

Spring 2008 – Finance 787 - Large Investments and International Project Finance

Phil Uhlmann

Assistant Professor and Director, Master of Science in Finance Program

Office: Adamian Academic Center 213 Email: puhlmann@bentley.edu

Office Telephone: 781-891-3175

Home Telephone: 781-721-4941 (before 9:00 p.m. please)

Focus of Course:

The course relies on a case-study approach to an increasingly important field that requires excellent financial management skills. We provide an overview of project finance employing the latest techniques for structuring transactions, including risk mitigation by financial intermediaries. Students will be introduced to substantial research data and informational resources. The course stresses decision making and prioritization of tasks, policy formulation, the selection of world-class partners and on-the-ground operational skills necessary to ensure timely completion of construction, budget adherence and efficient start-up. Large investment projects across a variety of geographic regions, industrial sectors, and stages of project execution are examined, including relevant data on default and loss characteristics. We will contrast the important differences in risk between domestic and export sector projects, including management of foreign exchange issues and the role of host governments.

The material covered in this course will help prepare students for careers in international business, including senior corporate positions and challenging opportunities in the areas of global financial services, including foreign investment boutiques, banking and insurance. Much of the course deals with risk and valuation concepts that are at the core of capital budgeting investment decisions. Additionally, we focus closely on the funding / financing decisions that must be thoughtfully coordinated with the investment decision. Students will develop a deeper understanding of foreign investment, country risk and cross border exchange analyses. Additionally, we will rely extensively on financial spreadsheet analyses. Case studies and an international development valuation project will add depth to the text material.

Comfort with Excel spreadsheets and the analytical tools therein is recommended.

Learning Objectives:

Knowledge - defined as definitions, concepts, theories, models, and data that a student should demonstrate proficiency in as a result of taking this course.

1. Grasp of Capital Budgeting techniques that are well beyond the basics covered in Finance 625 – Corporate Finance and Finance 751 – International Finance, including the structure of special purpose vehicles that support 85% Debt/ 15% Equity structures.
2. Comprehensive understanding of selected articles categorized as classical finance literature, as these articles relate to large capital investments, capital structure and country risk, including articles by Donald Lessard, Richard S. Ruback, Kenneth Froot, Stewart Myers, Franco Modigliani and Merton Miller and others.
3. Identification of the differences between stock projects – i.e. fixed life resource projects and flow projects – i.e. toll roads, power projects.
4. Conduct high level international analyses of industry cost structures – how to assess whether a project is a low cost producer. Management of cost structure risks.

Spring 2008 - Large Investments and International Project Finance

Skills - defined as behavioral capabilities that a student should demonstrate proficiency in as a result of taking this course.

1. Exceptional Excel modeling skills necessary to work in major financial institutions, leading corporations and government agencies/ government investment vehicles.
2. Thorough research capabilities to investigate: a.) market risk – prices; b.) credit risk – probability of default; c.) liquidity risk; d.) operational risk; and e.) legal risk.
3. Negotiation techniques – understanding of why some major projects are more successful than others compared with those that fail, fall behind schedule or are abandoned.
4. Synthesis of cases and large volumes of information to quickly identify key issues and risks; thoughtful management of risks.

Attitudes - defined as basic human conditions and issues that a student should demonstrate recognition of or appreciation for as a result of taking this course.

1. Recognize importance of, demonstrate risk-taking attitudes required to undertake multi-billion dollar projects in difficult countries.
2. Demonstrate an understanding of the time horizons involved with project finance ranging from conception to construction to completion and exit from a particular project.
3. Recognize international demand for large scale projects across private sector initiatives such as oil platforms in West Africa to infrastructure applications such as rebuilding major airports to accommodate new technology.
4. Recognize the substantial challenges in putting together large pools of capital and the costs thereof.

Class Meetings: Tuesdays – 7:30 p.m. – 9:50 p.m. – Smith 103

Office Hours:

Tuesdays – 3:30 p.m. – 4:45 p.m. and 6:15 p.m. – 7:30 p.m. By appointment at other times.

Primary Text:

Benjamin C. Esty

Modern Project Finance – A Casebook

John Wiley & Sons, Inc. - 2004

This is the major text for the course. It is an excellent text and reference book.

Supplementary Texts and Background References:

- Brigham, Eugene F. and Michael C. Ehrhardt, Financial Management – Theory and Practice The Dryden Press: 2002, 11th edition
- Copeland, Koller and Mullin, Valuation: Measuring and Managing the Value of Companies; Wiley: 2000, 3rd edition.
- Eiteman, David and Arthur I. Stonehill and Michael H. Moffett, Multinational Business Finance; Pearson, Addison Wesley, 2004, 10th edition.
- Fraser, L.M. and A. Ormiston, Understanding Financial Statements; Prentice Hall: 1998, 5th edition.
- Hawawini, Gabriel and Claude Viallet, Finance for Executives, South-Western, 1999.
- Higgins, Robert H., Analysis for Financial Management, Irwin: 2006, 8th edition - This is an easy to read book and helpful with elementary finance concepts.
- Kieso & Weygandt, Intermediate Financial Accounting; Wiley: New York, 1997, 9th edition.
- Madura, Jeff, International Financial Management; Thomson Southwestern, 2003, 7th Edition.

Spring 2008 - Large Investments and International Project Finance

- Shell International Limited, Shell Global Scenarios to 2025 – The future business environment: trends, trade-offs and choices, 2005, Royal Dutch Shell Group – available through the International Institute of Economics, Washington.
- Stewart, G. Bennett III; The Quest for Value; Harper Business, New York, 1990.
- Shapiro, Alan C. and Sheldon D. Balbirer, Modern Corporate Finance; Prentice Hall, 2000.
- Tracey, John A.; How to Read a Financial Report; Wiley: 1993, 4th edition.

Additional Readings:

- Readings from academic journals and articles of interest from leading publications will be included with each case. Specific data pertaining to country risk, commodity prices, interest and exchange rates will be used to bring case studies up to date and/or used to demonstrate how risk conditions have changed since the case was first published.
- Regular reading of newspapers such as the Financial Times of London, New York Times and Wall Street Journal, or in magazines such as The Economist and Fortune will enhance your understanding of the material presented in this course by allowing you to apply what you learn to current domestic and international issues. Pertinent articles in these publications will also be brought to your attention and distributed, as appropriate.

Cases:

- Students are requested to prepare all case studies for discussion in class, regardless of whether or not they are submitting a full length written report or making a presentation.

Format of Reports and Presentations:

- The three written reports may be done in groups of three students – a sign-up sheet for the cases will be posted on Blackboard / discussed in class.
- Submissions should include:
 - Title page – Please include your names and student number.
 - Executive Summary – one page only – good idea to raise section headings and bullet points to support your findings and conclusions - use smaller font to make it fit. Clearly state your recommended course of action – what do you want to do.
 - Text and primary analyses, including any tables, charts, calculations and other appendices – not exceeding four pages of text and two pages of exhibits.
 - References – research materials and end notes, as appropriate – there is no need to note materials from the case and text but any outside or web materials should be fully disclosed.
 - Please number pages and sections of your paper.
- Students are encouraged to work in together to exchange ideas and consider relevant issues. The ability to work in groups is vital – I may ask for a peer group assessment in connection with the Presentation case and any other written case turned in for credit.
- The written reports and presentations should focus on decision making and analyses, supported by a high level of quantitative work, as appropriate.
- Please respect the page limits when submitting cases – if necessary use smaller font.

Spring 2008 - Large Investments and International Project Finance

Course Grading:

Case Studies - Three Reports	30%
Class Participation and Homework	10%
Mid Term Examination	25%
Final Examination	35%
Total	100%

Attendance, Class Participation and Homework:

- Given the broad reach of the topics covered in this course, including sequential material that may not be presented in the text or case studies, every effort should be made to attend all classes. If it is necessary for you to be away, please let me know so that arrangements can be made to provide suitable notes and explanation of the material covered.
- Students are encouraged to actively participate in classroom discussions.
- Periodically, students will be requested to undertake specific tasks for homework, including numeric problems and/ or spreadsheets – students may be requested to present their solutions in class.

Examinations:

- **Mid Term Examination – take home examination due – Thursday, March 20, 2008** – the midterm exam will be assigned and study questions handed out on March 4 in class. The midterm exam will be completed on an individual basis.
- The final exam is scheduled well in advance, as noted below. Students should arrange their schedules, including travel accordingly. The final exam will be completed on an individual basis.
- **Final Examination date – take home examination due Tuesday, May 6, 2008** – the final exam case will be handed out by April 22, 2008.
- The exams will reflect cases and/ or problems that are consistent with those discussed in class and cause students to draw on materials from other cases. There will be essay and financial calculation questions that test conceptual understanding of broader policy and financial issues.
- Study questions will be provided to guide your analysis.

Late Assignments:

- Please organize yourself so that the case write-ups and exams are handed in on time. Late papers may not be accepted.
- Students with uncompleted homework and/or case reports/ exams will receive a grade of Incomplete for the course.

Bentley Honor Code:

- Students are expected to be completely familiar with all aspects of the Bentley Honor Code. Any work you submit must be your own. Be sure to properly note any materials and/ or ideas taken from another source. Please act responsibly and respect the Honor Code.

Spring 2008 - Large Investments and International Project Finance

Course Schedule, List of Cases, Topics, Assignments and Examinations

Week 1 – first class is Tuesday, January 22

Introductory Topics and Definitions

- Chapter 1 – Introduction to Modern Project Finance
- Chapter 2 – An Overview of Project Finance
- Chapter 3 - Why Study Large Projects
 - o The Global Landscape for Project Finance
 - o Introduction to Foreign Investment

Case No. 1 - The U.S. Export – Import Bank and the Three Gorges Dam (A) Case – HBS No. 900017 - Covers Introductory Project Finance Issues, Expropriation, Property Rights and Environmental Concerns - Homework - due Tuesday, January 29

Study Questions:

1. What is the role of Export Credit Agencies (“ECA’s”) in international Project Finance and how are they competing actors on the world finance stage? What is the role of the U.S. Export-Import Bank (“EXIM”) with respect to the Three Gorges Dam Project?
2. What are the motivations of Congressmen Hastert and Manzullo – do you agree that their priorities are in the right place?
3. What are the motives of Caterpillar, Voith Hydro and Rotec and why do they need to have the U.S. Export – Import Bank participate with them in this transaction? Should EXIM favor one firm over another – explain your thinking.
4. What are the environmental concerns with the Three Gorges Dam and who has the right to say what the environmental standards should be – China or the United States?
5. Consider the cases we have studied this term. In which cases was Export Credit Agency support particularly helpful, even imperative to get the deals done – also distinguish between the role of ECA’s and the International Finance Corporation (“IFC”).
6. Put yourself in the position of Martin A. Kamarck, President and Chairman of EXIM bank. At the time of the case, what were the trade-offs that he had to consider. If the time of the case was not May, 1996 but May, 2007, how might Mr. Kamarck’s priorities have changed given the state of international finance and relations between the United States and China.

Homework Assignment:

- Please prepare the summary report on an individual basis.
- Prepare analytical responses using the six questions posed above. In framing your responses, general headings will suffice.
- Maximum two pages – you may single space your answers, font size should be 10.
- Please prepare a header with your name and page numbers on each page – a cover page is not necessary.
- Outside sources and endnotes may be added on a separate page.

Week 3 – February 5 - Large Investments in New Technology – Breakeven Analysis

Case No. 2 - Airbus A3XX: Developing the World's Largest Commercial Jet (A) – in text

In July 2000, Airbus Industries' supervisory board is on the verge of approving a \$13 billion investment for the development of a new super jumbo jet known as the A3XX that would seat from 550 to 1,000 passengers. Having secured approximately 20 orders for the new jet, the board must decide whether there is sufficient long-term demand for the A3XX to justify the investment. At the time, Airbus was predicting that the market for very large aircraft (VLA), those seating more than 500 passengers, would exceed 1,500 aircraft over the next 20 years and would generate sales in excess of \$350 billion. According to Airbus, it needed to sell 250 aircraft to break even and could sell as many as 750 aircraft over the next 20 years. This case explores the two sets of forecasts and asks students whether they would proceed with the launch given the size of the investment and the uncertainty in long-term demand.

Teaching Purpose: To illustrate the basic economics of large projects and the complexity in estimating even top-line demand for products with useful lives of up to 50 years. The case illustrates the role of governments in large projects, both as investors and as customers. Finally, to explore the competitive dynamics between a monopolistic and a potential entrant in which entry costs exceed \$10 billion.

Study Questions:

1. Why is Airbus interested in building the A3XX? What are its objectives? Consider the demand for the product, the duopoly nature of the industry, technology challenges and operational constraints that are, or will be, relevant.
2. As Boeing, how would you respond to this situation – use any data you wish from the case to support your answer? How does your answer depend on what you think Airbus is likely to do?
3. How does this opportunity compare with the basic risks of building an oil pipe line, mine or telecommunications cable in terms of risks and phases of development? Where can Airbus fail with this project? Should Airbus commit to build the A3XX? How many orders should Airbus have before committing to develop the plane?
4. How many aircraft does Airbus need to sell (or pre-sell) in order to break even on the investment? Is this number greater or less than your estimate of total demand for very large aircraft (VLA) over the next 20 years?
 - **Hint:** Consider all capital providers as a single entity and calculate the break-even return to them collectively. To calculate the break-even number of planes, calculate the timing and present value of the required investment, and compare it to the present value of a growing perpetuity of revenue cash flows from planes sales beginning in 2008. Please assume an equity risk premium of 6% in your analysis and use the Capital Asset Pricing Model to find the required rate of return on Equity (K_e). It may be desirable to develop one or all of the following sensitivity analyses a.) Break-Even Number of Planes Sold – R & D Cost vs. Operating Margins; b.) Sensitivity of Net Present Value to Operating Margin and Number of Planes Sold – Number of Planes Sold vs. Operating Margin.
5. Which airlines are likely to be buyers of a new plane such as the A3XX, what routes will be targeted for the planes and why are the operating economics of those routes optimal, in your view?
 - **Hint:** It may be helpful to think of this in terms of the following three equations that form the "Airline Productivity Model":
 - Capacity (seats) x Passenger Load Factor = Load
 - Utilization (hours) x Speed = Distance (miles)
 - Load x Distance = Revenue Passenger Miles
6. What went wrong with the A3XX project in 2006 and what should Airbus do? Quantify the prices movements of the \$US, €uro and Oil (any proxy for oil prices will do) and explain what the movement in these prices means for both Airbus and Boeing.

Readings and References: Selected materials from Airline Economics: Foundations for Strategy and Policy by Michael W. Tretheway and Tae H. Oum, Centre for Transportation Studies, University of British Columbia, 1992.

Week 4 – February 12 - Valuing Projects – Calculating Economic Rate of Return

Case No. 3 - Nghe An Tate & Lyle Sugar Company (Vietnam) – in text

In September 1998, Paul Cooper, Tate & Lyle's finance director for international investments, asked the International Finance Corp. (IFC) to consider lending up to \$45 million to finance a \$90 million sugar mill in northern Vietnam. Ewen Cobban, an IFC agricultural specialist, was in charge of reviewing the proposal and making a loan recommendation to senior management. Cobban was concerned whether the plant was commercially viable and whether it had support from the government. He was also concerned that world sugar prices were falling and that sugar was a protected commodity. Before he could recommend approval, he had to understand whether they were temporary or permanent problems. Cobban also knew he would have to assess the project's developmental impact. The IFC only supported projects that contributed to sustainable development, and one of the key determinants of sustainability was the degree to which the project was "fair" to all parties involved. Thus, Cobban would need to assess not only the private returns, but also the social returns as measured by the project's economic rate of return (ERR). To do so, he would have to consider the various groups affected by the project and, where possible, quantify the impact on them.

Teaching Purpose: Provides an opportunity to examine the differences between private and social returns and presents a framework for calculating a project's ERR.

Study Questions:

1. How attractive is the project from the sponsor's perspective? What are the major risks facing the project? You can assume the appropriate real, risk-adjusted discount rate is 10%, the inflation rate is 3%, and the nominal discount rate is 13.3%.
2. Comment on the sugar prices in the case and update the data to February 2008 – use data for “Mill White Sugar Prices (London Daily)” – graph the prices and include this as an exhibit in your case? What is the relationship between Sugar, Oil and Corn prices since the time of the case – quantify and analyze these relationships as best you can?
3. Are farmers likely to convert to cane?
4. Will the government support the project? Who will be affected by the project, and how large are the costs and benefits to each group?
5. What is the difference between the IFC “A” and IFC “B” loan – why would you want both? At the time of the case – September 1998, would you, as IFC's head of risk management, have approved financing for the project? How compelling are the social returns, as measured in terms of Economic Rate of Return (ERR) – you will need to develop a spreadsheet to compute the social returns?

Readings and References:

- Nghe An Tate & Lyle Sugar Company (Vietnam) Case – Chapter 10 of textbook
- An Economic Framework for Assessing Development Impact – Chapter 11 of textbook
- An Overview of Project Finance – Chapter 2 of textbook – recommended reading
- www.ifc.org
- International Monetary Fund – Article IV – 2006 Assessments on Vietnam:

Country Report No. 06/421: Vietnam: 2006 Article IV Consultation - Staff Report; Staff Statement; Public Information Notice on the Executive Board Discussion; and Statement by the Executive Director for Vietnam
<http://www.imf.org/external/pubs/cat/longres.cfm?sk=20136.0>

Country Report No. 06/422: Vietnam: Selected Issues
<http://www.imf.org/external/pubs/cat/longres.cfm?sk=20137.0>

Country Report No. 06/423: Vietnam: Statistical Appendix
<http://www.imf.org/external/pubs/cat/longres.cfm?sk=20138.0>

[Spring 2008 - Large Investments and International Project Finance](#)

Week 5 – February 19 - International Loan Syndication - Case No. 4 - Chase's Strategy for Syndicating the Hong Kong Disneyland Loan (A) – in text

In late 1999, the Walt Disney Co. and the Hong Kong government agreed to develop Hong Kong Disneyland, a HK\$28 (U.S.\$3.6) billion theme park and resort complex planned to open in late 2005. As part of the total financing package, the sponsors decided to raise HK\$3.3 billion of non-recourse bank loans for construction and working capital, and selected Chase Manhattan Bank to underwrite and syndicate these facilities. This case concerns the process by which Chase successfully competed to lead this transaction. The key questions facing Chase were whether to bid at all, how to bid, and how to structure the syndication to meet the borrower's needs, its own profit objectives, and the market's expectation for an attractively priced credit.

Includes a generic section about the process, participants, and economics of syndicated lending for students who are unfamiliar with syndicated lending structures.

Teaching Purpose: Illustrates: 1) the process, participants, and economics of syndicated lending (a market that now exceeds \$2 trillion annually); 2) the key issues in designing a syndication strategy (e.g. how many banks to invite, which banks to invite, what fees to offer, and what share of the loan to hold in the end); and 3) the importance of relationships in syndicated lending. Although written for a course on project finance, it can easily be modified for courses on capital markets or financial institutions.

Study Questions:

1. How should Chase have bid in the first round competition to lead the HK \$3.3 billion Disneyland financing?
2. As Disney would you sign the standard commitment letter? Which parts might concern you and why? As Chase, which parts are you willing to alter or remove? Articulate this as fully as you can, including any suggested deletions and/or amended wording.
3. What syndication strategy would you recommend for the loan? Thin in terms of the number of tiers, commitments and fees for each tier, nationality and number of banks, final hold positions, sub-underwriting vs. general syndication, etc.
4. How do these different syndication strategies affect the risks and returns Chase might face as lead arranger?
5. Why have commercial banks become more sensitive about holding assets on their balances sheets; discuss the fundamental impact of the Basle II accords.

Readings and References:

Selected readings on the implementation of the Basle II to be handed out in class. For up to date comprehensive information on Basle II also see:

<http://www.bis.org/publ/bcbsca.htm>

Spring 2008 - Large Investments and International Project Finance

Week 6 – February 26 - Managing Risky Projects – Contract Structures – Supply/Feedstock Risk and Country Ratings - Case No. 5 - Financing the Mozal Project – Mozambique, Africa – in text

Opens in June 1997 with a team from the International Finance Corp. (IFC) recommending that the board approve a \$120 million investment in a \$1.4 billion aluminum smelter in Mozambique known as the Mozal project. Four factors make the investment controversial: it would be the IFC's largest investment in the world; total investment was almost the size of Mozambique's gross domestic product (GDP); Mozambique had only recently emerged from 20 years of civil war; and several key contractual issues were still undecided. Because commercial bankers have refused to finance the deal unless the IFC is involved, the sponsors have requested IFC participation. Whether the IFC's board will agree that it is the right time and the right place to make such a large investment remains to be seen.

Teaching Purpose: Designed for people with an interest in capital investments in emerging markets. Presents an extreme example of political risk in a developing country and shows how project sponsors attempt to mitigate the risks through project selection, structuring, and insurance. Next, it highlights the contributions of multilateral development institutions in general, and the IFC in particular, in financing infrastructure projects. In particular, it analyzes IFC's involvement in appraising, structuring, monitoring, and financing infrastructure projects, and shows how these activities create value by resolving costly market imperfections including information, distress, agency, and transaction costs. Explores the IFC's performance.

Study Questions:

1. Should Alusaf/ Gencor invest in the Mozal project?* What are the greatest risks? Have they been adequately addressed? What value does each firm add to the deal?
2. Will the sponsors be able to finance the deal? Propose a structure that might work in this case, given what you know about project financing.
3. How does IFC involvement affect the deal? Will the IFC and the sponsors (Alusaf and IDC) share similar objectives – explain fully? Should the IFC play an advisory role only or should it also invest in the Mozal project?
4. What is the IFC's competitive advantage? To what extent does the IFC do something that is unique, valuable, and sustainable? How does its mission differ from that of commercial banks and Export Credit Agencies?
5. As an IFC Board member, would you approve the recommended investment in Mozal? Make a clear recommendation

*Note: In early June 1997, the yield on the 10-year U.S. Treasury bonds was 6.56%, the yield on the 10-year U.S. Treasury inflation-indexed bonds was 3.57%, the yield on Nigerian Brady Bonds was 13.35% with a range between 13.3% - 15.0% over the previous year (Nigeria's Institutional Investor country risk rating in March 1997 was 14.8); and the average asset beta for the three major U.S. integrated aluminum producers (Alcan Alum., Alcoa, and Reynolds Metals) was 0.78

The following ratios may be helpful in analyzing the questions and should be used in your reports:

- Debt Service Cash Ratio = Cash Available for Debt Service (CADS) / Debt Service where CADS = EBITDA – cash taxes – capital expenditures – incremental net working capital – other cash items
- Cash Return on Revenue (ROC) = CADS / Total Revenues

Readings and References:

- Incorporating Country Risk in the Valuation of Offshore Projects – by Donald R. Lessard, MIT Sloan, Journal of Applied Corporate Finance, Fall 1996, Volume 9.3 – posted on Blackboard.

Week 7 – March 4 - Public Sector Finance Project – Case No. 6 - Poland’s A2 Motorway

Autostrada Wielkopolska S.A. (“AWSA”) is a consortium of 18 firms that won a concession to build and operate Poland's first private toll road. In June 2000, AWSA's chief financial officer, Wojciech Gebicki, is preparing for a meeting with the projects' lead bankers to discuss concerns they have regarding the traffic forecasts and revenue projections. Based on their concerns, the bankers are asking the sponsors to inject an additional e60 to e90 million of equity into the deal, a sizeable increase given the project's total cost of e934 million and the sponsor's current equity commitment of e235 million. This request presents a serious problem for Gebicki (AWSA) because the concession is scheduled to expire in six weeks if financing has not closed and because he has very few options available to address the problem. This case describes the deal structure and invites students to accept or dispute Gebicki's view that the major risks have been identified, assessed, and mitigated in such a way that the senior lenders are adequately protected without further equity support.

Teaching Purpose: To provide a framework and a set of guiding principles governing risk management in project finance. The case illustrates the stages (identification, assessment, and mitigation of project risks) and the goals (efficiency and effectiveness) of risk management. Highlighted is the fact that risk mitigation is a continuum. You can have a lot of exposure or you can mitigate virtually all of it, but at some point, the cost of risk mitigation will exceed the benefit. Finding the point where negative returns begin is critical for project sponsors. Finally, provides a framework and guiding principles for managing project risks.

Study Questions:

1. What is the motivation of governments in developing countries to undertake privatizations of state-owned assets – what are the positive and negative issues? Is the cost of financing a privatized asset always cheaper than carrying on with financing that has been arranged by the government? Does the consumer always win when state-owned assets are privatized?
2. What is the geopolitical imperative of Poland and the A2 Motorway – have a look at a map to clearly identify major considerations? Evaluate Polish Zloty and Euro exchange rates and comment.
3. What is the trade-off between major forms of transportation, or transportation links – how does the road-way rank on this score?
4. What are the major risks in this project? Have they been properly identified, assessed, and mitigated under the current structure?
5. Who bears the risks? What factors determine who should bear the major risks?
6. What are the various strategies you can use to manage project risks? For example, when is it appropriate to prevent, hedge, insure, allocate, or bear particular risks?
7. How should Wojciech Gebicki respond to the banker's concerns in June 2000?

Readings and References:

- Fortin, R. Jay, 1995, Defining force majeure, *Project & Trade Finance*, (January), pp 58 – 59
- Haddad, F., 1998, Assessing Start-Up Toll Road Construction Risk, *Standard & Poor's Infrastructure Finance*, September, pp. 40 – 45.
- Matesanz, M., C.H. Hu, R. Travis, and B. Cahill, 200, *Rating Methodology: Start-up Toll Roads*, Moody's Investors Service: Global Credit Research, February.
- Miller, R., and D. Lessard, 2001, Understanding and Managing Risks in Large Engineering Projects, *International Journal of Project Management* 19, pp. 437 – 443.
- Stulz, R., 1996, Rethinking risk management, *Journal of Applied Corporate Finance* 9, pages 8 – 24.

Spring 2008 - Large Investments and International Project Finance

Week 8 – March 11 – Bentley Spring Break – March 10 – 14

Week 9 – March 18 – Midterm Examination – No formal class – exam due on March 20

The Midterm exam case will be assigned and study questions handed out on March 4.

Week 10 – March 25 – Case No. 7 - Start of two classes on - Australia – Japan Cable:

Structuring the Project Company

Description:

In late September 1999, representatives from Telstri, Japan Telecom, and Teleglobe met to discuss the structure of the Australia-Japan Cable (AJC) project, a \$520 million submarine cable system that would run from Australia to Japan. The sponsors, excited by the possibility of large returns, needed to move quickly to capitalize on the projected shortfall in Australia's broadband capacity. As telecommunications carriers, the sponsors needed additional capacity to serve their retail and wholesale customers. As cable system owners, they wanted to earn an appropriate return on their invested capital while mitigating ownership risks. The need to move quickly in the face of significant demand, competition, and technological uncertainty made it particularly risky to invest at this time.

Learning Objectives:

To introduce project governance as well as an overview of industry data in terms of project leverage, ownership, and management. To structure an optimal governance structure for the AJC project. To determine the size and composition of the project's board of directors. Finally, to structure a compensation package that encourages senior managers to maximize shareholder value. Also to assess the project's target debt-to-total capitalization ratio of 85% and the decision to presell a large amount of system capacity.

Subjects Covered:

Capital investments, Cooperatives, Corporate governance, Organizational structure, Project finance. Australia; Japan; Telecommunications industry; \$100 million revenues; 20 employees; 1999

Study Questions:

1. How would you characterize the project assets in this case? What makes them different or unique from the other cases we have studied to date? What is the value of the assets based on? Does the Debt / Equity Ratio matter much in this case – why or why not?
2. Who are the capital providers for the AJC project? Are they likely to earn an appropriate risk adjusted return on their investment? What potential problems could arise that would prevent them from earning a return on their invested capital.
3. Prepare a financial analysis of the project that shows your best estimate of whether the costs and revenues justify undertaking this project – highlight and comment on the variables that you think are the most critical to your analysis. What are the most important revenue assumptions? Which financial factors and outcomes have a small chance of occurring but catastrophic impact on the venture. Prepare sensitivity analyses, as appropriate. Recognize that there are major sales assumptions and structural price decay.

Spring 2008 - Large Investments and International Project Finance

4. How would you structure the project company to mitigate these problems? What are your recommendations in terms of:
 - a. Ownership structure (how many sponsors and which ones)?
 - b. Capital structure (project vs. corporate finance, leverage, type of debt, etc.)
 - c. Organizational structure
 - d. Board structure (How many directors? Should they be insiders or outsiders?)
 - e. Management compensation

Week 11 – April 1 – Finish of Australia – Japan Cable: Structuring the Project Company

Class Presentation and Discussion of Case

Reading:

Modigliani, Franco and Merton H. Miller, The Cost of Capital, Corporate Finance and the Theory of Investment; The American Economic Review; Volume XLVIII; June 1958; Number Three; pages 261 – 297. To be handed out in class.

[Spring 2008 - Large Investments and International Project Finance](#)

Week 12 – April 8 – Case No. 8 - International Rivers Network and the Bujagali Dam Project

(A) – HBS Case 9-204-083

This case considers the financial and ethical implications of large-scale investments in developing countries, including the roles and responsibilities of the major parties involved (i.e., project sponsor, host government, and project financiers). It considers the implications of project information disclosure, or the lack thereof, to all parties, including the consumers of electricity. The case is based in Uganda.

Study questions:

1. Is the Bujagali Dam project good for the Ugandan people? Does Uganda need the power? Compare Uganda's GDP with other sub-Saharan countries in Africa.
2. Describe in summary fashion the financial aspects of the Dam project. Is this project, if completed a high or low cost producer? How do the price and quantity factors in this case compare or differ from the Australia and Japan Cable Project? What sort of a return should AES expect from the project given its nature and the fact that the project is in Uganda? You may use IRR, ERR, NPV and / or Payback methodologies to make your points stronger.
3. Which party or parties – the Uganda government, sponsors (AES or Madvhani), financiers (commercial bankers, Export Credit Agencies, World Bank and International Finance Corporation), or Non-Governmental Organizations (domestic or international) has responsibility to protect the health and financial wellbeing of local Ugandan citizens?
4. Should IRN be involved with the Bujagali Dam Project? What should the IRN team do as of early June 2002? How is the IRN similar or different in focus and mandate from the Amazon Watch group we encountered in the Conoco's "Green" Oil Strategy case?
5. As an AES executive, what would you do as of June 2002 – Would you walk away or go ahead with the project? If you go ahead, are there any pieces to the puzzle that you must have in place at the outset to make the whole thing work?
6. In the future, would you invite IRN (or other international NGO's) to collaborate in developing new projects? What are the advantages and disadvantages of collaborating with them? How does the World Bank / IFC help or hinder negotiations between commercial firms like AES and non-governmental organizations such as IRN?

Resources:

HBS Excel Spreadsheet – This is a starter spreadsheet from Harvard that is posted on Blackboard.

Article - Incorporating Country Risk in the Valuation of Offshore Projects – by Donald R. Lessard, MIT Sloan, Journal of Applied Corporate Finance, Fall 1996, Volume 9.3 – class handout and posted on Blackboard.

Inspection Panel, World Bank:

<http://web.worldbank.org/WBSITE/EXTERNAL/EXTINSPECTIONPANEL/0,,menuPK:64132057~pagePK:64130364~piPK:64132056~theSitePK:380794,00.html>

Spring 2008 - Large Investments and International Project Finance

Week 13 – April 15 – Case No. 9 – Aluminium Bahrain (Alba): The Pot Line 5 Expansion Project – HBS Case 5-205-029

In September 2002, Aluminium Bahrain (Alba) needed to decide how to finance its proposed \$1.7 billion pot line. The company's financial adviser, Taylor De-Jongh (TDJ), had recommended Alba employ a multi-sourced financing strategy using as many as five sources of debt from international, regional, and local capital pools. TDJ believed that the strategy would generate competition among the lenders which, in turn, would save Alba millions in financing costs. But the multi-sourced financing strategy went against the grain of typical project financings in the Middle East and was not without its risks. Alba management must decide how many financing sources to use, which ones, and how much to get from each one. If the market rejects the multi-sourced financing strategy, the project might become tainted, which could jeopardize Alba's long-term growth objectives.

Study questions:

1. Consider and discuss the country risk of Bahrain. Compare Bahrain with countries in the immediate region using information in the case and country/ economic data available externally. Also compare the risk of Bahrain with other emerging market country cases studied this term. Is the country risk of Bahrain acceptable at the time of the case and today?
2. What are the advantages, disadvantages, and risks of using a multi-sourced financing strategy rather than a single-sourced financing strategy in this case?
3. What are Alba's objectives for the financing? Given these objectives, what type of financing strategy would you recommend – make specific recommendations about the number of sources, which providers of debt, and how much funding should be taken from each one? Prepare a quantitative analysis of your recommendation including the all-in costs. Whichever way you decide to go, compare the costs of a single-sourced financing strategy vs. a multi-sourced financing strategy.
4. Do you think that an Islamic lease should be included in the financing, why or why not?

Resources:

1. The HBS case is available online at www.hbs.edu – then click on the publishing page.
2. Aluminum Bahrain (Alba): The Pot Line 5 Expansion Project, Spreadsheet – go to http://harvardbusinessonline.hbsp.harvard.edu/b01/en/common/item_detail.jhtml?id=205708
3. Aluminium Bahrain website: <http://www.aluminiumbahrain.com/en/default.asp?action=category&id=1>
4. London Metal Exchange: <http://www.lme.co.uk/dataprices.asp>
5. Rating agency websites, including: <http://www.fitchibca.com> and http://www2.standardandpoors.com/portal/site/sp/en/us/page.topic/ratings_sov/2,1,8,0,0,0,0,0,0,4,0,0,0,0,0,0.html

[Spring 2008 - Large Investments and International Project Finance](#)

Week 14 – April 22 – Case No. 10 - Economic and Financial Aspects of Stadium Financing.

New Yankee Stadium and the New York Mets Cit Stadium

A look at the new homes for the New York Yankees and New York Mets – no student presentations.

Readings to be assigned and posted on Blackboard. We will also discuss the implications for building sports facilities in connection with the 2008 Summer Olympic Games at Beijing, 2010 Winter Olympic Games at Vancouver and Whistler, and the 2010 World Cup for Soccer in Africa.

Final exam case assigned and study questions handed out.

Week 15 – April 29 – To be determined

Week 16 – May 6 – Final Examination due