S&P CAPITAL IQ

Principles of Quantitative Equity Investing

OBJECTIVES

This course will cover topics including:

- Developing investment objectives
- Selecting appropriate data
- Identifying factors that forecast exceptional return
- Combining factors to create an alpha model
- Using an alpha model to construct portfolios that maximize forecast alpha relative to a chosen benchmark, subject to constraints on risk
- Measuring, explaining and refining performance

Course Overview: The course will be a combination of lecture, group and individual exercises, and group discussion. A quantitative investing case study will be used throughout the course to highlight specific learning points. S&P Research and S&P Capital IQ products will be discussed when appropriate.

This course does not teach the Standard & Poor's Credit Ratings criteria or methodologies. The instructors are independent consultants sourced through our training firm partner, Global Financial Markets Institute, Inc. The instructors teach courses on behalf of Standard & Poor's and as such, their views do not necessarily reflect the views of Standard & Poor's.

CPE Credits: 15.5
CE Credits: 15

DAY 1

9:00 – 9:15AM **Course Objectives and Participant Introduction**

9:15 – 10:30 AM **Session 1: Introduction**

In this opening session we compare and contrast quantitative and fundamental management and explain how active managers can benefit from the use of quantitative tools. By the end of the session, participants should be able to:

- Compare and contrast active and passive investing
- Define active and residual risk and return
- Compare and contrast quantitative and fundamental management
- Discuss opportunities for active managers to add value
- Outline the use of quantitative tools to exploit these opportunities

Group Exercise 1

10:30 – 10:45 AM **Break**

10:45 - 12:00 PM **Session 2: Risk, Return and Performance**

In this session, we define key measures of risk and return and discuss how they can be applied to measure performance. We also discuss the impact of leverage and hedging on risk and return. By the end of the session, participants should be able to:

- Define key risk measures and explain why we analyze risk
- Compare and contrast different measures of risk-adjusted return
- Discuss factors that affect the choice of an appropriate performance measure, taking into account risk, return and investment objectives
- Outline the impact of leverage and hedging on risk and return

Group Exercise 2: Using Risk and Return Measures to Measure Performance

12:00 – 1:00 PM **Lunch**

1:00 – 2:45 PM **Session 3: Finding and Using Data**

In this session, we identify primary and secondary sources of data for quantitative investing and discuss common problems that affect the quality of data. By the end of the session, participants should be able to:

- Identify data sources for use in quantitative investing
- Discuss general concerns about quality and biases in data
- Identify specific factors for concern when using fundamental, forecast, market and economic data

Group Exercise 3: Finding Data

2:45 – 3:00 PM **Break**

3:00 – 5:00 PM **Session 4: Investment Ideas and Factors**

In this session, we discuss investment styles and the factors linked to them. We also compare and contrast the roles played by alpha models and risk models in quantitative investing. By the end of this session, participants should be able to:

- Explain how alpha models and risk models are used in quantitative investing
- Screen to select an investment universe
- Generate investment ideas
- Identify quantitative signals or factors linked to those ideas

Group Exercise 4: Using a Factor Library to Explore Investment Ideas

DAY 2

9:00 – 10:30 AM

Session 5: Factor Selection and Backtesting

In this session, we explore methods for choosing suitable factors to express a quantitative investment idea. By the end of the session, participants should be able to:

- Choose candidate factors for a quantitative investment idea
- Implement a factor backtest
- Interpret factor backtest results

Group Exercise 5: Factor Backtest

Group Exercise 6: Factor Interaction

10:30 – 10:45AM

Break

10:45 – 12:30 PM

Session 6: Model Construction

In this session, we consider different methods for combining factors in an alpha model. We create equal-weighted, regression-weighted and regime switching alpha models based on a specific quantitative investment idea. These models form the basis of a case study that we develop in this and subsequent sessions of the course. By the end of the session, participants should be able to:

- Combine factors to create an alpha model to forecast active returns
- Compare and contrast different methods for combining factors
- Interpret and assess the performance of different alpha models for a specific investment case study

Group Exercise 7: Alpha Model Backtest

12:30 – 1:30 PM

Lunch

1:30 – 3:00 PM

Session 7: Strategy Simulation

In this session, we use our alpha-model to construct a trading strategy and test the performance of this strategy on historical data. We build rules-based and optimized versions of the strategy and compare their performance. Finally, we consider how risk models and optimization are used in quantitative investing. By the end of the session, participants should be able to:

- Construct a trading strategy based on an alpha model
- Test performance of this strategy on historical data, taking into account trading costs and market impact
- Compare and contrast rules-based and optimized portfolios
- Identify practical problems encountered in optimization
- Discuss the use of risk models to forecast return covariances when optimizing portfolios

Group Exercise 8: Evaluating a Trading Strategy Simulation

3:00 – 3:15 PM **Break**

3:15 – 5:00 PM **Session 8: Performance Attribution and Risk Analysis**

In this final session, we use Brinson and factor-based attribution techniques to analyze the performance and risk of our trading strategy. By the end of the session, participants should be able to:

- Explain what performance attribution is and why we are interested in it.
- Use Brinson attribution to analyze active return as the result of asset allocation and stock selection decisions.
- Use factor-based attribution to analyze active return in terms of risk factor bets relative to the benchmark.
- Interpret and apply factor contributions to active risk.
- Evaluate and attribute performance for quantitative trading strategies.

Group Exercise 9: Performance Attribution

Course Conclusion

*Course agenda is subject to change without notice.

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