Professor Robert B.H. Hauswald **Kogod School of Business, AU**

From Corporate to Project Finance: Design, Appraisal, and Implementation

1. Overview

This course reprises fundamental techniques and concepts in corporate finance and applies them to the design, appraisal, and financing of large, stand-alone projects. Its central themes are valuation, investment decisions, financial design, and risk management. Students should expect to become familiar with

1. valuation and capital budgeting techniques;
2. concepts of risk and returns and how they apply to project finance;
3. capital structure design and management;
4. the practice of project finance through case studies and a course project.

2. Instructor

Robert Hauswald received his Ph.D. in Economics from Stanford University in 1995 and also holds M.S. degrees in Mathematics (Stanford) and Economics (London School of Economics). Before joining Kogod, he was an Assistant Professor of Finance at Kelley School of Business, Indiana University from 1997 to 2001, and visited Smith School of Business, University of Maryland from 2000 to 2002, where he previously held a joint appointment with the International Monetary Fund (1995 to 1997). He has been a visiting scholar at the Federal Deposit Insurance Company, extensively works for the World Bank as a consultant, and currently holds an appointment as research fellow at the Center for Financial Studies, Frankfurt University, Germany.

In the past, Dr. Hauswald has worked for Citibank and Deutsche Bank AG and as an independent consultant. His research focuses on financial intermediation and regulation, corporate cooperation, financial contracting, project and corporate finance, and has been published in the *Review of Financial Studies* and the *Journal of Financial Economics*. His teaching interests include international financial management, advanced corporate finance, financial engineering including fixed income securities, and the management of financial institutions.

3. Case Studies and Exercises: Group Assignments

In preparation for the group exercises and case discussions, you should carefully read the material and discuss case questions (if any) and all relevant issues (subject to time) with your groups. Please refer to the case instructions for details. Ideally, you should read the case on your own and then meet with your team members before the course and during free time. The better you prepare the cases, the more rewarding will be the subsequent case discussion and, hence, your learning experience which is a simple variation on the old theme "no pain, no gain."

After you have acquired a thorough understanding of each case and its relevant issues, you are asked to prepare a very short presentation (PowerPoint: **at most five slides** including a title slide) on the most salient aspects of one particular question from the case instructions. One or, at most, two team members will present your thoughts to the full course to open the case and to get the discussion started. You need to submit a printed copy of your presentation!

I will be also available during the course to answer questions. Also, we will take some time just before the case discussion to finalize your mini-presentations. We will follow the order of the questions in discussing each case. Here are the assignments assuming that we have four groups of about four to five participants each (depending on enrolment):

Group Number	**Case Assignments**	
	The Airbus 3XX (no presentation)	**Ras Gas (presentation)**
1	All	4
2	All	3
3	All	2+6
4	All	1

In case of a larger class, we will have six groups with four to eight students, once again depending on enrolment, with the following question assignment:

Group Number	**Case Assignments**	
	The Airbus 3XX (no presentation)	**Ras Gas (presentation)**
1	All	6
2	All	5
3	All	4
4	All	3
5	All	2
6	All	1

4. Group Projects

To accompany our exploration of the foundations of project design and financial analysis you are asked to prepare a short analysis of a project of your choice (infrastructure, PPP, etc.) and present it to the course on the last day. The analysis and presentation should comprise:

- Short description of the project: overview of project and key assumptions.
- Importance, participants, ownership structure
- Investments and timetable
- Legal, financial, and contractual structure; capital-structure design including possible pitfalls
- Financial analysis, e.g., cash-flow, investment, and terminal value forecasts that lead to the free cash flows.
- Derivation of ROE and ROD from CAPM and debt market data including selection of suitable publicly quoted comparator firms or projects, computation of asset beta, risk-free rate, credit spreads over relevant risk-free rate derived from comparator firms' YTM, etc.
- NPV, IRR, ROE, and DSCR analysis.

Each group should focus on a different project, preferably drawn from different sectors such as road, railway, power, energy, etc. In your presentations, you should choose one of the below perspectives. In case several groups wish to cooperate on the same project you should espouse different perspectives. Possible choices are:

1. Imagine you work for the owners and sponsors of the project and prepare an analysis for potential investors. What would you focus on? How would you sell your project to an international investor group? A domestic investor? What price should the equity command?

2. Suppose you work for a major bank considering lending to the project. What type of cash flow quality do you wish to see? How do different capital-structure design affect the project's ability to repay the debt? What terms would you offer on the debt?

3. You work as a senior investment banker for a premier global investment house that wishes to land the underwriting mandate for the project's global bond issue. You prepare a presentation to convince the management of the project of the superiority of public over private debt. How would you price the bonds? Where would you place them?

4. As the lead banker at a prominent Russian investment bank, the sponsors of the project have invited you design a domestic bond issue. In particular, they would like to know whether they are better off with a fixed-rate issue or a floating rate one. What about lengthening or shortening the bond's maturity? How can you beat out the international competition?

5. Given the strong public-goods aspect of the project, the sponsors have asked the Government to participate in the project. As a senior analyst in the Ministry of Finance you are

asked to assess the prospects of the project and hidden risks. The Minister is particularly concerned about contingent liabilities. Is the project viable without guarantees? How much would they cost? Should the State take an equity stake?

After building your cash-flow or otherwise analytic model, you are asked to prepare a PowerPoint presentation with up to 8 substantive slides on your project consisting, for example, of *Overview* (proposed project), *Structure* (participants and time table), *Financial and Contractual Design* (diagram of legal and financial design), *Issues* (your point of view, objective of analysis), *Analysis*, *Results*, *Simulation*, and *Conclusion* (including "pitch"). Please turn in the **PPT presentation** together with your **final XLS sheet** for future reference.

While you are free to work on the project whenever and wherever convenient, I have set aside time after each day's sessions for you to work together. We will also use this time for individual discussion of the project or the course materials. This project is an integral part of the course and should be treated as such. The more you invest in its completion the more rewarding the learning experience will be for all participants.

5. Outline

The following outline provides and overview over our course on project finance, i.e., a financial technique to fund a large, indivisible (infrastructure) project on a nonrecourse (off-balance-sheet) basis. The course consists of a mixture of lectures, case studies, and group projects. Participants have to prepare a case study of their choosing in groups (depending on enrolment 5 to 8 students per group) and give a presentation to the course.

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Moscow School of Economics, Moscow, Russian Federation ♦ October 22 - 29, 2016

Agenda at a Glance

	Day 1 – Saturday October 22	**Day 2 – Monday** October 24	**Day 3 – Tuesday** October 25	**Day 4 – Thursday** October 27	**Day 5 – Saturday** October 29
	Capital Budgeting	**Risk and Return**	**Financial Design**	**Applications**	**Optionalities**
1000-1130	**Course Overview and Principles of Capital Budgeting** Esty (2004), "Why study project finance?"				**Real Options and Optionalities in Project Design** Copeland and Keenan (1998a, b)
1130-1300	**DCF Analysis in XLS** Esty (1999), "Valuing large-scale projects"				**Group Presentations** **Wrap-up and Conclusion**
Deliverable			Case 1: Airbus 3XX (A) – simple writeup of answers to assigned questions	Case 2: Ras Gas – short presentations of assigned question(s) by groups	**Course Project: 15 min presentation on project finance in Russia**
1830-2000		**Systematic and Unsystematic Risk** Pettit (2001), "Equity Risk Measurement Handbook"	**The Economics of Project Finance** Brealy et al. (1996), "Using Project Finance…"	**Case Study and Group Presentations: The Ras Gas Project** S&P (1999, 2000), Ras Laffan Liquefied Natural Gas Co.	
2000-2130		**Pricing the Capital Structure** Pettit (2005), "WACC User's Guide"	**Financial and Contractual Design of Projects** Corielli et al. (2008), "Risk Shifting …"	**Advanced Capital Budgeting** S&P (2002), "Traffic Risk in Start-Up Toll Facilities"	
Assignment	Case 1: Airbus 3XX (A)	Course Project Instructions	**Case 1 Due**	**Case 2 Due**	**Course Project Due**