

Sustainable Finance

Masters of Science in Sustainability Management Program
Columbia University
Fall 2019

Instructor Information:

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Recitation: Hours and location: TBD

Course Overview:

This course is an introduction to how sustainability issues (ESG: Economic, environmental, social & governance) have become financially material to the global equity, credit, underwriting, insurance, risk management, venture capital and asset management capital markets. These issues have a direct impact on risk exposure and the quality of public, private and government debt/equity investments. The course will devote a significant of time covering the fundamental principles of finance including valuation, financial statements, time-value of money, capital markets, and asset management. Students will develop the knowledge and skills necessary to effectively communicate sustainability/ ESG issues to a financial professional.

Students will be exposed to global sources of environmental/sustainability corporate performance information, and how environmental performance is quantified and translated into financial performance. The course focuses on "best-in-class" environmental investment and how it relates/differs from socially-responsible investing (SRI), and Impact Investing.

This course gives students a foundation in how sustainability issues affect the various sectors of finance and an understanding of how integrating sustainability principles and practices into finance can be used to make a business become more efficient, effective, reduce risks, create opportunities and provide competitive advantage, for both companies and financial firms alike. Students will gain the tools to evaluate, quantify and assess environmental, social and governance (ESG) metrics of companies as a way of differentiating investment choices. The ethics of sustainability issues and their impact on management & finance will also be addressed. This course satisfies the M.S. in Sustainability Management program's general and financial management curriculum area requirement.

Course Objectives

The primary goal for the course is to familiarize students with critical concepts of finance and the language used by financial and sustainability professionals.

Students are assumed to have had no or little previous exposure to finance and asset management. A basic knowledge of Word, PowerPoint and Excel will be useful. By the end of the course, students should be able to:

- Demonstrate a foundational understanding of core financial topics including: Financial Statement Analysis, Valuation, Asset Management, and Capital Markets.
- Value Common Stock and Bonds
- Calculate financial ratios and compare companies through relative valuation analyses.
- Understand the investment management process, portfolio management, and asset allocation.

- Understand how sustainability issues affect investment decisions made by institutional investors, corporate lenders, insurance companies, asset management funds, hedge funds, venture capitalists and retail investors, as well as business decisions made by corporate managers.
- Evaluate corporate sustainability risks and opportunities from a financial perspective, and understand how to manage/mitigate those risks.
- Articulate why standard financial reporting does not adequately account for corporate sustainability performance and how improved performance can enhance both shareholder and stakeholder value.

Method of Instruction

The course will be imparted over 14 Sessions in 2-hour sessions each Week. An introductory finance book is required for the course. (See Course Schedule and Textbooks below). However, there is no single text book that can address the rapidly changing issues addressed by sustainable finance. Readings from key reports, websites and magazine/news articles will be supplemented by real, practical examples of sustainable finance issues in today's financial industry. Guest lectures by experts in their fields will be planned.

Method of Evaluation

Regular attendance in lectures is required and students are expected to have done the readings for each lecture before class. Attendance in the tutorial session is optional, but strongly recommended. Grading for the course will be determined by the following:

1. Participation (10%)

- A. Contribute to class discussions. This means enhancing the quality of the class experience for yourself and others. It involves making relevant, useful and non-obvious comments and posing pertinent questions in clear and succinct language.
- B. Be prepared to give 2-3 minute answers to impromptu questions regarding course readings.
- C. Provide at least 1 carefully considered and substantive (2-3 paragraphs) critique of reading assignment. No more than one page, 12 size font, single space.

The attendance and participation grade will comprise a weighted index of numeric grades that combine performance under each of the tasks above and actual attendance.

2. Short Assignments (60%)

There will be six problem sets each worth 10 points. Each assignment will consist of a combination of problem sets and short answer questions. Expectations are for students to demonstrate their qualitative and quantitative knowledge of the material through a series of questions addressing the financial and sustainability performance of companies.

3. Individual Presentations (10%)

Each student will make a 7-minute presentation on a Special Topic in Sustainability.

4. Final Report & Presentation (20%)

The final deliverable for the course will be a 10-minute in-class presentation and written report (maximum 25 pages). The report and oral presentation will be graded on a letter grade scale from F to A+. All students in a group receive the same grade for the written report and an individual grade for their oral presentation. Students will form groups of 3-4. Each group will assess three publicly-traded companies and select one of those three firms as the best investment from a long-term sustainability perspective

5. Final Course Grade

The final course grade will be computed using a weighted index of numeric grades that combine the grades for assignments, attendance and participation, and final report and oral presentation, scaled into a letter final grade scale from F to A+.

Textbook

Principles of Corporate Finance 12th edition by Brealey, Myers, and Allen (“**BMA**”)

The Basics of Finance. An Introduction to financial markets, business finance, and portfolio management. Pamela Peterson Drake, Frank J. Fabozzi. Hoboken, NJ :Wiley, 2010. Available as an Ebook on CLIO

Course Overview

In addition to the following readings students will independently find company research through Columbia’s subscriptions to Thomson Reuters, MSCI ESG Ratings and Bloomberg.

*Access Thomson ONE and I-ratings using your UNI with this link. It runs best with Internet Explorer:
http://library.columbia.edu/content/libraryweb/indiv/business/elect_serv.html

To find reports:

1. Search for company
2. Click on Company Research in Left tab

Course Readings:

Session 1: Introduction to Sustainable Finance

- BMA: Chapters 1. Corporate Investment, Financing Decisions and Time Value of Money.
- Drake Peterson and Fabozzi, Chapters 1-3.

Session 2: Introduction to Sustainable Finance

- BMA: Chapters 2 and 14. Corporate Investment, Financing Decisions and Time Value of Money.
- Drake Peterson and Fabozzi, Chapters 4.
- “Sustainable Investing: Establishing Long-Term Value and Performance.” Deutsche Bank Climate Change Advisors, 2012
http://www.dbcca.com/dbcca/EN/investment-research/investment_research_2413.jsp
- Looking forward, looking back: A hitch hikers guide to Research on Social and Sustainable Investment. Lloyd Kurtz. Creative Commons. 2013. Available on Lulu.
- Generation Investment Management: Sustainable Capitalism
<http://www.generationim.com/media/pdf-generation-sustainable-capitalism-v1.pdf>
- World Resource Institute: Corporate Ecosystem Services Review
<http://www.wri.org/publication/corporate-ecosystem-services-review>
- Robert Costanza: The Value of the World's Ecosystem Services and Natural Capital
http://www.esd.ornl.gov/benefits_conference/nature_paper.pdf
- McKinsey & Company: Resource Revolution
http://www.mckinsey.com/features/resource_revolution
- Harvard Business Review: Creating Shared Value
http://www.waterhealth.com/sites/default/files/Harvard_Buiness_Review_Shared_Value.pdf

- Eccles et al. The Impact of a Corporate Culture of Sustainability on Corporate Behavior and Performance.
- The Benefits of Socially Responsible Investing: An Active Manager's Perspective. Indrani De, CFA, PRM and Michelle R. Clayman, CFA. 2015.
- Corporate Sustainability: First Evidence on Materiality. 2015. Mozaffar Khan, George Serafeim, Aaron Yoon
- Clark, Gordon, Andreas Feiner, and Michael Viehs. "How Sustainability Can Drive Financial Outperformance." 2014.

Session 3: Financial Statement Analysis, Valuation and Integrated Reporting

- BMA: Chapter 28.
- Drake Peterson and Fabozzi, Chapters 10 and 11.
- MSCI ESG Ratings: IVA Reports: of Select Companies.
- MSCI Industry Reports: Select sectors
- Integrated Reporting framework:
 - a. <http://integratedreporting.org/resource/international-ir-framework/>
- Accessed through CLIO Business Library.

Session 4: Cash Flow Analysis

- BMA Chapter 4.
- Drake Peterson and Fabozzi, Chapters 12
- Financial Statements and Sustainability reports of Select Companies.

Session 5: Valuing Common Stocks and Bonds

- BMA: Chapter 3.
- Drake Peterson and Fabozzi, Chapters 19-20
- Driving Sustainability at Bloomberg L.P.
- Eccles and Serafeim, 2012.
- The Billion Dollar Question." Environmental Finance, October 2012.
- Coal India Limited: Initial Public Offering: <http://www.sebi.gov.in/dp/coaldrhp.pdf>
- "Some IPOs are too hot to Handle." Environmental Finance, October 2012.

Session 6: Cost of Capital

- BMA: Chapter 6, 9, 19

Session 7: Risk Management

- *Use of Derivatives and Cash Alternatives*
- *Counter-party management in global supply chains*
- BMA: Chapter 10 and 14
- Select Financial Statements and Sustainability reports from Monsanto/Bayer, SunOpta, ADM, Bunge, Potash/Agrium, Mosaic, Kellogg, Conagra, PepsiCo, Smithfield Foods, General Mills.

Session 8: Risk Management II

- *Commodity Risk*
- *Infra-structure Risk*
- *Climate Risk*
- BMA: Chapter 23 and 26.
- "The 2050 Criteria." World Wildlife Fund, 2012.
http://assets.worldwildlife.org/publications/458/files/original/2050_criteria_final_low_res_online_viewing.pdf?1348517472
- "CDP Global 500 Climate Change Report 2012". Carbon Disclosure Project, 2012.
<https://www.cdproject.net/CDPResults/CDP-Global-500-Climate-Change-Report-2012.pdf>
- Carbon Reductions generate positive ROI:
<https://www.cdproject.net/CDPResults/CDP-Carbon-Action-Report-2012.pdf>

Session 9: Investment Management

- BMA: Chapter 10, 14, 23 and 26.
- Drake Peterson and Fabozzi, Chapters 15, 16 and 17
- "A legal framework for the integration of ESG issues into institutional investment." UNEP Finance Initiative, 2005. http://www.unepfi.org/fileadmin/documents/freshfields_legal_resp_20051123.pdf
- "Fiduciary Responsibility." UNEP Finance Initiative, 2009.
<http://www.unepfi.org/fileadmin/documents/fiduciaryII.pdf>
- NAPF Responsible Investment Guide 2013
http://www.napf.co.uk/PolicyandResearch/DocumentLibrary/~/_media/Policy/Documents/0308_NAPF_Responsible_Investment_guide_2013_DOCUMENT.ashx

Session 10: Portfolio Selection

- BMA: Chapter 10, 14, 23 and 26.
- Drake Peterson and Fabozzi, Chapters 15, 16 and 17
- "Climate Change Scenarios: Implications for Strategic Asset Allocation." Mercer Investment Consultants, 2011.
http://www.mercer.com/attachment_dyn?idContent=1407480&filePath=/attachments/English/04028-IC_ClimateChangeAssetAllocationStudy_Report_FNL_lowres.pdf

Session 11: Asset Pricing Theory

- BMA: Chapter 10, 14, 23 and 26.
- Drake Peterson and Fabozzi, Chapters 15, 16 and 17

Session 12: Role of an Investment Consultant

- http://www.mercer.com/attachment.dyn?idContent=1407480&filePath=/attachments/English/04028-IC_ClimateChangeAssetAllocationStudy_Report_FNL_lowres.pdf
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Session 13: Individual Presentations

Session 14: Group Presentations

Thematic Readings on Agribusiness for FSA Integration

- *What is agriculture and how has it evolved*
- *M&A in food*
- *Role of trade finance*
- *Land Investments*

Select Financial Statements and Sustainability reports from Monsanto/Bayer, SunOpta, ADM, Bunge, Potash/Agrium, Mosaic, Kelloggs, Conagra, Pepsico, Smithfield Foods, General Mills.

FAO. (2013) Global agriculture towards 2050. Rome, FAO. OECD/FAO (2013), OECD-FAO Agricultural Outlook 2013–2022, OECD Publishing and FAO.

Goldberg, Ray A. "Monsanto." Harvard Business School Case 913-404, October 2012.

Godfray HCJ, Beddington JR, Crute IR, Haddad L, Lawrence D, et al. (2010) Food security: The challenge of feeding 9 billion people. *Science* 327:812–818.

Morgan, Dan. *Merchants of Grain. The Power and Profits of Five Giant Companies at the Center of the World's Food Supply.* New York: Viking, 1979.

USSEC (2011) *How the Global Oilseed and Grain Trade Works.* HighQuest Partners, Danvers, CA.

UCS (2009) *Failure to Yield: Evaluating the Performance of Genetically Engineered Crops.* Union of Concerned Scientists.

Murphy, S., Burch, D. and Clapp, J. (2012) *Cereal Secrets: The world's largest grain traders and global agriculture.* Oxfam Research Reports.

FAO. (2016) *The State of Food and Agriculture 2016: Climate Change, Agriculture and Food Security.* Food and Agriculture Organization of the United Nations. Rome.

Caldecott, B., Howarth, N. & McSharry, P. (2013) *Stranded Assets in Agriculture: Protecting Value from Environment-Related Risks.* Smith School of Enterprise and the Environment: University of Oxford. Oxford.

FAO (2015) *Natural Capital Impacts in Agriculture.* Food and Agriculture Organization of the United Nations, Rome.

FAO. (2013) Global agriculture towards 2050. Rome, FAO. OECD/FAO (2013), OECD-FAO Agricultural Outlook 2013–2022, OECD Publishing and FAO.