I. Course Description

Stocks and bonds? Real estate? Hedge funds? Private equity? The conventional way of allocating across asset classes fails to account for the overlapping risks they represent. Investors must consider the underlying factor risks behind asset class labels, just as eating a healthy diet requires looking through foods to the nutrients they contain. Factor risks are the hard times that affect all assets, and investors are rewarded for weathering losses during bad times with long-run risk premiums. Optimally harvesting factor risk premiums—on our own or by hiring others—requires identifying our particular set of bad times, and exploiting the difference between them and those of the average investor.

Does it matter in practice? Here’s what Sallie Krawcheck, ‘92, a former senior executive at Citigroup and Bank of America, and member of Columbia Business School’s Board of Overseers, said about the worst financial decision she ever made:¹

In about 2007, when my financial adviser and I stress-tested my portfolio for an equity market shock, we did a poor job of really understanding the risk in my full portfolio, and not just in my investment portfolio. We analyzed what would happen if the stock market corrected, but didn’t fully think through that my Citigroup stock would probably go down much more. I could well lose my job, which I did. My husband’s holdings would be significantly impacted because he’s also in financial services,

and our real estate would go down a lot. Perhaps we wouldn’t have done anything differently, but we were thinking about money too narrowly.

Krawcheck ignored her total factor exposure, and didn’t look through her asset class labels to the factor risks beneath. Labor income also has factor exposure, which Krawcheck acknowledged she didn’t take into account.

The course interprets asset management as a problem in understanding and exploiting factor risk premiums. Cases cover all types of asset owners ranging from individuals, endowments, pension funds, and sovereign wealth funds. All of these cases have been written by the professor within the last five years.

We hear from a wide variety of guest speakers. Confirmed speakers include

- Cliff Asness: Managing and Founding Principal AQR Capital Management, a large hedge fund focused on systematically investing in factor risk premiums.

- Ann Kaplan ’77: Partner of Circle Wealth Management, former partner of Goldman Sachs, donor of the Professor’s chair, and expert on personal wealth management. She is a trustee of Columbia University and a member of the Board of Overseers of Columbia Business School.

- Knut Kjaer, Founding Partner and Chairman of Trient Asset Management and founding CEO of the Norwegian sovereign wealth fund, one of the largest sovereign wealth funds (SWFs) in the world.

- Don Raymond: Senior Vice President and Chief Investment Strategist of Canada Pension Plan Investment Board, one of the leaders in factor investing. Its model is being emulated by GIC (a SWF of Singapore), Norway’s SWF, and other large institutional investors.

The class covers three main areas:

1. The Investor
   Different investors each have their own set of bad times defined by their liabilities, income streams, constraints and beliefs, and how they perceive and react to different kinds of risks. Bad times are more than just periods when your wealth has taken a hit: you can still be rich and encounter bad times if your consumption drops below what you are used to, or if your competitor generates
a higher return than your portfolio. As investors move through their life cycles and as they dynamically invest over long horizons, their set of bad times can change. Optimal portfolio allocation involves taking into account an investor’s bad times, and accepting the risks of these bad times in exchange for the compensation of factor premiums, which aren’t available without taking risk. Holding diversified portfolios lessens the impact of bad times because there is a possibility that some assets will have high returns when the bad times hit.

2. Factor Risk Premiums
Asset owners can earn risk premiums through exposure to factor risks. Periods of slowing economic growth, high or accelerating inflation, and skyrocketing volatility are bad times for most people. Other factors are tradable investment styles like value-growth investing, momentum investing, and over-weighting illiquid assets. Assets are bundles of factors, each of which defines a set of bad times for the average investor. Over the long run, investors exposed to factors earn high returns. But there is risk. There are superior returns to factors, on average, because during bad times they can underperform—sometimes dramatically. Factor premiums also result from the behavior of investors that is not arbitraged away. Just as eating right requires us to look through food labels to underlying nutrients, factor investing requires us to look through asset class labels to underlying factor risks. The class discusses bread-and-butter factors, like equities and bonds, and more dynamic or “alternative beta” factors.

3. Investors and Intermediaries
The worst relationships between asset owners and managers cause the asset owner to endure many more bad times; what is best for the fund manager is generally not in the interests of the asset owner. Appropriate governance structures and contracts can minimize the bad times resulting from agency conflicts. Agency conflicts are discussed for the most common investment vehicles—mutual funds, hedge funds, and private equity.
II. Course Materials

No required course textbook.

Recommended textbooks:


Lecture notes will be made available before each class. The lecture notes constitute the main learning materials. Additional materials will be distributed through the semester.

III. Software

Software: We make extensive use of Morningstar’s EnCorr Optimizer. The package enables students to access a wide variety of data on various asset classes and to construct optimal portfolios. You need to run Windows to operate this program, and installation instructions will be given in the first class.

IV. Pre-requisites

Capital Markets and Investments is a co-requisite.

V. Midterm Exam

There is one midterm held in Class 6. The exam will be open book.

VI. Major Project

There will be one major project dealing with various issues on asset management due at the end of term. The major project will apply theory and concepts on portfolio choice and diversification, asset returns, and principal-agent issues to some real-life
applications. Students have a choice of projects involving individual investors, endowments, pension funds, and sovereign wealth funds. The major project must be done in groups of 2-3 members. Please submit one hard-copy write-up for the entire group, being careful to note the names of all the group members and the section number. Groups will make a short presentation of their major project findings on the last day of class.

VII. Homework and Cases

Homeworks and case write-ups are due on a regular basis and count for a grade. All homeworks and cases must be done in groups of 2-3 members. Groups can change during the semester.

All students must prepare a hard-copy write-up, limited to three pages, which will be submitted the Friday after the case or homework is discussed in class. The write-up can include additional appendices to the three-page main body.

To facilitate discussion of the case in class and to get the maximum pedagogical value from the cases, the Professor will select at random (usually one or two) groups to do a presentation in class. A set of slides (presentation) is limited to no more than 5 slides, excluding the title page. Don’t cram a lot of material into your slides; just give the highlights. The presentations are intended to lead the class in discussion.

The final grade will discard the homework or case with the lowest grades.

VIII. Teaching Assistant

The TA is Renxuan Wang, rewang15@gsb.columbia.edu

IX. Review Sessions

There will be a math review session in the first week, and a review prior to the midterm.

X. Grade Breakdown

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homeworks and Cases</td>
<td>35%</td>
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<tr>
<td>Midterm Exam</td>
<td>25%</td>
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<tr>
<td>Major Project</td>
<td>25%</td>
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<tr>
<td>Class Participation</td>
<td>15%</td>
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The class participation grade includes in-class presentations of the cases. The major project grade includes a short presentation on the major project on the last day of class.

X. Course Outline
This is subject to change at any time.

Class 1: Tue Jan 28
   Overview and Introduction
   “Static” Factors: Equities and Bonds

Math Review: Fri Jan 31

Class 2: Tue Feb 4
   Factor Investing I
   Mean-Variance Investing I, includes introduction to Morningstar Encorr (optimization and data software)

Class 3: Tue Feb 11
   Factor Investing II: “Factor Investing: The Reference Portfolio and Canada Pension Plan Investment Board” case
   Mean-Variance Investing II

Class 4: Tue Feb 18
   Dynamic Portfolio Choice I
   Dynamic Factors I, which includes value-growth, momentum, low volatility, etc

Class 5: Tue Feb 25
   Dynamic Portfolio Choice II: “Stay the Course? Portfolio Advice in the Face of Large Losses” case. [The protagonist is based on Ann Kaplan, who participated in writing of the case.]
Dynamic Factors II
Speaker: Ann Kaplan, Partner of Circle Wealth Management, former partner of Goldman Sachs, and donor of the Professor’s chair.

Midterm Review: Fri Feb 28

Class 6: Midterm, in class, Tue Mar 4, 1.5 hours, open book, computers OK.

Class 7: Tue Mar 25
Factors in Mutual Funds, Hedge Funds, and Private Equity Returns
Delegated Management Issues in Mutual Funds, Hedge Funds, and Private Equity

Class 8: Tue Apr 1
Delegated Management Issues: “California Dreamin’: The Mess at CalPERS” case
Illiquidity Risk Premiums I
Speaker: Don Raymond, Senior Vice President and Chief Investment Strategist of Canada Pension Plan Investment Board

Class 9: Tue Apr 8
Illiquidity Risk Premiums II: “Liquidating Harvard” case
Real Assets
Speaker: Knut Kjaer, Founding Partner and Chairman of Trient Asset Management and founding CEO of the Norwegian sovereign wealth fund

Class 10: Tue Apr 15
Life-Cycle Investing
Downside Risk Preferences
Class 11: Tue Apr 22

Pensions: “Saving Public Pensions: Rhode Island Pension Reform” case
Speaker: Cliff Asness, Managing and Founding Principal AQR Capital Management

Class 12: Tue Apr 29

Socially Responsible Investing: “The Norwegian Pension Fund: The Divestiture of Wal-Mart” case
Overview of Class Projects