



FINC-GB.3186.10 Project Finance and Infrastructure Investment

Tuesdays 6:00 – 9:00 pm

March 27 – May 1, 2018 (Classroom: KMC 2-80)

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Course Description

This six-session mini-course focuses on the infrastructure and project finance market, one of the most dynamic and challenging areas in the global financial architecture. Infrastructure provides the connective tissue for most economies and societies and is a key dimension of global development; its impact reaches deep into the broader economy, with important implications for overall living standards and social progress. Based on McKinsey estimates, the world will need to spend an aggregate \$57 trillion (at 2010 prices) between 2013 and 2030 to keep up with infrastructure demand—both from developed OECD countries and the emerging markets—or roughly \$3.2 trillion per year in real terms, which is up from an average of \$2.0 trillion per year over 1993-2010. To meet such infrastructure demand, a significant amount of funding—mostly in the form of highly-structured, asset-based project financings—will need to be raised in the coming years.

The course is designed to provide students with an introduction to the expanding and rapidly-changing infrastructure and project finance market and an understanding of the myriad risks involved in developing large-scale infrastructure projects around the world. Working through actual cases and examples drawn from the markets, the course seeks to develop the technical and analytical skills—both quantitative and qualitative—that are required to evaluate, structure and finance complex infrastructure projects, while also tracing the historical development of the infrastructure and project finance market, with a particular focus on the various bottlenecks now facing the market in the wake of the 2008 global financial crisis.

The course is also intended to provide students with an introduction to the variety of roles available in the field of infrastructure and project finance including: commercial bank project lender, financial/structuring advisor, rating agency analyst, sell-side research/debt capital markets analyst, buy-side debt investor, investment banker and infrastructure private equity sponsor, as well as related roles in the project design, engineering, construction and consulting industries and legal and accounting professions. For those interested in pursuing infrastructure and project finance as a career path, additional research and industry information sources are also provided for student reference and further follow-up.

Course Method

The course subject matter will be taught through a combination of formal lectures, in-class exercises and class discussions of reading and case assignments. Given the idiosyncratic, credit-specific nature of the infrastructure sector, the course will emphasize a case-based analytical approach, using actual cases and market examples to illustrate important teaching points. Students are required to complete the assigned readings and cases before coming to class, and should be prepared to discuss both during each session. Classroom discussions will be highly interactive and all students are expected to participate.

For each of two case assignments, students are required to submit written case briefs answering the questions posed in the case (3-4 pages maximum length); these write-ups should be handed in at the start of the class.

There will be a case-based final examination administered in two parts: Part A will be an in-class, closed-book short answer section lasting approximately 60 minutes and given during the second half of the last session of the course; Part B will be a defined-time, open-book take-home assignment passed out at the conclusion of the last session of the course.

Course Rules and Requirements

Students registering for this course should have successfully completed the Foundations of Finance course as well as the Economics MBA core course, while also having a basic understanding of corporate finance, financial statement analysis and the capital markets. Prerequisites may be waived with the consent of the instructors.

Students are expected to conform to all of the Stern Default Rules on attendance and punctuality, and to adhere to the Stern and New York University Honor Codes.

Students are required to bring their name-signs to class and display them where they sit. Absence of name-signs will mean zero credit for class participation (see below).

Course Materials

All course reading and case assignments will be available in the NYU bookstore as well as posted on *NYU Classes* (under "Assignments") in advance. *NYU Classes* will be the main method of communications with students. Copies of PowerPoint slide presentations used in class discussion will be posted on *NYU Classes* following each session.

The reading assignments for the course will be primarily drawn from the following textbooks:

- John D. Finnerty, *Project Financing: Asset-Based Financial Engineering, Third Edition*. Hoboken: John Wiley & Sons, Inc., 2013. (Finnerty) – available from the NYU Bookstore or Amazon.
- Ingo Walter (Editor), *The Infrastructure Finance Challenge* (London: OpenBook Publishers, 2017). (Walter) – soft copy posted on *NYU Classes*.

Additional readings will be assigned during the course. Also, faculty opinion on current events in the infrastructure and project finance markets can be accessed at: <http://www.stern.nyu.edu/experience-stern/faculty-research/index.htm>.

Grading

Course grades are weighted as follows: 40% Final examination, 40% Case briefs and 20% Class participation. The full range of grades will be awarded.

Course Outline

The course is comprised of six three-hour sessions (including a 15-20 minute break each session). The initial course outline is provided below. It may be subject to change on short notice to adapt to current events. The “official” course outline is the one posted (and occasionally changed) on *NYU Classes*.

Session 1: Basics of Infrastructure and Project Finance (March 27, 2018)

- Infrastructure: definitions, stakeholders, macroeconomic benefits, historical and projected requirements
- Key role of government in building and maintaining infrastructure assets
- Users versus free riders: Who pays for the cost of infrastructure?
- Key risks and mitigants in developing large-scale infrastructure projects
- Fundamentals of project finance as a tool for risk management
- Project finance capital providers, market statistics and recent market developments

Required Reading:

Finnerty, Chapters 1-4

Walter, Chapters 1-3

Session 2: Developing the Requisite Transactional Skill-Set (April 3, 2018)

- Project viability and evaluation
- Financial modeling and returns analysis
- Legal and financial structuring
- Contract documentation and debt covenants
- Rating agencies and project credit risk

Required Reading:

Finnerty, Chapters 5, 7, 9, 11

Walter, Chapters 7- 9

Session 3: Growing Reliance on the Private Sector (April 10, 2018)

- Public sector constraints: politics, election cycles and fiscal budgetary considerations
- Evolution of public-private partnerships (P3s)
- The P3 project spectrum, key benefits and main drawbacks
- Comparative government infrastructure policies and best practices

Case Study Preparation/Discussion:

Cheniere’s LNG Liquefaction Strategy: Pushing the Boundaries of the Project Finance Debt Market (submit written case brief at start of class)

Required Reading:

Finnerty, Chapter 13

Walter, Chapters 10 - 14

Session 4: Fortifying a Stationary Target (April 17, 2018)

- Assessing political and sovereign risk over long-term investment/planning horizons
- Governance and transparency
- Providing value to host governments
- Creeping versus outright expropriation
- Infrastructure investments in emerging markets versus developed countries
- Credit enhancement and the role of the rating agencies
- Piercing non-investment grade sovereign ratings ceilings

Structured Interview:

John Chambers, former Managing Director and Chairman of Sovereign Rating Committee, S&P Global

Guest Panel Discussion:

Infrastructure Equity and Debt Capital Providers

Required Reading:

Finnerty, Chapter 16

Session 5: Environmental, Regulatory and ESG Considerations (April 24, 2018)

- Fossil fuels versus renewable energy projects
- Government energy policy and the impact of subsidies
- National and supranational environmental and climate change regulations
- Key ESG dimensions and project risks

Case Study Preparation/Discussion:

The Dakota Access Pipeline (submit written case brief at start of class)

Required Reading:

Walter, Chapters 5 - 6

Session 6: Market Outlook and Final Examination (May 1, 2018)

- Review of the Trump Administration 2018 Infrastructure Plan – Launch and Developments So Far
- Infrastructure as a new and developing asset class
- Recent market innovations, current bottlenecks and regulatory roadblocks and possible solutions
- Repurposing the multi-lateral development banks and sovereign credit agencies

Case Study Preparation/Discussion:

Rutas de Lima (no case write-up required, just read and be prepared to discuss in class - case content will be included on the final examination)

Required Reading:

Walter, Chapter 15 - 16

Final Examination:

Part A: 60 minutes, in-class closed-book

Part B: Take-home, open-book assignment (distributed at the end of the in-class exam)

Optional Readings:

Students interested in a thorough treatment of the investment side of infrastructure finance should consult the following:

Barbara Weber, Mirjam Staub-Bisang and Hans Wilhelm Alfen, *Infrastructure As An Asset Class, Second Edition* (London: John Wiley, 2016).

There are also a number of worthwhile studies published fairly recently and available to students wishing greater detail than can be covered in a mini-course. All of the following are recommended and posted on NYU Classes:

[Bridging Global Infrastructure Gaps](#), McKinsey Global Institute, June 2016

[Rating Criteria for Infrastructure and Project Finance](#), Fitch Ratings, August 24, 2017

[Infrastructure Investment Policy Blueprint](#), World Economic Forum, February 2014

[Infrastructure Spending and Public-Private Partnerships](#), Hudson Institute, March 2017

[Strategic Infrastructure: Mitigation of Political & Regulatory Risk in Infrastructure Projects](#), World Economic Forum, February 2015

[How We Rate Sovereigns](#), Standard & Poor's Ratings Services, February 13, 2015

[Policy Perspectives: Water, Growth and Finance](#), OECD, August 2016

[Financing Change: How to Mobilize Private-Sector Financing for Sustainable Infrastructure](#), McKinsey Center for Business and Environment, January 2016

Instructors

Ingo Walter holds the Seymour Milstein Chair in Finance, Corporate Governance and Ethics Emeritus at the Stern School of Business, New York University.

From 1971 to 1979 he was Vice Dean for Academic Affairs and subsequently served a number of terms as Chair of International Business and Chair of Finance. He served as Director of the New York University Salomon Center for the Study of Financial Institutions from 1990 to 2003 and Director of the Stern Global Business Institute from 2003 to 2006. He was Dean of the Faculty of the Stern School from 2008 to 2012.

Ingo Walter has had visiting professorial appointments at the Free University of Berlin, University of Mannheim, University of Zurich, University of Basel, the Institute for Southeast Asian Studies in Singapore, IESE in Spain, NYU Abu Dhabi, the University of Western Australia and various other academic and research

institutions. He also held a joint appointment as Professor of International Management at INSEAD from 1986 to 2005, and remains a Visiting Professor there.

His current areas of academic activity include international financial intermediation and banking. He has published papers in most of the professional journals in these fields and has authored or coauthored some two dozen books and monographs, and has served as a consultant to various corporations, banks, government agencies and international institutions and has served on a number of boards, including the Board of Directors of the National Bureau of Economic Research.

Ingo Walter received his A.B. *summa cum laude* and M.S. degrees from Lehigh University and his Ph.D. degree from New York University and has served on the faculty at New York University since 1970.

Paul Tice is an Adjunct Professor of Finance at the Leonard N. Stern School of Business at New York University, where he teaches mainly on the energy, infrastructure and project finance markets. Mr. Tice has been a frequent guest lecturer, panel speaker and research contributor at NYU Stern since 2013, and served as an Executive-in-Residence at the school from 2015-2017. He also periodically writes Op-Ed pieces on energy- and finance-related topics in The Wall Street Journal and other news media.

Mr. Tice has worked on Wall Street for the past three decades and is a 29-year veteran of the fixed income and credit markets, including investment grade, high yield, emerging markets and private/illiquid/esoteric credit. For the last 23 years, he has specialized in the energy and infrastructure sector, both as a buy-side portfolio/hedge fund manager and a sell-side research analyst.

Mr. Tice currently works in the Fixed Income division of Schroder Investment Management, where he heads up research coverage for the energy and natural resource sectors. Prior to joining Schroders in August 2017, he was a Senior Managing Director and Head of the Energy Capital Group in the Asset Management division of U.S. Capital Advisors LLC, an energy-focused financial services boutique. Prior to joining USCA in 2015, he worked for six years at BlackRock, where he was the Head of private energy investments for the firm's Credit platform and Americas Fixed Income business, while also serving as the Lead Portfolio Manager for the Energy Strategy book within BlackRock's R3 Fund.

Prior to joining BlackRock in 2009, Mr. Tice was the Chief Operating Officer, Co-Chief Investment Officer and a Senior Partner of R3 Capital Management, a multi-strategy, credit-focused hedge fund manager that was spun out of Lehman Brothers in May 2008 and subsequently acquired by BlackRock in April 2009.

Prior to R3 Capital, Mr. Tice worked for a total of 14 years at Lehman Brothers (2002-2008, 1989-1997) in a variety of roles, most recently as a Managing Director in the firm's Global Principal Strategies (GPS) division, an internal, credit-focused proprietary fund that was formed in June 2006 and spun out in May 2008. While at GPS, Mr. Tice supervised the fund's investments in the energy and power sector, while also managing the overall GPS research effort and approving all private equity and longer-term investments by the fund.

Prior to joining the GPS group in 2006, Mr. Tice spent 17 years in sell-side credit research, both at Lehman Brothers and Deutsche Bank/Bankers Trust (1997-2002), where he mainly covered the energy sector, both as a senior analyst and a producing manager.

Mr. Tice has covered the energy sector since 1995 and was one of the top-ranked Investment Grade Energy analysts over 1995-2006. In 2006 and 1998, he was the #1 ranked Investment Grade Energy analyst on Institutional Investor's All-America Fixed Income Research Team. Prior to originally joining Lehman Brothers in 1989, Mr. Tice was a senior financial analyst at JPMorgan Chase.

Mr. Tice has previously served on the Board of Directors for Lightfoot Capital Partners GP LLC, International Resource Partners GP LLC, Arc Terminals GP LLC, Crown Oil Partners IV, LP and Richland-Stryker Investment LLC, all of which were investment portfolio companies of the R3 Fund.

Mr. Tice earned a BA degree in English, *magna cum laude*, from Columbia University in 1983, and an MBA degree in Finance from the Leonard N. Stern School of Business at New York University in 1988. He is a member of *Phi Beta Kappa*.