APPLIES TO ACADEMIC YEAR 2014/2015

FIN 3621 Options and Futures

Programme
Bachelor of Finance (3. year), Exchange Program

Responsible for the course
Chunyu Yang

Department
Department of Financial Economics

Term
According to study plan

ECTS Credits
7,5

Language of instruction
English

Introduction

Due to the remarkable growth in the use of financial derivative instruments a basic understanding of derivative markets is essential not only to students and specialists in finance, but also to general business practitioners. The objective of this course is to familiarize students with the pricing and hedging of options, futures and if time permits of swaps and other structured products. The course is designed around the central concepts of arbitrage, replication and hedging. While the economic reasoning behind these concepts will be strongly emphasized several technical applications will be considered in order to fully appreciate the underlying principles. Ideally this course should provide a strong basic understanding of derivative securities and prepare for more advanced technical courses on derivatives. Some emphasis will also be placed on the practical aspects of the use of these derivatives as well as the markets in which they are traded.

Learning outcome

Acquired knowledge
The students will acquire a good understanding of the derivatives markets and the derivatives securities available for trading. More specifically the students will develop their understanding with respect to the following topics:

- The derivatives markets which are the regulated exchanges and the over-the-counter markets, their participants, their basic functioning and the idiosyncrasies of each.
- The structure and specifics of the basic derivative securities, futures, forwards, options and swaps.
- The principles behind the pricing of each of the derivative securities, namely no-arbitrage when replication is possible and the bounds and relationships that the no-arbitrage assumption imposes.
- Understand the applicability and limitations of the standard pricing techniques.
- The economic role of the derivative securities and the way they are being used in practice.
- The opportunities that derivative instruments provide and the dangers they hide.

Acquired skills
During the acquisition of the above mentioned knowledge the students will acquire the following skills:

- Represent the payoff of a derivative product both diagrammatically and mathematically.
- Alter the exposure to an underlying asset using derivative securities and plot the final exposure.
- Construct and evaluate various strategies using derivatives.
- Price forwards and futures using the cost of carry model.
- Price options and other derivative securities using the one-period and multi-period binomial model.
- Price options using the Black-Scholes option pricing model.
- Hedge forwards and futures.
- Hedge options using the binomial model or the Black-Scholes model.

Reflection
The acquired theoretical and practical knowledge provided by the course should enable the student to first understand and be able to apply the basic principle behind the pricing and hedging of derivative instruments, namely that of replication and arbitrage. Further the student should acquire the ability to appreciate the financial and economic opportunities that derivative instruments offer while also being able to critically assess their role and practical value in light of how these products are being used in practice.

Prerequisites
This course is based on skills from other courses from the Bachelor of Finance program, such as Financial

Markets, Corporate Finance, Financial Investment Analysis and Mathematical Analysis. Students taking this course as an elective must have equivalent skills.

Compulsory reading
Books:
McDonald, Robert L. 2014. Derivatives markets. 3rd ed., New international ed. Pearson Education. Latest edition is used in class.

Recommended reading
Books:
Hull, John C. 2014. Fundamentals of futures and options markets. 8th ed. Pearson

Course outline
- Introduction to derivatives markets and derivative instruments
- Basic strategies, insurance, hedging and speculation using options and futures
- Financial forwards and futures: pricing and hedging
- Commodity forwards and futures: pricing and cross-hedging
- Parity and other option price relations
- Binomial option pricing
- Black-Scholes option pricing
- Option Greeks and hedging
- Interest rate forwards and futures (if time allows)

Computer-based tools
Spreadsheets (Excel) will be used for certain practical applications and examples. It is recommended that students become familiar with their use.

Learning process and workload

The course consists of 36 lecture hours and 9 hours of in-class, instructor-guided problem-solving.

There are 5 to 7 in-class pop quizzes spread out during the semester. The pop quizzes are designed to provide students with frequent feedback about their performance and encourage consist learning over the semester. Solutions to the quizzes are provided in class.

Homework assignments are provided regularly in the form of exercises and readings. Students are not required to turn in their finished homework assignments. However, students are highly encouraged to work carefully on the homework assignments in order to make better prepare for the lectures, the pop quizzes, and the final exam. Solutions to the homework exercises are provided in a timely manner with selected exercises explained in class.

Students are recommended to allocate hours of studying as follows:

Activity	**Hours**
Attendance during lectures	36
Problem-solving in class	9
Independent reading/preparation for class	100
Homework and other assignments	30
Preparation for the final examination	25
Total	**200**

Use of hours
Total 45 in-class hours.

Examination
A three-hour, individual, multiple-choice, final examination concludes the course.

Examination code(s)
FIN 36212 final exam counts 100% towards the final grade in FIN 3621 Option and Futures, 7,5 credits.

Examination support materials
No support materials allowed except the BI-defined exam calculator TEXAS INSTRUMENTS BA Plus and interest rate tables.
Examination support materials at written examiniations are explained under examination information in the

student portal @BI. Please note use of calculator and dictionary. https://at.bi.no/EN/Pages/Exa_Hjelpemidler-til-eksamen.aspx

Re-sit examination
A re-sit is possible in connection with the next ordinary course.
As of spring 2014, the examination is changed from five-hour written exam to a three-hour individual multiple-choice exam. Re-it examiniation for FIN 36211 five-hour written exam will be offered in autumn 2013 and the last time in spring 2014. Work requirements are no longer required to take the exam.

Additional information