DERIVATIVES

Credit Value: 3 credits[1]
Lecturer: Andrey Matyukhin

A. Course objectives

The course "Derivatives" aims at the formation the following skills:

1. knowledge of the features of assets, institutions and intermediaries on the russian financial markets which are faced by aparticular company
2. knowledge peculiarities in functioning of professional financial markets participants, financial institutions, regulatory bodies, limitations on theiractivities and their opportunities
3. ability to construct a portfolio of derivatives for the purposes of hedging separate or combination of financial risks
4. knowledge of the modern instruments on different market segments, their characteristics and peculiarities of theirusage by investors with different risk- profiles
5. ability to select a portfolio of financialinstruments to achieve a financial goal,and to construct a financial plan with respect to such a portfolio allowing forthe goal achievement.

B. Textbooks

1. [WLP] Wendie L. Pirie (editor), Derivatives // CFA Institute Investment Series, Wiley, 2017
2. [HLL] Hull J.C., Options, futures, and other derivatives, 9th ed., Prentice Hall, 2014
3. [KOL] Kolb R.W., Futures, Options and Swaps, 4t ed., Blackwell Publishers ltd.
4. [BHE] Bossu S., Henrotte P., An introduction to Equity derivatives - theory and practice. 2nd edition, Willey, 2002
5. [FIA] Barbara S. Petitt, Jerald E. Pinto, Wendy L. Pirie et. al. Fixed Income Analysis, 3rd Edition
6. // CFA Institute Investment Series, Wiley, 2015

C. Assessment details

The final grade consists of:

Type of assessment	Points
CONTACT COURSEWORK	
On-line test "Introduction to derivatives markets and instruments."	10
On-line test "Forward and futures contracts"	10
On-line test "Option contracts and complex option strategies."	10
On-line test "Option valuation models."	10
On-line test "Swap agreements."	10
On-line test "Introduction to derivatives markets and instruments."	10
SELF-STUDY	
Hometask 1. Application of derivatives strategies in real-world environment	20
Hometask 2. Derivatives valuation concepts	20

[1] 1 credit point is equal to 36 hours of total workload including in-class activities, self-study and exam writing

Hometask 3. Application of exotic derivatives	20
INTERIM CONTROL	
Final Exam	30

Grade	Minimum amount of points	Maximum amount of points
Excellent	127,5	150, 0
Good	97,5	127, 0
Satisfactory	60,0	97,0
Unsatisfactory	0,0	59,5

Note: in case of a student been graded with less than 20% of maximum total points, such student shall be graded only withthe "satisfactory" mark, shall he/she pass the 85% threshold in the exam paper/activity.

The interim control is conducted in form of test based on the full course curriculum. The exam is a multiple-choice test with the only correct answer given. Incorrect answers are not penalized. The test may be conducted via on- line platform at http://on.econ.msu.ru . The exam contains 10-15 questions and is conductedin English language.

Sample test questions

Question 1

A 1-by-3 FRA is most likely

Select one:

a. An agreement to enter a 90-days loan that expires 30 days from now
b. An agreement to enter a 60-days loan that expires in 30 days from now
c. An agreement with the contract rate of 1% which price is 3%

Question 2

45 days ago you have entered a Forward agreement to sell 730 stocks of PJSC Norilsk Nikel (GMKN RX Equity) at a price of 6987 per share. Today is the expiration date and the exchange closing price of GMKN is 7135. Identify how much would you pay to the counterparty if the forward contract specifies cash settlement or physical delivery? (Select one):

a. RUB 108040 for cash settlement, RUB 5208550 for the delivery
b. RUB 108040 for cash settlement, RUB 5100510 for the delivery
c. RUB -108040 for cash settlement, RUB 5100510 for the delivery
d. RUB -108040 for cash settlement, RUB 5208550 for the delivery

Question 3

The characterictic of the option contract that sets the price of the underlying transaction is most likely(Select one)

a. Notional amount
b. Strike price
c. Spot price
d. Option premium

Question 4

Given the spot price of Bashneft ordinary shares (BANE RX Equity) of RUB 3187 the put option withstrike price equal to RUB 3100 is most likely (Select one):

a. In the money
b. At the money
c. Out of the money

d. None of the above

Question 5

"A corporation which is a Subcriber of put option is simultaneously in the short position in the marketrisk of underlying asset." The statement is most likely (Select one):

a. True
b. False

— *On-line test*

On-line tests are conducted by students individually and are devoted to each of the course sections. The tests are uploaded on http://on.econ.msu.ru and have their own time limits for completion. Each student is assigned with one attempt per each test, the duration may vary from 20 to 45 minutes. There is no penaty for incorrect answers. The test is available for completion during a week, beginning from the date of the in-class activity for the section.

— *Hometask*

Analytical hometasks are prepared individually or in small groups (up to 3person). They include analysis of industry periodical press, usage of databases, including Bloomberg terminal, financial model construction.

— *Exam*

The exam is held simultaneously for all students on http://on.econ.msu.ru Each students is assigned with one attempt and has 2 hours to complete the task. There is no penalty for incorrect answers.

D. Course outline

Section 1. Introduction to derivativesmarkets and instruments.
Section 2. Forward and futures contracts
Section 3. Option contracts and complexoption strategies.
Section 4. Option valuation models
Section 5. Swap agreements.
Section 6. Credit derivatives. Exoticderivatives
Currentcontrol: *Including:* On-line test "Introduction to derivatives markets and instruments." On-line test "Forward and futurescontracts" On-line test "Option contracts andcomplex option strategies." On-line test "Option valuation models." On-line test "Swap agreements." On-line test "Credit derivatives. Exoticderivatives."
Hometask 1. Application of derivativesstrategies in real-world environment
Hometask 2. Derivatives valuationconcepts
Hometask 3. Application of exoticderivatives
Final Exam