Derivatives Trading Strategies

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Aim/Course Objectives

Whereas the vast majority of market participants are exposed to derivatives trading, their perspectives vary. In some functions, such as risk management, the purely theoretical framework of options theory is applied, whereas others look at the derivatives market as a directional market-taker. But it is the application of the options theory in practice, where many market participants lack the proper skills and tools.

This course aims to fill that gap, not only by discussing options theory from a practical perspective, but also by enabling the students to apply theoretical knowledge of derivatives in actual trading strategies. While knowledge of options theory is a requirement for this course, the start of this course will be a recap of options theory albeit from a market practitioners' perspective.

Two options trading strategies will be analyzed in-depth: Options Market Making and Volatility Arbitrage. In order to fully grasp these strategies, advanced characteristics of derivatives will be discussed (for example the concept of skew and the effects of early exercise). Additionally, emphasis will be placed on the risk management methodologies that are required for properly managing these strategies.

The students will apply their knowledge in practice: the discussion of each trading strategy is concluded with a trading session, where students will run their own trading book in a simulated market environment with real-time market data.

Learning outcome of the course

By the end of this course, students should be able to
1) Understand the concept of 'price discovery', the role that markets play in this concept and the impact of market design ('market microstructure')
2) Apply and evaluate the basic strategies in futures and options, from the perspective of both investors as arbitrageurs
3) Understand options theory from an analytical perspective (the behavior of options under various circumstances), but also be able to use this options theory in actual trading situations and in managing options positions
4) Understand the concept of implied volatility and the pivotal role this plays in analyzing option markets. Furthermore, students will be able to summarize the volatility information of the options market into generic formulae (volatility curves and volatility surfaces)
5) Manage an options position from the perspective of a market maker, including scenario based risk management and dynamic adjustment of trading parameters
6) Understand advanced options characteristics such as early exercise and the pricing of tail events. Students will further understand specific advanced options strategies, such as volatility arbitrage and dispersion trading.

Recommended text book

Options, Futures and other derivatives by Hull, Prentice Hall ['Hull']
Algorithmic Trading and DMA by Johnson, 4 Myeloma Press ['DMA']. (most likely copy of few chapters)

Grading and Assessment breakdown (the weight of final exams, assignments, class participation in the final grade)

One Group Assignments (15%): (i) investigating a volatility arbitrage strategy
One Individual Assignment (15%) (ii) drafting a structured product
Final Exam (65%)
Class participation and contribution (5%)

Derivatives Trading_Introduction 1

http://youtu.be/rqvEpUQi9Uo

Derivatives Trading_Introduction 2

http://youtu.be/krfdN9WNMF8

Derivatives Trading_Sharing_Chun-Lin Wu

http://youtu.be/pdybmtewD1Q