	45.8	29	21	3	40	7	59	17	4	19	2
Romania	16	28	563	16	1990	2002	53.7	44	0	0	38	19	52	0	0	32	15
Russia	46	14	10626	21	1990	2003	65.1	4	4	0	67	24	0	25	0	67	7
Slovakia	16	30	929	29	1995	2000	44.4	31	13	6	38	13	26	12	4	36	23
Slovenia	12	38	525	40	1994	2001	32.4	75	8	0	17	0	87	11	0	2	0
Turkmenistan	2	33	458	65	1998	1998	64.6	0	0	0	50	50	0	0	0	10	90
Uzbekistan	7	37	539	48	1992	2002	71.3	0	0	0	71	29	0	0	0	37	63
All countries	**295**	**26**	**30978**	**27**	**1990**	**2003**	**54.1**	**25**	**16**	**5**	**40**	**13**	**25**	**22**	**4**	**39**	**10**

Table VI
Testing Hypothesis 2 - The Role of Bank Influence

Panel A reports the results of single OLS regressions of bank influence proxies on the relative number of project finance loans. The dependent variable, PF_no, is defined as is defined as the total number of PF loans relative to the total number of syndicated loans. Regressions 1 to 6 employ proxies, which measure the extent to which international lending organizations (ILOs) participate within the syndicate: $ILOname_{\#,participant}$ is defined as the number of PF loans in which an ILO participates in any role relative to total number of all PF loans for country x and year t. These proxies are defined for the main ILOs including European Bank for Reconstruction and Development (EBRD), International Finance Corporation (IFC), De Nationale Investerings Bank NV (DNI), Nordic Investment Bank (NIB), Export Development Canada (EDC), KfW (Kreditanstalt für Wiederaufbau), separately. In order to investigate the role of the IFC in more detail in regressions 7 and 8, we define the $ volume of all PF loans in which the IFC participates as a provider ($IFC_{\$,provider}$) or as an arranger without providing funds ($IFC_{\$,arranger\ but\ not\ provider}$) relative to total $ volume of PF loans. In regressions 9 to 14, we investigate whether commercial banks as a group are able to influence the host government and define proxies related to the syndicate structure: allbank = the average number of total banks in a PF deal with the average taken across all PF loans to country x in year t; arrbank = the average number of arranging banks across all PF loans to country x in year t; provbank = the average number of providing banks across all PF loans to country x in year t. $Top10_{arranger}$, $top10_{lead\ manager}$, and $top10_{provider}$ measure the average number of arrangers, lead manager, or providers in the syndicate which are also ranked among the top-ten arrangers, lead manager, or providers, respectively. Panel B reports the results of the corresponding regressions with all variables defined on the basis of $ volume instead of number of loans. For all 28 regressions, the sample size is 83 observations. As such, the individual project finance loans described in Table V are aggregated into 83 country- and year-specific observations.

regression	variable	coefficient	t-statistic	adjusted R^2
Panel A: Number of Project Finance Loans				
1	intercept	40.94	9.78	-1.2%
	$EBRD_{\#,participant}$	0.02	0.21	
2	intercept	38.69	11.27	5.4%
	$IFC_{\#,participant}$	0.32	2.39	
3	intercept	42.76	12.23	0.5%
	$DNI_{\#,participant}$	-0.24	-1.17	
4	intercept	42.34	12.00	-0.5%
	$NIB_{\#,participant}$	-0.11	-0.75	
5	intercept	42.42	12.31	0.1%
	$EDC_{\#,participant}$	-0.22	-1.04	
6	intercept	42.79	12.42	1.1%
	$KfW_{\#,participant}$	-0.42	-1.37	
7	intercept	39.03	11.95	9.1%
	$IFC_{\#,provider}$	0.59	3.04	
8	intercept	40.98	11.86	-0.9%
	$IFC_{\#,arranger\ but\ not\ provider}$	0.10	0.53	
9	intercept	47.27	9.52	1.7%
	arrbank	-1.94	-1.56	
10	intercept	48.78	8.16	1.4%
	provbank	-1.24	-1.47	
11	intercept	47.98	8.05	0.9%
	allbank	-1.04	-1.31	
12	intercept	48.35	12.62	9.9%
	$top10_{arranger}$	-11.72	-3.16	
13	intercept	46.40	11.76	4.5%
	$top10_{lead\ manager}$	-6.85	-2.20	
14	intercept	49.92	10.65	5.9%
	$top10_{provider}$	-7.21	-2.48	

Table VI continued

regression	variable	coefficient	t-statistic	adjusted R^2
Panel B: Volume of Project Finance Loans				
15	intercept	45.61	10.07	0.1%
	$EBRD_{\$,participant}$	-0.10	-1.03	
16	intercept	40.83	10.53	1.8%
	$IFC_{\$,participant}$	0.21	1.58	
17	intercept	44.35	11.42	0.4%
	$DNI_{\$,participant}$	-0.22	-1.17	
18	intercept	42.74	10.91	-1.2%
	$NIB_{\$,participant}$	0.02	0.11	
19	intercept	44.14	11.63	0.8%
	$EDC_{\$,participant}$	-0.30	-1.29	
20	intercept	43.31	11.19	-1.1%
	$KfW_{\$,participant}$	-0.08	-0.37	
21	intercept	40.54	11.10	7.2%
	$IFC_{\$,provider}$	0.58	2.71	
22	intercept	42.32	11.16	-0.7%
	$IFC_{\$,arranger\ but\ not\ provider}$	4.87	0.66	
23	intercept	42.82	7.66	-1.2%
	arrbank	0.02	0.02	
24	intercept	41.95	6.25	-1.2%
	provbank	0.16	0.17	
25	intercept	41.18	6.17	-1.1%
	allbank	0.27	0.31	
26	intercept	46.75	10.53	1.6%
	$top10_{arranger}$	-6.57	-1.53	
27	intercept	44.02	9.78	-1.0%
	$top10_{lead\ manager}$	-1.57	-0.44	
28	intercept	46.63	8.70	-0.1%
	$top10_{provider}$	-3.19	-0.96	

Table VII
Testing Hypothesis 2 - The Role of Political Risk

Panel A reports the results of single OLS regressions of political risk proxies on the relative number of project finance loans. The dependent variable, PF_no, is defined as is defined as the total number of PF loans relative to the total number of syndicated loans. The independent variables of regressions 1 to 5 are country- and year-specific and are defined as: pol_risk = 25 - Euromoney political risk score for country x in year t; forex_trade = EBRD index of foreign exchange and trade liberalization; democrat = EBRD's measure of cumulative democracy (years since free and fair elections).; state_cap = EBRD state capture index (aggregate of different EBRD indices); gov_chg = EBRD's initial government turnover (in early 1990s) with Yes=3, No=2, War=1. All proxies have been converted from their original scale to a new scale of 0 to 100 such that a higher value indicates more political risk. Regressions 6 to 9 employ sector-specific political risk measures. Each of these is defined in general as

$$\text{indicator}_{\#} = \frac{\sum_{i} \text{reform\_index}_{\text{sector=i}} * \text{PF\_no}_{\text{sector=i}}}{\sum_{i} \text{PF\_no}_{\text{sector=i}}}$$

where $\text{reform\_index}_{\text{sector=i}}$ equals the EBRD reform index for specific sector i for country x in year t and $\text{PF\_no}_{\text{sector=i}}$ and $\text{PF\_vol}_{\text{sector=i}}$ are the number and $ volume of PF loans to projects in sector i for country x in year t, respectively. Specifically, sector_infra includes PF in infrastructure sectors i = power, rail, road, telecom, and water. Sector_industry includes PF in non-infrastructure sector i = other only. Sector_all includes PF in all sectors i = power, rail, road, telecom, water, other and unknown. Finally, sector_known includes PF in known sectors i = power, rail, road, telecom, water, and other. - Panel B reports the results of the corresponding regressions with all variables defined on the basis of $ volume instead of number of loans. For all 18 regressions, the individual project finance loans described in Table V are aggregated into 83 country- and year-specific observations. However, missing observations for the independent variables reduce the sample size for some regressions.

regression	variable	coefficient	t-statistic	adjusted R^2	observations
Panel A: Number of Project Finance Loans					
1	intercept	6.30	0.65	14.3%	83
	pol_risk	0.66	3.83		
2	intercept	35.76	5.39	0.0%	83
	state_cap	0.32	0.99		
3	intercept	35.78	9.17	6.4%	83
	forex_trade	0.38	2.57		
4	intercept	38.09	9.90	2.2%	83
	gov_chg	0.28	1.68		
5	intercept	17.84	2.05	8.4%	83
	democrat	0.35	2.91		
6	intercept	15.93	1.97	11.5%	83
	$\text{sector\_all}_{\#}$	0.60	3.41		
7	intercept	20.68	2.43	6.0%	76
	$\text{sector\_known}_{\#}$	0.47	2.40		
8	intercept	32.45	4.25	-2.1%	43
	$\text{sector\_infra}_{\#}$	0.07	0.36		
9	intercept	14.20	1.17	9.2%	52
	$\text{sector\_industry}_{\#}$	0.67	2.48		

Table VII continued

regression	variable	coefficient	t-statistic	adjusted R^2	observations
Panel B: Volume of Project Finance Loans					
10	intercept	7.23	0.66	11.8%	83
	pol_risk	0.67	3.45		
11	intercept	33.89	4.63	1.2%	83
	state_cap	0.51	1.42		
12	intercept	37.44	8.57	4.5%	83
	forex_trade	0.37	2.20		
13	intercept	39.77	9.27	1.1%	83
	gov_chg	0.26	1.40		
14	intercept	21.70	2.21	5.0%	83
	democrat	0.31	2.32		
15	intercept	21.16	2.35	6.7%	83
	$sector\_all_{\$}$	0.51	2.62		
16	intercept	24.22	2.60	4.1%	76
	$sector\_known_{\$}$	0.44	2.06		
17	intercept	36.94	4.19	-2.4%	43
	$sector\_infra_{\$}$	0.02	0.10		
18	intercept	13.64	0.98	8.3%	52
	$sector\_industry_{\$}$	0.73	2.38		

Table VIII
Testing Hypothesis 2 - The Role of Moral Hazard

Panel A reports the results of single OLS regressions of moral hazard proxies on the relative number of project finance loans. The dependent variable, PF_no, is defined as is defined as the total number of PF loans relative to the total number of syndicated loans. The independent variables are defined as: EBRD index of price liberalization (price_lib), EBRD index of small-scale privatisation (small_privat), EBRD index of large-scale privatisation (large_privat), EBRD index of competition policy (comp_policy), EBRD rating of legal extensiveness for company law (law_ext), EBRD rating of legal effectiveness for company law (law_eff), a dummy equal to 100 if primary method is direct sale based on EBRD's privatization method indicator in 2002 (privat_1), a dummy equal to 100 if primary or secondary method is direct sale based on EBRD's privatization method indicator in 2002 (privat_12), stock market capitalization as percent of GDP as indicated by EBRD ($eqmkt_{gdp}$), broad money to GDP as indicator of financial development as indicated by EBRD ($m3_{gdp}$), the number of foreign banks as percent of total banks in the country (foreign_banks), and foreign direct investment as percent of GDP (FDI_{GDP}). All proxies have been converted from their original scale to a new scale of 0 to 100 such that a higher value indicates more moral hazard. - Panel B reports the results of the corresponding regressions with all variables defined on the basis of $ volume instead of number of loans. For all 24 regressions, the individual project finance loans described in Table V are aggregated into 83 country- and year-specific observations. However, missing observations for the independent variables reduce the sample size for some regressions.

regression	variable	coefficient	t-statistic	adjusted R^2	observations
Panel A: Number of Project Finance Loans					
1	intercept	3.75	0.34	12.5%	83
	comp_policy	0.85	3.57		
2	intercept	-2.65	-0.19	10.9%	83
	price_lib	1.41	3.32		
3	intercept	18.63	3.29	20.6%	83
	large_privat	0.79	4.72		
4	intercept	31.42	8.15	16.9%	83
	small_privat	0.77	4.21		
5	intercept	30.67	4.17	-0.4%	50
	law_eff	0.24	0.89		
6	intercept	35.40	4.71	-2.1%	50
	law_ext	0.05	0.12		
7	intercept	-78.14	-3.09	20.9%	83
	$eqmkt_{gdp}$	1.34	4.76		
8	intercept	24.54	2.34	2.3%	83
	$m3_{gdp}$	0.27	1.70		
9	intercept	40.21	9.26	-1.0%	83
	privat_1	3.05	0.45		
10	intercept	52.70	6.07	1.2%	83
	privat_12	-13.14	-1.40		
11	intercept	20.41	2.25	5.9%	83
	foreign_banks	0.31	2.49		
12	intercept	104.90	0.96	-0.8%	83
	FDI_{GDP}	-0.66	-0.58		

Table VIII continued

regression	variable	coefficient	t-statistic	adjusted R^2	observations
Panel B: Volume of Project Finance Loans					
13	intercept	11.31	0.90	6.6%	83
	comp_policy	0.71	2.61		
14	intercept	1.18	0.08	7.6%	83
	price_lib	1.34	2.78		
15	intercept	23.66	3.56	11.4%	83
	large_privat	0.67	3.39		
16	intercept	33.84	7.64	10.8%	83
	small_privat	0.69	3.30		
17	intercept	35.42	4.22	-1.4%	50
	law_eff	0.17	0.56		
18	intercept	42.66	5.00	-1.7%	50
	law_ext	-0.20	-0.44		
19	intercept	-76.97	-2.68	16.9%	83
	$eqmkt_{gdp}$	1.34	4.20		
20	intercept	23.45	2.02	2.5%	83
	$m3_{gdp}$	0.32	1.77		
21	intercept	40.65	8.45	-0.6%	83
	privat_1	5.47	0.73		
22	intercept	50.67	5.22	-0.3%	83
	privat_12	-9.10	-0.87		
23	intercept	24.87	2.44	3.0%	83
	foreign_banks	0.27	1.89		
24	intercept	144.20	1.20	-0.4%	83
	FDI_{GDP}	-1.05	-0.84		

Table IX
Testing Hypothesis 2 in a Multiple Regression Framework

Panel A reports the results of single and multiple OLS regressions on the relative number of project finance loans. The dependent variable, PF_no, is defined as the total number of PF loans relative to the total number of syndicated loans. The independent variables in regressions 1 to 3 are composite indicators based on the individual proxies for moral hazard, bank influence, and political risk of tables VII to VIII, respectively. The bank influence indicator ($bank\_influence_{\#}$) is simply defined as IFC participation. Political risk and moral hazard indicators are calculated in two different ways each: (1) An adjusted R^2 based indicator, identified by subscript rsq(all), is defined using all proxies with a single-regression adjusted R^2 of more than 0% and as weights the adjusted R^2 reported in tables VII and VIII. (2) An adjusted R^2 based indicator, identified by the subscript rsq(best), is defined using only those proxies with a single-regression adjusted R^2 of more than 10% in Panel A of Table VII or more than 10% in Panel A of VIII. - In order to avoid multicollinearity, regressions 6 to 9 use orthogonalized indicators identified by the subscript ortho. Orthogonalization is achieved using the principal components method in combination with varimax rotation. – Regressions 7 and 9 allow for yet unspecified country risk characteristics to have explanatory power regarding the use of PF and is based on a 2-step regression approach:

Step 1 (not reported): $score = \delta_0 + \delta_1\ bank\_influence_{\#} + \delta_2\ moral\_hazard_{\#} + \delta_3\ political\_risk_{\#} + res\_score_{\#}$

Step 2 (regression 7, 9): $PF\_no = \mu_0 + \mu_1\ bank\_influence_{\#} + \mu_2\ moral\_hazard_{\#} + \mu_3\ political\_risk_{\#} + \mu_4\ res\_score_{\#}$

Panel B reports the results of the corresponding regressions with all variables defined on the basis of $ volume instead of number of loans. For all 18 regressions, the individual project finance loans described in Table V are aggregated into 83 country- and year-specific observations.

regression	variable	coefficient	t-statistic	adjusted R^2
Panel A: Number of Project Finance Loans				
1	intercept	39.03	11.95	9.1%
	$bank\_influence_{\#}$	0.59	3.04	
2	intercept	-16.90	-1.42	23.0%
	$moral\_hazard_{\#,rsq(all)}$	1.26	5.05	
3	intercept	-12.50	-1.19	25.2%
	$moral\_hazard_{\#,rsq(best)}$	1.18	5.35	
4	intercept	8.38	0.93	14.7%
	$political\_risk_{\#,rsq(all)}$	0.72	3.90	
5	intercept	3.91	0.39	15.3%
	$political\_risk_{\#,rsq(best)}$	0.76	3.98	
6	intercept	41.46	14.58	26.7%
	$bank\_influence_{\#,ortho}$	8.23	2.88	
	$moral\_hazard_{\#,rsq(all),ortho}$	4.95	1.73	
	$political\_risk_{\#,rsq(all),ortho}$	13.30	4.65	
7	intercept	41.46	15.46	34.8%
	$bank\_influence_{\#,ortho}$	8.23	3.05	
	$moral\_hazard_{\#,rsq(all),ortho}$	4.95	1.83	
	$political\_risk_{\#,rsq(all),ortho}$	13.30	4.93	
	res_score	1.20	3.29	
8	intercept	41.46	14.76	28.5%
	$bank\_influence_{\#,ortho}$	8.05	2.85	
	$moral\_hazard_{\#,rsq(best),ortho}$	7.19	2.54	
	$political\_risk_{\#,rsq(best),ortho}$	12.97	4.59	
9	intercept	41.46	15.47	35.0%
	$bank\_influence_{\#,ortho}$	8.05	2.99	
	$moral\_hazard_{\#,rsq(best),ortho}$	7.19	2.67	
	$political\_risk_{\#,rsq(best),ortho}$	12.97	4.81	
	res_score	1.49	2.98	

Table IX continued

regression	variable	coefficient	t-statistic	adjusted R^2
Panel B: Volume of Project Finance Loans				
10	intercept	40.55	11.10	7.2%
	$bank\_influence_{\$}$	0.58	2.71	
11	Intercept	-16.23	-1.09	15.9%
	$moral\_hazard_{\$,rsq(all)}$	1.21	4.07	
12	intercept	-14.16	-1.01	17.0%
	$moral\_hazard_{\$,rsq(best)}$	1.13	4.21	
13	intercept	10.27	1.00	11.1%
	$political\_risk_{\$,rsq(all)}$	0.73	3.36	
14	intercept	5.46	0.49	12.2%
	$political\_risk_{\$,rsq(best)}$	0.75	3.52	
15	intercept	42.89	12.87	18.1%
	$bank\_influence_{\$,ortho}$	8.29	2.47	
	$moral\_hazard_{\$,rsq(all),ortho}$	6.36	1.89	
	$political\_risk_{\$,rsq(all),ortho}$	11.33	3.38	
16	intercept	42.89	13.64	27.1%
	$bank\_influence_{\$,ortho}$	8.29	2.62	
	$moral\_hazard_{\$,rsq(all),ortho}$	6.36	2.01	
	$political\_risk_{\$,rsq(all),ortho}$	11.33	3.58	
	res_score	1.55	3.28	
17	intercept	42.89	13.01	20.0%
	$bank\_influence_{\$,ortho}$	8.19	2.47	
	$moral\_hazard_{\$,rsq(best),ortho}$	8.12	2.45	
	$political\_risk_{\$,rsq(best),ortho}$	11.17	3.37	
18	intercept	42.89	13.57	26.4%
	$bank\_influence_{\$,ortho}$	8.19	2.57	
	$moral\_hazard_{\$,rsq(best),ortho}$	8.12	2.55	
	$political\_risk_{\$,rsq(best),ortho}$	11.17	3.52	
	res_score	1.76	2.82	

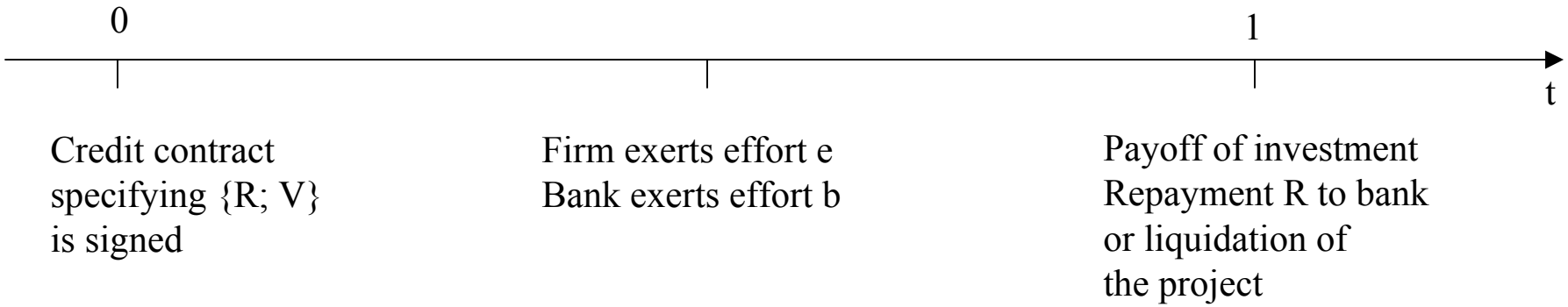
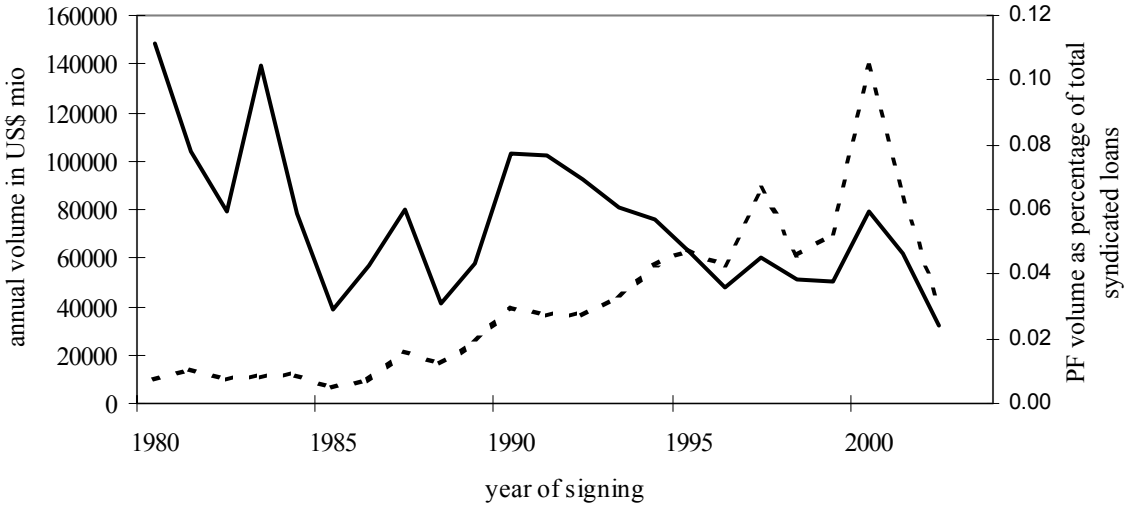


Figure 1: **Timeline of the double moral hazard model**

Panel A: Annual Volume of Global Project Finance Loans



Panel B: Annual Number of Global Project Finance Loans

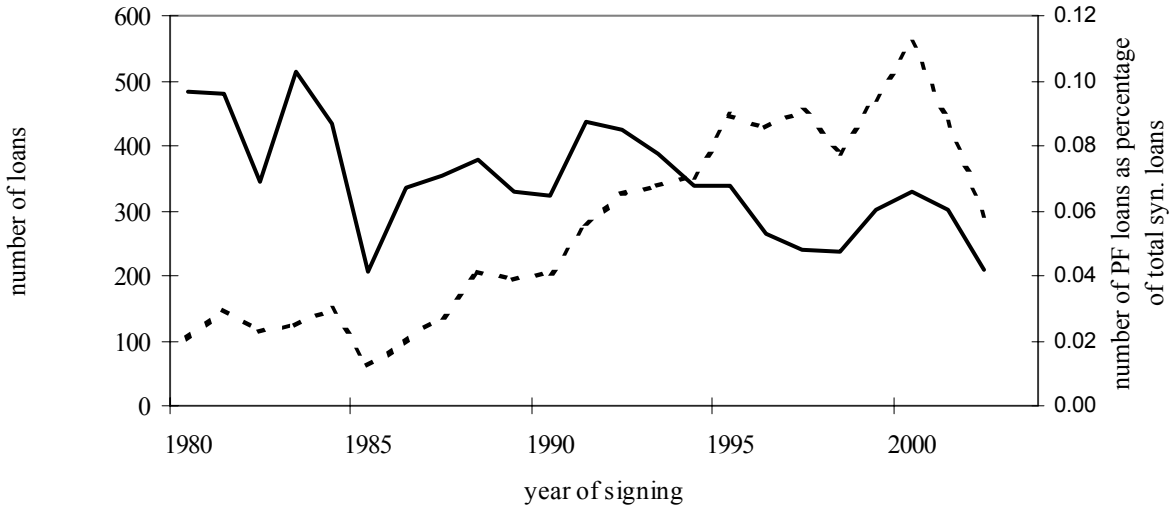


Figure 2: The Development of Project Finance Over Time. In Panel A, the dotted line indicates the total annual volume of PF loans in millions of US$ with the scale given on the left-hand-side axes. In the same panel, the solid line indicates the volume of PF loans relative to all syndicated loans with the scale given on the right-hand-side axes. For Panel B, the same structure is used now referring to the number of PF loans. Data for 2003 are not included.