PROJECT FINANCING

Elective Curriculum Course Syllabus

Viney Sawhney
242 Beacon Street
Suite # 8
Boston, MA 02116
Phone: 617 424 0220
Fax: 617 424 6776
Email: viney.sawhney@gmail.com

Introduction

Project Financing is a unique financing technique that has been used on many high-profile corporate projects, including Euro Disneyland and the Euro Tunnel. Employing a carefully engineered financing mix, it has long been used to fund large-scale natural resource projects, from pipelines and refineries to electric-generating facilities and hydroelectric projects. Increasingly, project financing is emerging as the preferred alternative to conventional methods of financing infrastructure and other large-scale projects worldwide.

Project Financing discipline includes understanding the rationale for project financing, how to prepare the financial plan, assess the risks, design the financing mix, and raise the funds. In addition, one must understand the cogent analyses of why some project financing plans have succeeded while others have failed. A knowledge-base is required regarding the design of contractual arrangements to support project financing; issues for the host government legislative provisions, public/private infrastructure partnerships, public/private financing structures; credit requirements of lenders, and how to determine the project's borrowing capacity; how to prepare cash flow projections and use them to measure expected rates of return; tax and accounting considerations; and analytical techniques to validate the project's feasibility.

Course objectives

The main objective of the course is to provide students with the necessary theoretical and conceptual tools for financial analyses and decision-making in relation to Project Finance. The elective is designed for students pursuing careers in the corporate sector in treasury, corporate finance or business development functions, those in investment banking, consulting or engineering, and those involved in debt or equity investment decisions. It is particularly appropriate for students with an interest in medium to large-scale investments or projects. The course is especially appropriate for students with an interest in either emerging markets or structured finance. The course provides a solid grounding in the techniques of Project Finance and the key issues in its practice by providing a balanced mix between technical readings and specialized case studies. Strong emphasis is placed in covering important legal documentation issues and in providing students with the opportunity to undertake project evaluation. The course syllabus will focus on studying how lenders evaluate credit ratings in project-financed transactions and build alternate financing structures including bridge loans, construction and portfolio financing.

The program content will evaluate several new alternative methods of financing large engineering projects including merchant power financings and acquisition/divestiture of troubled projects. Sessions will focus on understanding major bottlenecks that can jeopardize financial closings and developing skills to tackle cultural barriers between developers and lenders. Emphasis will be on providing an overview of various approaches available to quantifying risk factors and identifying credit challenges.

Main Topics

1) Fundamentals and Rationale of Project Financing
2) Analysis of Project Viability and Risk Management
3) Security Arrangements and Legal Structure
4) Role of Credit Ratings and Project Evaluation
5) Ownership and Financial Structuring
6) Legal Documentation and Funding Sources

Course Evaluation

The grading of the course will be based on the following weighting scheme:

Class Participation:	35%
Mid-term Group Presentation:	30%
Final Group Case Write-Up and Presentation:	35%

The course will be taught in the form of lectures together with case studies intended to be discussed in class. Each student will be part of a study group made up of at least three members. Weighting for class participation will be derived from individual assignments and class discussion on case studies. Assignments (maximum length = one page) must be handed over to the Teaching Assistant at the beginning of each session.

Teaching Method

This course will have a number of different dimensions including:

- Lectures
- Case Analysis
- Guest speakers from industry and academia
- Group Presentations

Course Textbook

Finnerty, John D., Project Finance: Asset-Based Financial Engineering, John Wiley & Sons (New York, NY, 1996)

SCHEDULE

Session 1 Tuesday, May 13, 2003: THE FUNDAMENTALS OF PROJECT FINANCE
Project Financing entails careful financial engineering to achieve a mutually acceptable allocation of the risks and rewards among the various parties involved in a project.

Required Reading:
Finnerty, John D., Project Finance: Asset-Based Financial Engineering, John Wiley & Sons (New York, NY, 1996), Ch. 1

Hoffman, Scott L., The Law & Business of International Project Finance, Kluwer Law International, 1998, Ch. 1

Optional Reading:

Davis, Henry A., "How Enron Has Affected Project Finance," *The Journal of Structured and Corporate Finance*, Spring 2002

Individual Assignment:
1. How Project Finance allows sponsors to use risk allocation contracts for collateral?
2. Today's project and off-balance sheet finance market in the aftermath of the Enron collapse – where is it headed.

Case:
"An Overview of the Project Finance Market," (HBS Case # 200 028)

Session 2 Thursday, May 15, 2003: THE RATIONALE FOR PROJECT FINANCING
Project Finance can be more cost-effective than conventional direct financing when it permits a higher degree of leverage and the increase in leverage produces tax shield benefits, resulting in a lower overall cost of capital for the project.

Required Reading:
Finnerty, John D., Project Finance: Asset-Based Financial Engineering, John Wiley & Sons (New York, NY, 1996), Ch. 2

Individual Assignment:
1. Should the firm undertake the project as part of its overall asset portfolio and finance the project on its general credit, or should it form a separate legal entity to undertake the project?
2. How should the debt contract be structured? Should the lenders be permitted to have any recourse to project sponsors?

Case:
"Calpine Corporation: The Evolution from Project to Corporate Finance," 2001, HBS Case #9-201-098. Describes Calpine's high-growth strategy and attempts to finance investment in new power plants

Session 3 Tuesday, May 20, 2003: ANALYSIS OF PROJECT VIABILITY

A critical aspect of analysis of project viability for a large project involves identifying all significant project risks and then crafting contractual arrangements to allocate those risks at the lowest ultimate cost to the project.

Required Reading:

Finnerty, John D., Project Finance: Asset-Based Financial Engineering, John Wiley & Sons (New York, NY, 1996), Ch. 3

Miller, Roger, and Donald R. Lessard, 2000, The Strategic Management of Large Engineering Projects, MIT Press (Cambridge, MA), Ch. 3

Optional Reading:

Rigby, Peter, "Project Finance Technical Risk Criteria," *Standard & Poors, Project and Infrastructure Finance Review*, October 1999

Nevitt, Peter K., and Frank J. Fabozzi, 2000, Project Financing (7th edition), American Educational Systems (ISBN: 1855647915), Ch. 1 and 2

Individual Assignment:

1. How will lenders mitigate risks surrounding a project finance situation during the construction period?
2. Does higher level of equity contribution mitigate economic risks in a project?
3. What protection can be afforded to lenders when a sovereign state reneges a contractually valid off-take agreement

Case:
"BP Amoco (A): Policy Statement on the Use of Project Finance," 2001, HBS Case #9-201-054. Describes the costs and benefits of using Project Finance instead of internal, corporate funds to finance new capital investments.

Session 4 Thursday, May 22, 2003: SECURITY ARRANGEMENTS

The security arrangements for a project are crafted to suit the economic characteristics of the project and the risk-return preferences of the various parties associated with the project.

Required Reading:

Finnerty, John D., Project Finance: Asset-Based Financial Engineering, John Wiley & Sons (New York, NY, 1996), Ch. 4

Individual Assignment:

1. In certain situations, are standard security arrangements not adequate to mitigate political risks?
2. Creditworthiness of the contracting parties is key to achieving a viable security structure. What precautions should lenders take in evaluating the enforceability of the interlocking support documentation?

Case:
"Financing the Mozal Project," 2000, HBS Case# 200-005; Analyzes a $1.4B aluminum smelter in Mozambique.

Session 5 Tuesday, May 27, 2003:

PART A: LEGAL STRUCTURE
Legal structure can have important tax implications and can also affect the availability of funds to a project and increase the cost of project financing.

Required Reading:
Finnerty, John D., Project Finance: Asset-Based Financial Engineering, John Wiley & Sons (New York, NY, 1996), Ch. 5

Optional Reading:

Hoffman, Scott L., The Law & Business of International Project Finance, Kluwer Law International, 1998, Ch. 5 and 27

Nevitt, Peter K., and Frank J. Fabozzi, 2000, Project Financing (7th edition), American Educational Systems (ISBN: 1855647915), Ch. 4

Individual Assignment:
1. A limited partnership structure is a common form of a special purpose vehicle to own a project? Explain the rationale for this preferred form of ownership?
2. The choice of a project's legal structure is germane to achieving financial closing. Is there any conflict between owners and lenders in choosing such a structure? Explain.

Case:
"The Chad-Cameroon Petroleum Development and Pipeline Project (A&B)," 2001, HBS Cases #N9-202-010 and #N9-202-012. Should the World Bank Group participate in this high risk/high return $4 billion oil-field development project?

PART B: STRUCTURE AND FINANCING OF BUILD OWN & OPERATE (BOO) PROJECTS

Rationale and Discussion of ownership structure of projects including BOO, BOT and BOL. Devising a financial plan and sources of funding for project financing. The Cost of Privatization Transactions - Are They Worth It? Risks and Security in Privatization Transactions.

Required Reading:

Hoffman, Scott L., The Law & Business of International Project Finance, Kluwer Law International, 1998, Ch. 6

Optional Reading:

Ferreira, David, "Financing Private Infrastructure in Developing Countries," World Bank Discussion Paper No. 346, The World Bank (Washington, D.C., 1996), pp. 1 – 35 (special emphasis on Ch. 3, pp. 20 – 35).

Case:

"Empresas ICA and the Mexican Road Privatization Program," 1992, HBS Case #793-028; analyzes one company's role in the privatization of Mexican toll roads in the early 1990s.

Session 6 Thursday, May 29, 2003: MID-TERM ASSIGNMENT AND PRESENTATION

Each study group shall submit a paper on a topic of mutual agreement related to Project Finance approved by the Professor at least a week in advance. The duration of presentations in classroom shall not exceed 20 minutes per group.

Session 7 Tuesday, June 3, 2003: PREPARING THE FINANCIAL PLAN

In preparing the project's financing plan, there is need to consider carefully all potential sources of funds in order to determine the financing package that affords the lowest cost of capital consistent with regulatory or any other project-specific constraints.

Required Reading:

Finnerty, John D., Project Finance: Asset-Based Financial Engineering, John Wiley & Sons (New York, NY, 1996), Ch. 6 and 9

Optional Reading:

Hoffman, Scott L., The Law & Business of International Project Finance, Kluwer Law International, 1998, Ch. 8, 9, and 10

Individual Assignment:

1. Identify the key principal objectives for designing the most viable financial plan that would meet the requirements of lenders, owners, and other constituents in the transaction chain.

2. Define the key financial ratios used by lenders to determine the acceptability of a financial plan for obtaining Project Finance.

Case: "Intergen and the Quezon Power Project," 1999, HBS Case # 799-057.

Session 8 Thursday, June 5, 2003: DISCOUNTED CASH FLOW ANALYSIS

Discounted cash flow analysis involves estimating the amount of the initial investment, projecting the incremental after-tax cash flows, estimating the cost of capital, and then using the NPV method or the IRR method to determine whether the project is worth more than it will cost.

Required Reading:

Finnerty, John D., Project Finance: Asset-Based Financial Engineering, John Wiley & Sons (New York, NY, 1996), Ch. 7

Optional Reading:

Tham, Joseph, "Return to Equity in Project Finance for Infrastructure," Harvard Institute for International Development, 2000

Brealey, R., and S. Myers, Principles of Corporate Finance (7th Edition), McGraw Hill (New York, NY, 2003), Ch. 2, 3, 5, and 6

Individual Assignment:

1. Describe the Weighted Average Cost of Capital (WACC) concept and its relevance as the hurdle rate for a project. Is WACC expressed as an "after-tax rate of return? If yes, why? Explain with the help of an example.
2. Present values of cash flows further in the future are more sensitive to the discount rate. Explain the concept of cash flow timing differences with an example.

Case: "Texas High-Speed Rail Corp.," 1993, HBS Case # 293-072.

Session 9 Tuesday, June 10, 2003:

FINANCIAL MODELING AND PROJECT EVALUATION

A financial model of the project is useful in demonstrating the project's ability to service its debt obligations and provide an acceptable rate of return to the project's equity investors.

Required Reading:

Finnerty, John D., Project Finance: Asset-Based Financial Engineering, John Wiley & Sons (New York, NY, 1996), Ch. 8

Individual Assignment:

1. Sensitivity analysis is a stress-testing device to ascertain the validity of a financial model. What type of ratio analysis is relevant for this purpose?
2. To evaluate a project, should financial projections be prepared on "constant dollars" or "current dollars"? Explain by giving an example.

Case:

"BP Amoco (B): Financing Development of the Caspian Oil Fields," 2001, HBS Case #9-201-067. Applying the new policy statement to the AIOC's $10B oil field development project in Azerbaijan. See also the "Note on the Caspian Oil Pipelines," 1999, HBS Case #299-044

Session 10 Thursday, June 12, 2003:

PART A: THE ROLE OF CREDIT RATINGS IN PROJECT FINANCE TRANSACTIONS

Growth and influence of rated project debt, identifying credit challenges, addressing the taxonomy of risks and outlook for project debt in today's capital markets.

Required Reading:
Dell, John C., et al, "Rating Approach to Project Finance," *Fitch IBCA, Duff & Phelps, Project Finance Special Report*, April 2001

Rigby, Peter, "Project Finance Summary Debt Rating Criteria," *Standard & Poors, Project and Infrastructure Finance Review*, October 2002

Optional Reading:
Beale, Chris, et al, "Credit Attributes of Project Finance," *The Journal of Structured and Project Finance*, Fall 2002

El Daher, Samir, "Credit Ratings – An Introduction (and the Case of Sub-sovereign Ratings)," *Infrastructure Notes (Transport, Water and Urban Development)*, The World Bank, July 1999

Case:
"Petrolera Zuata, Petrozuata C.A.," 1999, HBS Case # 299-012. Describes a $2.4B oil-field development project in Venezuela.

PART B: FINANCING AND DEVELOPING MERCHANT POWER

The role of Merchant Power in a restructured U.S. Utility Market. Analyzing the Economics and Commercial viability of developing a Merchant Power plant. Successfully structuring Merchant Power financing. Does Merchant Power really work? Experience from the United Kingdom.

Required Reading:

Kriebel, Keith W. and Michael D. Hornstein, "Financing Merchant Power Plants in the United States," LawCommerce.com (www.lawcommerce.com/newsletters/art_OHS_sec052600.asp), May 2000

Case:

"Contractual Innovation in the UK Energy Markets: Enron Europe, The Eastern Group, and the Sutton Bridge Project," (HBS case # 201 - 051)

Session 11 Tuesday, June 17, 2003

PART A: PROJECT DOCUMENTS

An overview of Documentation, Credit Agreements, Host Country Agreements, Construction Agreements, and Input Contracts. Operation & Maintenance Agreements, Off-take Sales Contracts, Power Sales Agreements, and Credit Enhancement.

Required Reading:

Hoffman, Scott L., The Law & Business of International Project Finance, Kluwer Law International, 1998, Ch. 12 – 20

Individual Assignment:

1. "Force Majeure Clauses" in financial and supplier credit related documentation for Enron resulted in a "virtual run on the company" causing the demise of the Corporation in just a few days. Do you think there is need to review legislation to prevent recurrence of similar events in the future?

2. "Take-or-Pay" clauses in Power Sales Contracts cannot always be enforced in Courts of Law. Suggest ways and means for protection against such an event.

PART B: FINANCING SOURCES INCLUDING MULTILATERAL INSTITUTIONS,

EXPORT CREDIT AGENCIES & POLITICAL RISK MANAGEMENT

Offering Memoranda, Debt Commitment Letters, Credit and Related Documentation for Project Finance Transactions and Project Collateral.

Required Reading:

Hoffman, Scott L., The Law & Business of International Project Finance, Kluwer Law International, 1998, Ch. 21 – 26

Optional Reading:

Benoit, Philippe, Project Finance at the World Bank, World Bank Technical Paper Number 312, 1996, pp. 73 – 78 (Multilateral Investment Guarantee Agency – MIGA)

Individual Assignment:

1. Risk of devaluation of Host Country's currency needs to be mitigated by obtaining exchange rate protection guarantees via revenues denominated in hard currency and revenue adjustment formulas. This mechanism results in enhanced financial burden on the project. Can you suggest alternatives?

2. Can "development fees" charged to the project by sponsors be considered as equivalent of "cash equity" by Export Credit Agencies -ECAs- (while calculating sponsors equity)? Comment.

Session 12 Thursday, June 19, 2003:

GROUP CASE WRITE-UP AND FINAL PRESENTATION

Study group's research would require analysis of a particular project's risk, financing structure, project documents, financing sources for project including multilateral institutions, offering memoranda, debt commitment letters, and project collateral. Time permitted for each group presentation is restricted to 20 minutes. The cases will be distributed two weeks in advance.