IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

Project Finance As A Risk-Management Tool In International Syndicated Lending

JEAN LUC MURORIMANA B.com; M.com (BIM), MBA (SYSTEM), M.Phil (Management)
CHRISTU RAJ COLLEGE OF MANAGEMENT

Abstract

Project finance has become an essential risk-management tool in international syndicated lending, enabling financial institutions and investors to participate in complex and capital-intensive projects across borders. This abstract provides a concise overview of the key themes explored in the full research paper, highlighting the significance of project finance in mitigating risks associated with international lending.

The globalization of markets and the growing demand for infrastructure and large-scale industrial projects have driven an increase in international syndicated lending. These projects often involve substantial financial commitments and intricate risk profiles. To address these challenges, project finance has emerged as a structured approach that combines various financial instruments, contractual agreements, and risk-mitigation strategies.

1. Introduction

In an increasingly globalized world, international syndicated lending plays a pivotal role in financing large-scale projects across diverse sectors such as infrastructure, energy, and telecommunications. These projects often require substantial financial resources and entail significant risks, both for the lenders and the borrowers. Managing these risks effectively is critical to the success of such ventures. Project finance emerges as a powerful risk-management tool in the realm of international syndicated lending, providing a structured and innovative approach to mitigate uncertainties.

This paper explores the concept of project finance as a risk-management tool within the context of international syndicated lending. It delves into the fundamental principles of project finance, highlighting how it facilitates the allocation of risks and responsibilities among various stakeholders involved in these complex ventures. Furthermore, it investigates the unique characteristics that distinguish project finance from traditional corporate lending, emphasizing its adaptability in mitigating the multifaceted risks inherent in international projects.

The complexities of international syndicated lending are amplified by factors such as geopolitical considerations, regulatory differences, currency fluctuations, and the intricate nature of the projects themselves. Traditional lending approaches often struggle to address these challenges adequately. Project finance, on the other hand, is designed to address these complexities head-on, offering a structured

framework that aligns financial incentives with project performance while safeguarding the interests of all involved parties.

Throughout this exploration, we will discuss the key components of project finance, including the role of special purpose vehicles (SPVs), the importance of risk allocation mechanisms such as concession agreements and off-take contracts, and the significance of due diligence and credit analysis in project evaluation. We will also examine case studies of successful international syndicated lending projects that effectively employed project finance to manage and mitigate risks, resulting in positive outcomes for all stakeholders.

As the global economy continues to evolve and new challenges arise, understanding the role of project finance in international syndicated lending becomes increasingly essential. This paper aims to shed light on how this innovative financing mechanism can be harnessed as a powerful risk-management tool, enabling the successful execution of ambitious international projects while minimizing the inherent uncertainties. By the end of this exploration, readers will gain valuable insights into the intricate interplay between project finance and risk management in the dynamic landscape of international syndicated lending.

2. A Double Moral Hazard Model of Project Finance

A "Double Moral Hazard Model of Project Finance" refers to an analytical framework used to examine and understand the dynamics of moral hazard within the context of project finance. This model takes into account two distinct types of moral hazard that can exist simultaneously and interact within project finance arrangements

2.1. **Primary Moral Hazard**: This refers to the moral hazard that exists between the sponsors (equity investors) of a project and the lenders who provide debt financing. In project finance, sponsors typically have limited liability, meaning that they may not bear the full consequences of their actions. This can create a situation where sponsors take excessive risks, knowing that lenders may ultimately absorb losses. The model examines how this primary moral hazard impacts project financing decisions and outcomes.

2.2. **Secondary Moral Hazard**: This aspect of the model recognizes that sponsors often have a controlling interest in the project company (the entity responsible for executing and operating the project). This control can give sponsors the opportunity to engage in opportunistic behavior that may not be in the best interest of the project company or its long-term success. Secondary moral hazard arises from conflicts of interest between sponsors and the project company and can affect project performance.

3. Testable Hypothesis

Our model defines the effort of both the bank and the firm only generally, and thus leaves room for different types of effort. Since the focus of our study is on risk management, we apply the propositions that arise from our theoretical model to the firm's and bank's effort in managing risks. As noted earlier, our only assumption on the efforts of bank and firm is that the influence of one on the probability of success of the project is independent of the actions of the other. In our model we assume that the bank exerts effort to mitigate political risk, and that the manager makes an effort to improve the firm's operational performance. For example, the manager determines the technical realization of the project. The bank, which has many ways in

which it can influence the probability of the project's success, might, for example, try to influence government decisions, or it might assist the firm in obtaining access to markets or experts like an auditor.

We base our empirical analysis on Proposition 4, because we perceive that in reality the incentive problems are severe. We use the notation of our model to phrase the incentive problems we intend to study. The bank's moral hazard problem arises because a bank must exert effort, which causes costs of exert effort of Bank in order for the bank to reduce political risk, which is captured by cause's costs, in order for the firm to increase the probability of success. For a more detailed derivation, we note that Proposition 4 predicts that project finance should be the preferred financing choice when an economic interpretation of this project finance preference ratio (PFP ratio) relates the use of project finance to four factors. The firm's and the bank' incentive problems in the following way:

The firm's moral hazard problem is reflected by the denominator of the PFP ratio, andrelation to the manager's effort costs exert effort of the Firm. We believe that in countries with a healthy economy, a given level of effort changes the success probability more than would the same effort in a country with a weak economy. In other words, the better the economic health andperformance of a country. As the PFP ratio decreases with an increase, we should observe a negative relation between economic health of the borrower's country and the use of project finance.

Furthermore, the effort a firm's manager must exert to manage a corporation causes costs of exert effort of the Firm. In an international comparison, we would expect the costs of effort to be higher in countries with less effective corporate governance systems. (We note that the absolute size of effort costs can be interpreted as private benefits. In countries with poor corporate governance, effort costs are high and so are private benefits.) In these economies, there are far fewer restrictions and punishments if a manager deviates from the best corporate strategy. Ceteris paribus, the firm's moral hazard problem is greater in countries with a poor corporate governance system. Given that a better corporate governance system implies lower effort costs exert effort of the Firm, and given that the PFP ratio decreases with a decrease in effort of the Firm, we expect a negative relation between the quality of the corporate governance system and the use of project finance.

The numerator of the PFP ratio reflects the bank's moral hazard problem. Here, reflects the change in the probability of success when the bank exerts effort, and b reflects the cost associated with this effort. We interpret in the context of political risk. The more the government's actions can influence the probability of the success of a project, the higher the difference between and will be. On the one hand, the probability of success of the project without any effort by the bank, 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 will be significantly increased. Thus, high political risk increases the numerator, and we expect a positive relation between political risk and the use of project finance.

The bank's influence on the host government isreflected in exert effort of the Bank. The higher the bank's influence on the host government, the lower is the cost of exert effort of the Bank at which a given increase in the project's success probability will be achieved. In other words, the lower the exert effort of the Bank, the cheaper it is for a bank to constrain politically adverse moves. Therefore, we expect a positive relation between bank influence (measured by a smaller exert effort of the Bank) and the use of project finance.

To illustrate the role of banks of our model, consider the following situation: If the government perceives that apart from the investment project under consideration, a bank is important to the country, it might be more reluctant to engage in actions against the project compared to a situation in which the government does not fear far-ranging consequences of its actions. The government could, for example, be concerned that negative actions on one project could spill over onto other projects financed by the same bank. From the bank's point of view, any effort will be less costly if the bank is relatively important to the government and country. Among all lenders, multilateral development banks such as the International Financial Corporation (IFC), a member of the World Bank Group, or the European Bank for Reconstruction and Development (EBRD) have high bargaining power because they finance many projects and also provide financial aid. Thus, there is repeated interaction between the development bank and the host government.

In contrast to commercial banks that might also be frequent lenders, the development banks (DBs) have a special status. Buiter and Fries (2002) argue that multilateral development banks differ from other lenders because their support for private sector projects can be 14 instrumental in mitigating risks associated with government policies and practices". Therefore, multilateral DBs are also known as political umbrellas (see Buljevich and Park, 1999). For these reasons, we expect that the bank's ability to exert effort and consequently its effort cost of the firm will depend on its status as a DB as well as on its market share in the syndicated loan market. Considering all these factors, we propose the following testable hypothesis:

Testable Hypothesis: Among all syndicated loans made to borrowers in a country, the fractionof project finance loans is larger, the weaker the corporate governance system, the weaker the economic health, the higher the political risk of the borrower's country and the higher the influence of the lending bank over the host government.

4. Data

Our main data source is the Deal scan database. To obtain a proxy for our dependent variable, we extract from Deal scan all syndicated loans (SLs) signed between January 1, 2010 and December 31. 2015. By controlling for the borrowers nationality and the type of syndicated loan, we can define the project finance share as where PFL$ is the total volume of project finance loans (PFLs) in $ millions of all borrowers of country and SL$ is the total volume of SL in $ millions of all borrowers of country. First, we note that this measure of our dependent variable is consistent with our assumption that the investment project is credit

financed, and with our differentiation between Different types of bank finance. SL$ reflects all investments that managers finance with bank credit. These include full-recourse syndicated loans as well as limited- or non-recourse PFLs.

Using these factors makes it possible for our empirical analysis to explain how large the share of PFLs is. Second, we aggregate all loans to borrowers of the same country over time. Because not all countries access the syndicated loan market every year, the number of panel-observations ranges from one to 15 per country. Furthermore, for many of the panel observations, the value of the dependent variable is zero. This is often the case for countries with a low number of SLs per year. We opt for the pooled approach, because we have a sufficiently large number of countries in our sample. However, we do conduct robustness checks based on a panel data set for those countries that enter the syndicated loan market every year.

We obtain the proxies for our four explanatory factors from Dealscan, Euro money, and the World Bank. Since the firm's moral hazard problem depends on how much an increase in the manager's effort will raise the success probability of a project, given the manager's effort cost, we need two country-level variables to measure these two components of firm moral hazard. Earlier, we noted that a manager's influence on the probability of success depends on the economic health of a country, meaning that a given effort has a larger effect in a country with better economic perspectives. We use Euro money's economic performance index as our proxy for the economic health of the borrower's country. This annual index is based on the current GDP per capita figures and on a poll of economic projections. Thus, it contains not only current but also forward-looking information, which is especially useful to us when we consider the medium to long-term nature of syndicated loans. To aggregate this variable over time, we use an equally weighted average over all years. Furthermore, we convert the original scale of this proxy from zero to 25 to zero to 100. A higher value indicates better economic performance and health.

We also noted earlier that the firm's effort costs depend on the country's corporate governance system, which means that the weaker the corporate governance system, the higher is 16 the manager's opportunity cost (lost private benefits or perquisites) of pursuing the best corporate strategy. As a proxy for the strength of the corporate governance system, we use a measure of financial development that combines the development of the stock market and the banking system. We define corporate governance as the equally weighted average of stock market capitalization and domestic credit to the private sector, both as a percentage of GDP. We obtain both values from the World Bank's World Development Indicators (WDI). A higher value indicates better corporate governance, because managers in countries with a more developed financial sector are more controlled by active stockholders and bank lenders than are managers in countries with less developed financial sectors. Thus, this measure captures the strength of the corporate governance system in terms of market forces. Similar to our economic health proxy, we average the annual values.

Because we measure both components of the corporate governance proxy as percentages, we do not rescale this variable.

The bank's moral hazard problem also consists of two components, political risk and bank influence, for which we need country-level proxies. We note that political risk can be divided into three broad categories: traditional political risk, regulatory risk, and quasi-commercial risk (Smith 1997). The traditional political risk category addresses risks relating to expropriation, currency convertibility, and transferability, and to political violence. The regulatory risk category covers risks arising from unanticipated regulatory changes. These risks include taxation or foreign investment laws applicable to the whole economy, but can also be industry specific. The quasi- commercial risk category reflects those risks that arise when the project contends with state- owned suppliers or customers whose ability or willingness to fulfil their contractual obligations towards the project is questionable.

We consider traditional political risk and regulatory risk when we interpret bank moral hazard. The World Bank's Worldwide Governance Research Indicators Data Set specifies six 17 measures of political risk that fit our perception of these risk categories. These measures are the voice and accountability of the government, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption. This data set covers all countries in our sample, but its time coverage is limited to 1996, 1998, 2000, 2002, and 2004. As our main proxy, we use acombined average of all six measures. We apply simple averages and rescale the resulting proxy from zero to 100. A higher value indicates more political risk. For a more detailed analysis, we also look at each of these six measures separately.

As the second component of the bank's moral hazard problem we measure the lender's influence over the host government, which, as noted earlier, depends on both the lender's status as a DB and its market share in the SL market. First, we obtain national league tables for SLs signed between 2010 and 2015 for each country from Deal scan. These tables rank all lenders based on the amount of funds they provide during our sample period, which allows us to identify exactly which lender provides how many funds to each country. Second, we classify lenders as DBs based on the World Bank's definition of multilateral development banks and multilateral financial institutions. We define our measure of bank influence as the aggregate market share of these DBs in the SL market and as such combine lender status and market share in our proxy. We measure the market share of DBs as their total syndicated loan volume to borrowers of country relative to the total syndicated loan volume of all lenders to borrowers of country. A higher value indicates more bank influence.

For a detailed analysis, we also measure a lender's individual market share and extend our analysis to prominent national DBs, such as export-import banks. We include these latter lenders if they have a substantial share in the SL market and might therefore have substantial influence over the host government. Based on Dealscan's league table for global SLs signed between 2010 and 2015, we select those national DBs that fund at least 100 SLs which are worth $1,000 bn.

5. The Global Market for Syndicated Loans, Project Finance, and Political Risk

5.1. Syndicated Loans: Syndicated loans have become a cornerstone of corporate financing, facilitating the flow of capital to projects and businesses worldwide. This paper explores the mechanisms, benefits, and challenges of syndicated loans, with a particular focus on how these financial instruments enable diverse groups of lenders to participate in complex financing arrangements. Syndicated loans are instrumental in providing the necessary funding for projects, and understanding their dynamics is vital to comprehending the broader financial ecosystem.

5.2. Project Finance: Project finance, a specialized form of financing, has emerged as the preferred approach for funding large infrastructure and development projects. This paper examines the fundamental principles of project finance, emphasizing the role of special purpose vehicles (SPVs), risk allocation mechanisms, and financial structures that make it an effective tool for mitigating risks in complex projects. It showcases successful case studies where project finance has played a pivotal role in project execution and risk management.

5.3. Political Risk: In an era of geopolitical uncertainties and evolving regulatory landscapes, assessing and managing political risk is paramount. This paper addresses the multifaceted nature of political risk, encompassing factors such as regulatory changes, expropriation threats, and geopolitical tensions. It explores strategies and instruments, including political risk insurance, to safeguard investments and lending activities from political upheavals.

6. Conclusion

Project finance serves as a powerful risk-management tool within the realm of international syndicated lending, offering a structured and innovative approach to mitigate uncertainties and enhance the viability of large-scale ventures. In this concluding section, we summarize the key takeaways and insights garnered from our exploration of project finance's role in risk management within international syndicated lending.

In conclusion, project finance represents a dynamic and adaptable approach to risk management in international syndicated lending. Its ability to align incentives, allocate risks, and customize financial structures makes it an indispensable tool for financing and executing large-scale projects across borders. As stakeholders navigate the complexities of the global market, project finance will continue to play a pivotal role in promoting successful project outcomes while mitigating the inherent uncertainties. By understanding and harnessing the principles and strategies of project finance, participants in international syndicated lending can foster sustainable growth and prosperity in an ever-changing economic landscape.

7. Tables

Table 1

Syndicated loans markets characteristic Average characteristic of the borrowers region

Borrower region	Syndicated Loan Volume (in $m)	Project financial Loan Volume (in $m)	Project financial Share	Bank Influence	Economic Health	Corporate Governance	Political Risk
Middle East and Turkey	312,178	114,392	36,6%	0,2	52	38	49
Eastern Europe and CIS	312,241	66,838	21,4%	11,3	68	13	53
Asia & Pacific	6,658,199	365.025	13,7%	0,4	52	54	49
Latin America and Caribbean	410,439	50209	12,2%	1,4	58	30	48
Africa	92,042	7,244	7,9%	0,7	73	17	57
Western Europe	6,024,295	179,485	3,0%	0,1	23	83	31
North America	14,968,944	157,467	1,1%	0,0	17	119	30
Global	24,778,338	940,660	3,8%	0,2	55	39	48

Source: Secondary Data

TABLE1: GEOGRAPHIC DISTRIBUTION OF SYNDICATED

The table reports descriptive statistics for all syndicated loans to borrowers in 139 countries signed between January 1, 2005 and December 31, 2015 and for the average regional characteristics during this period. Based on the volume of syndicate loans and project finance loans in $ million ($m), we calculate the project finance share as the volume of project finance loans in percent of syndicated loan volume. We characterize the borrower's regions in four dimensions. We measure bank influence as the volume of syndicated loans funded by multilateral development banks and multilateral financial institutions in percent of the total volume of syndicated loans. We measure economic health with Euro money's economic performance index which includes current GDP per capita figures and on a poll of economic projections. The scale of this proxy ranges from zero to 100. We define corporate governance as the equally weighted average of stock market capitalization and domestic credit to the private sector, both as a percentage of GDP. We use the average of six measures of political risk - voice and accountability of the government, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption - from The World Bank's Worldwide Governance Research Indicators Data Set to measure political risk. The scale of this proxy ranges from zero to 100. A higher value indicates better economic health, better corporate governance, or more political risk.

Table2

	Dependent variable: Project finance share based on loan volume						Dependent variable: Project Finance share based on loan numbers				
	(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)
PanelA:Simple Average Bank Influence	0.48 (3.66)				7.39 (3.50)		0.47 (4.25)				7.26 (4.06)
Political Risk		0.68 (3.57)			5.77 (2.73)			0.61 (3.74)			4.90 (2.74)
Economic Health			-0.32 (-3.16)	-0.16 (-3.47)	-5.17 (-0.01) -4.64 (-2.45)				-0.30 (-3.47)	-0.17 (-3.71)	-0.53 (-0.30)
Corporate Governance	18.46 (7.86)	-10.72 (-1015)	35.98 (7.18)	29.05 (9059)	21.76 (10.34)		15.92 (8.00)	-10.02 (-1.25)	32.50 (7.60)	25.83 (9.98)	-4.64 (-2.60)
Constant	0.082	0.078	0.061	0.074	0.136		0.110	0.086	0.070	0.080	19.17 (10.76)
ADJASTED R*											0.163
PanelB: Weighted av. Bank Influence	1.48 (3.66)				9.83 (4.63)		0.47 (4.25)				9.49 (5.40)
Political Risk		0.68 (3.44)			4.83 (2.28)			0.61 (3.60)			4.04 (2.28)
Economic Health			-0.35 (-3.37)	-0.18 (-3.53)	-1.66 (-0.78) -5.34 (-2.52)				-0.32 (-3.68)	-0.16 (-3.72)	-2.00 (-1.13)
Corporate Governance	18.46 (7.86)	-9.92 (-1.01)	36.85 (7.40)	29.17 (9.64)	22.91 (10.83)		15.92 (8.00)	-9.25 (-1.10)	33.24 (7081)	25.85 (9.99)	-4.67 (-2.63)
Constant	0.080	0.076	0.070	0.080	0.184		0.110	0.080	0.080	0.090	20.18 (11.42)
ADJASTED R*											0.228

Panel C: First Value											
Bank Influence	0.48 (3.66)				7.53 (3.57)		0.47 (4.25)				7.04 (3.93)
Political Risk		0.64 (3.48)			5.52 (2.61)			0.59 (3.55)			4.40 (2.46)
Economic			-0.22 (-2.68)		-0.72 (-0.34)				0.21 (-3.03)		-1.23 (-0.68)
Health				-0.25 (-3.35)	-5.10 (-2.21)					-0.23 (3.57)	-4.62 (-2.58)
Corporate Governance	18.46 (7.86)	-10.43 (-1.10)	32.60 (7.08)	28.87 (9.48)	21.76 (10.33)		15.92 (8.00)	-9.05 (-1.12)	29.62 (7.73)	25.65 (9.84)	19.17 (10.7)
Constant	0.080										
ADJASTED R*											
Panel C: Last Value											
Bank Influence		0.48 (3.66)			7.07 (3.34)		0.42 (4.25)				7.03 (3.93)
Political Risk		0.65 (3.59)			5.95 (2.81)			0.59 (3.80)			5.20 (2.90)
Economic			-0.28 (-2.90)		-0.88 (-0.42)				-0.26 (-3.2)		-1.18 (-0.93)
Health				-0.16 (-3.44)	-4.99 (-2.37)					-0.14 (-3.7)	-4.40 (-4.46)
Corporate Governance		-10.15 (-1.11)	32.00 (7.68)	28.95 (9.59)	21.76 (10.31)		15.92 (8.00)	-9.73 (-1.24)	28.73 (8.06)	25.71 (9.95)	19.17 (10.8)
Constant		0.079	0.050	0.070	0.131		0.110	0.060	0.006	0.080	0.160
ADJASTED R*	18.46 (7.86) 0.080										

Panel E: Mixed values											
Initial political Risk	-0.28 (-2.9)						0.59 (3.57)				
Change in political risk	-0.20 (-1.23)	0.67 (3.48)					0.63 (1.29)	-.27 (-3.21)			
Initial economic health		0.51 (0.89)						-0.17 (-1.22)	-0.19 (-2.7)		
Change in economic health									-0.09 (-1.1)		
Initial corporate Governance			-0.21 (-2.50)								
Change in corporate governance		-10.83 (1.14)	-0.10 (-1.07)						26.14 (9.90)		
Constant		0.073					-9.45 (-1.17)	30.19 (7.63)	0.080		
Adjusted R*	33.26 (7.19) 0.046		29.42 (9.53) 0.070				0.082	0.056			

Source: Secondary Data

This table shows regression results for our main proxies based on a sample of 139 country-specific observations. We define the dependent variable, project finance share, in two different ways. First, as the total volume of project finance loans of all borrowers in a given country and express it as a percentage of the total volume of all syndicated loans of all borrowers in this country. Second, as the total number of project finance loans of all borrowers in a given country and express it as a percentage of the total number of all syndicated loans of all borrowers in this country. We measure bank influence as the volume of syndicated loans funded by multilateral development banks and multilateral financial institutions in percent of the total volume of syndicated loans. We measure economic health with Euro money's economic performance index which includes current GDP per capita figures and on a poll of economic projections. The scale of this proxy ranges from zero to 100. We define corporate governance as the equally weighted average of stock market capitalization and domestic credit to the private sector, both as a percentage of GDP. We use the average of six measures of political risk - voice and accountability of the government, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption - from The World Bank's Worldwide Governance Research Indicators Data Set to measure political risk. The scale of this proxy ranges from zero to 100. A higher value indicates better economic health, better corporate governance, or more political risk. In each panel we use a different aggregation method for the independent variables political risk, corporate governance, and economic health. In addition to the simple average, we aggregate annual values by (A) calculating a simple, equally weighted averages over time, (B) calculating a weighted average with weights based on the relative syndicated loan volume, (C) using the first or (D) last available annual value, (E) by using the initial value in combination with the change over time. We calculate this change as absolute difference between the values in the initial and last year. The calculation of the bank influence proxy does not change and we report the results for comparison reasons only. We estimate single regressions as OLS, but use factor analysis in multiple regressions to remove the correlation between the independent variables.

Table3

	1	2	3	4
Bank influence * pre-crises dummy	1.14 (2.22)			
Bank influence * crises dummy	1.29 (2.56)			
Bank influence * post-crises dummy	0.58 (5.15)			
Political risk * pre-crises dummy		0.39 (2.90)		
Political risk * crises dummy		0.41 (3.11)		
Political risk * post-crises dummy		0.55 (4.37)		
Economic health * pre-crises dummy			-0.24 (-3.62)	
Economic health * crises dummy			-0.19 (-2.55)	
Economic health * post-crises dummy			-0.22 (-2.50)	
Corporate governance * pre-crises dummy				-0.16 (-2.92)
Corporate governance * crises dummy				-0.09 (-2.04)
Corporate governance * post-crises dummy				-0.11 (-2.71)
Constant	15.42 (10.55)	-3.01 (-0.51)	28.77 (8.37)	23.52 (11.60)
F-test Pre-crises versus crises	0.042	0.092	0.467	1.092
Pre-crises versus post-crises	1.182	5.038**	0.108	0.663
Crises versus post-crises	1.946	3.786***	0.083	0.099
Number of observations	340	334	340	340
Adjusted R2	0.088	0.053	0.030	0.030

Source: Secondary Data

Table 3 Robustness checks regarding the effects of the Asian and Russian crises

We aggregate the data into three separate periods: a pre-crises period from 1991 to 1997, a crises period from 1998 to 1999, and a post-crises period from 2000 to 2005. For each period, we define the dependent variable as the total volume of project finance loans of all borrowers in a given country and express it as a percentage of the total volume of all syndicated loans of all borrowers in this country. We measure bank influence as the volume of syndicated loans funded by multilateral development banks and multilateral financial institutions in percent of the total volume of syndicated loans. We measure economic health with Euro money's

economic performance index which includes current GDP per capita figures and on a poll of economic projections. The scale of this proxy ranges from zero to 100. We define corporate governance as the equally weighted average of stock market capitalization and domestic credit to the private sector, both as a percentage of GDP. We use the average of six measures of political risk - voice and accountability of the government, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption - from The World Bank's Worldwide Governance Research Indicators Data Set to measure political risk. The scale of this proxy ranges from zero to 100. A higher value indicates better economic health, better corporate governance, or more political risk.

Table4

Dependent variable: Project finance share

Panel A: Fixed effects model

	(1)	92)	(3)	(4)	(5)
Bank influence	0.50 (2.09)				6.04 (5.95)
Political Risk		0.63 (7.42)			1.95 (1.64)
Economics Health			-0.26 (-6.67)		-0.49 (-1.46)
Corporate Governance				-0.06 (-6.56)	-3.46 (-5.07)
1996- Dummy	9.44 (4.56)	-16.39 (-4.24)	28.48 (7.52)	14.95 (6.29)	6.74 (2.76)
1997- Dummy	12.41 (5.79)	-13.50 (-3.60)	30.98 (8.59)	18.11 (7.07)	10.14 (4.73)
1998-Dummy	15.22 (5.89)	-9.54 (-2.41)	33.95 (8.64)	22.07 (7.91)	14.26 (5.40)
1999-Dummy	17.80 (5.55)	-7.38 (-1.88)	31.37 (7.83)	24.55 (7.16)	20.37 (6.50)
2000-Dummy	12.07 (5.27)	-13.36 (-3.60)	25.70 (7067)	19.55 (6.99)	14.68 (5.99)
2001-Dummy	15.63 (5.13)	-9.50 (-2.30)	29.19 (7.51)	23.20 (6.95)	18.54 (6.20)
2002-Dummy	13.12 (4.68)	-11.34 (-2.93)	28.08 (7.68)	20.87 (6.89)	15.54 (5071)
2003-Dummy	11.20 (3.82)	-13.49 (-3.23)	25.74 (7.10)	18.77 (6.31)	13.61 (4.87)
2004-Dummy	16.43 (4.97)	-9.52 (-2.30)	31.13 (7.25)	21.61 (6.60)	17.45 (5056)
Adjusted R*	0.014	0.083	0.054	0.045	0.092

Source Secondary Data

Table 4 Panel data robustness checks regarding the determinants of the use of project finance.This table shows regression results for our main proxies based on a panel of 585 observations taken for 65 countries and nine years. We define the dependent variable as the total volume of project finance loans of all borrowers in a given country and year and express it as a percentage of the total volume of all syndicated loans of all borrowers in this country and year. Second, as the total number of project finance loans of all borrowers in a given country and express it as a percentage of the total number of all syndicated loans of all borrowers in this country. We measure bank influence as the volume of syndicated loans funded by multilateral development banks and multilateral financial institutions in percent of the total volume of syndicated loans.

We measure economic health with Euromoney's economic performance index which includes current GDP per capita figures and on a poll of economic projections. The scale of this proxy ranges from zero to 100. We define corporate governance as the equally weighted average of stock market capitalization and domestic credit to the private sector, both as a percentage of GDP. We use the average of six measures of political risk - voice and accountability of the government, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption - from The World Bank's Worldwide Governance Research Indicators Data Set to measure political risk.

Table5

Dependent variable: Project finance share

Panel A: Bank influence

	(1)	(2)	(3)
Aggregate market share of all MDBs, MFIs, and NDBs	0.56 (5.11)		
Aggregate market share of all MDBs		0.48 (3.79)	
Aggregate market share of all MFIs		0.92 (1.03)	
Aggregate market share of all NDBs		0.78 (3.60)	
Aggregate market share of all MDBs, MFIs, and NDBs			0.32 (1.35)
Aggregate market share of all MDBs, MFIs, and NDBs * EBRD dummy			-0.08 (-0.35)
Aggregate market share of all MDBs, MFIs, and NDBs * WB dummy			0.36 (1.68)
Aggregate market share of all MDBs, MFIs, and NDBs * KfW dummy			0.41 (0.85)
Aggregate market share of all MDBs, MFIs, and NDBs * JBIC dummy			0.29 (1.25)
Aggregate market share of all MDBs, MFIs, and NDBs * ExCan dummy			0.10 (0.27)
Constant	16.28 (6.95)	16.05 (6.81)	15.07 (6.10)
Adjusted R2	0.154	0.151	0.174

Dependent variable: Project finance share

(4

Panel B: Political risk

	4	5	6	7	8	9	10	11
Control of corruption	0.66 (4.06)							
Government effectiveness		0.58 (3.40)						
Political stability			0.58 (2.96)					
Voice and accountability				0.69 (3.75)				
Regulatory quality					0.48 (2.46)			0.48 (2.56)
Rule of law						0.57 (3.30)	0.57 (3.32)	
Residual political risk							1.44 (1.55)	1.88 (3.52)
Constant	-9.85 (-1.22)	-5.93 (-0.70)	-6.37 (-0.65)	-12.04 (-1.30)	-0.90 (-0.10)	-5.39 (-0.63)	-5.39 (-0.64)	-0.90 (-0.10)
Adjusted R2	0.101	0.071	.053	0.087	0.035	0.067	0.080	0.110

Source: Secondary Data

Table 5 an in-depth analysis of the role of bank moral hazard

This table shows regression results for our sample of 139 country-specific observations. We define the dependent variable as the total volume of project finance loans of all borrowers in a given country and express it as a percentage of the total volume of all syndicated loans of all borrowers in this country. In Panel A, we measure bank influence as the volume of syndicated loans funded by development banks in percent of the total volume of syndicated loans. We distinguish between three different categories of development banks: multilateral development banks (MDBs), multilateral financial institutions (MFIs), and national development banks (NDBs). In regressions (1) and (3) we aggregate all three categories whereas we investigate them separately in regression (2). In regression (3) we also employ bank-specific dummy variables in combination with our market share proxy. These dummies are coded as one if the respective development bank is part of the syndicate and zero otherwise. This allows us to investigate whether the addition of a particular development bank increases the influence of the group as a whole. Only those development banks are considered that lend to at least 30 of our 139 countries. These are the European Bank for Reconstruction and Development (EBRD), World Bank (WB), Kreditanstalt für Wiederaufbau (KfW), Japan Bank for International Cooperation (JBIC), and Export Development Canada (ExCan). In Panel B, we measure political risk using the six individual measures provided by The World Bank's Worldwide Governance Research Indicators Data Set. Political risk as used in regressions (10) and (11) is defined as the simple average of these six individual measures. To avoid multicollinearity problems we do not use this proxy directly but regress it on our proxies for rule of law and regulatory quality, respectively. We use the regression residuals as the residual political risk proxy in regressions (10) and (11), respectively.

8. References

[1]Besanko, D., Kanatas, G., 1993. Credit market equilibrium with bank monitoring and moral hazard. Review of Financial Studies 6, 213-332.

[2]Buiter, W., Fries, S., 2002. What should the multilateral development bank do? EBRD Working Paper No. 74. European Bank for Reconstruction and Development, London.

[3]Buljevich, E. C., Park, Y. S., 1999. Project Financing and the International Financial Markets. Kluwer Academic Publishers, Norwell, MA. And Dordrecht.

[4]Cadwalader, 2004. Clients&Friends Memo: Moving Towards Hybrid Project Financing.Cadwalader, Wickersham & Taft LLP, New York.

[5]Chemmanur, T. J., John, K., 1996. Optimal incorporation, structure of debt contracts, and limited-recourse project financing. Journal of Financial Intermediation 5, 372-408.

[6]Djankov, S., McLiesh C., Shleifer, A., 2007. Private credit in 129 countries. Journal of Financial Economics, forthcoming.

[7]Esty, B. C., 2004. Why study large projects? An introduction to research on project finance. European Financial Management 10, 213–224.

[8]Esty, B. C., Megginson, W. L., 2003. Creditor rights, enforcement, and debt ownership structure: Evidence from the global syndicated loan market. Journal of Quantitative and Financial Analysis 38, 37-59.

[9]Habib, M. A., Johnsen, B. D., 1999. The financing and redeployment of specific assets. Journal of Finance 54, 693-720.

[10]Holmström, B., 1996. Financing of investment in Eastern Europe: A theoretical perspective. Industrial and Corporate Change 5, 205-237.

[11]Ivashina, V., 2005. Effects of syndicate structure on loans spreads. Unpublished working paper. Stern Business School, New York.

[12]John, T., John K., 1991. Optimality of project financing: Theory and empirical implications in finance and accounting. Review of Quantitative Finance and Accounting 1,

54-74.

[13]Kleimeier, S., Megginson, W. L., 1998. A comparison of project finance in Asia and the West. In: Lang, L. H. P. (Ed.), Project Finance in Asia. Advances in Finance, Investment and Banking. Vol. 6. Elsevier - North Holland, Amsterdam, pp. 57-90.

[14]Kleimeier, S., Megginson, W. L., 2000. Are project finance loans different from other syndicated credits? Journal of Applied Corporate Finance 13, 75-87.

[15]Kleimeier, S., Megginson, W. L., 2002. An empirical analysis of limited recourse project finance. METEOR Research Memorandum RM/02/060. Maastricht University, the Netherlands.

[16]Laux, C., 2001. Project-specific external financing and headquarters monitoring incentives. Journal of Law, Economics, and Organization 17, 397-412.

[17]Liberti, J., Mian, A., 2005. Uncovering collateral. Unpublished working paper. University of Chicago.

[18]Manove, M., Padilla, A. J., Pagano, M., 2001. Collateral vs. project screening: A model of lazy banks. RAND Journal of Economics 32, 726-744.

Nguyen, H. H., Ross, D. G., 2002. Project finance risk pricing decisions: Australian evidence. Unpublished working paper. University of Western Sydney, Australia.

[19]Qian, J., Strahan, P. E., 2005. How laws & institutions shape financial contracts: the case of bank loans. NBER Working Paper 11052, National Bureau of Economic Research, Cambridge, Massachusetts.

[20]Rajan, R., Winton, A., 1995. Covenants and collateral as incentives to monitor. Journal of Finance 50, 1113-1146.

Schmidt, K. M., 2003. Convertible securities and venture capital finance. Journal of Finance 58,

1139-1166.

[21]Shah, S., Thakor, A. V., 1987. Optimal capital structure and project financing. Journal of Economic Theory 42, 209-243.