Course syllabus

Portfolio Management and Financial Derivatives

August - December 2018

Lecturer

Pablo Boza

I. General features of the course

Course	: Portfolio Management and Financial Derivatives	Code	: 07040
Requisite	: Instrumentos Financieros	Semester	: 2018-II
Credits	: 3	Cycle	: 9th

II. Course summary

The course aims to develop student's competences about portfolio theory and the management of financial derivatives as tools for portfolio management and risk coverage.

In the course the following concepts are developed: risk aversion and the indifference curve, the expected return and profitability of an investment portfolio, the optimal portfolio, the capital market line and its movements to identify the efficient frontier.
In financial derivatives, the mechanics of forward and futures markets are developed, and hedging strategies will be reviewed, as well as the management of the most used contracts for hedging risk in the local market (interest rates and currencies). Likewise, the options market, options strategies and the main valuation models will be studied. Finally, plain vanilla swap contracts will be reviewed.

III. Objectives of the course

The objective of the course is to facilitate the understanding of concepts about portfolio theory, and financial derivatives. Evaluating risk and return models, the valuation model of capital assets, as well as the theory of pricing by arbitrage through cases.
Understand and develop practical strategies with various financial derivatives such as forwards, futures, swap and options, in order to take create hedging positions and different yield maximizing strategies.

IV. Learning goals

At the end of the course, the student:

1. Identifies risk and return theory, the capital asset valuation model in order to maximize its investment portfolio.
2. It differs the theory of pricing by arbitrage, the cost of capital and capital budget through cases.
3. Identifies the mechanics of financial derivatives that establish purchase or sale obligations: Forwards and Futures; As well as its use in the different markets where they are traded.
4. Identifies the mechanics of financial derivatives that set purchase or sale rights: Options. It differentiates the European options and the American options, determining its valuation methodology.
5. Describe the strategies of speculation and hedging with options and characteristics of Greek letters to value options.
6. Identify exotic options as a second generation instrument that are non-standard and are tailored to the needs of the customers.
7. Describes financial swaps as hedging instruments and their application to the underlying assets.

V. Methodology

For the course the topics will be developed with the active participation of the students, through practical cases developed in the computer and the Bloomberg lab.

It is desirable that before each class the participant reads, the recommended text, the subject that will be treated so that he can formulate the questions that he believes pertinent. Also, after each class, you should also complement the topic worked, with the texts indicated in the supplementary bibliography.

VI. Evaluation system

The evaluation system is continuous and comprehensive. It includes the permanent evaluation mark (40%), the partial mark (30%) and the final mark (30%).

The permanent evaluation includes the following:

CONTINOUS EVALUACIÓN SCHEME (PEP) 40%		
Description	**Content**	**Weight (%)**
Practical exams	2 practical exams	40
Work Assignment	Group Assignment	50
Participation	Participation and short exercise	10

The final average grade (PF) is computed as follows:

PF = (0, 30 x EP) + (0, 40 x PEP) + (0, 30 x EF)

VII. Scheduled content of the course

WEEK	*CONTENT*	*ACTIVITIES / EVALUATION*
Learning Unit I. Portfolio Theory **Learning outcomes:** 1. Identifies risk and return theory, the capital asset valuation model in order to maximize its investment portfolio. 2. It differs the theory of pricing by arbitrage, the cost of capital and capital budget through cases.		
1° *August 20 – 25*	1.- Risk and performance 1.1. Yield of holding period 1.2. The performance of stocks and yields Risk free 1.3. The normal distribution and its implication of standard deviation 1.4. Applied case study ZVI BODIE et al. (2004) Principios de inversiones. Capitulo 1. GORDON J. ALEXANDER et al. Fundamentos de Inversiones : Teoría y Practica. Capitulo 1 y 4	
2° *August 27th – September 1st*	2 .- Previous concepts 2.1. The utility function and its relation with risk and performance 2.2. Indifference curves and risk aversion 2.3. Calculate risk and yields of a portfolio of financial assets. 2.4. The effects of correlation and diversification. 2.5. The possible set and the efficient frontier. GORDON J. ALEXANDER et al. Fundamentos de Inversiones : Teoría y Practica. Capitulo 7 y 8 ZVI BODIE et al. (2004) Principios de inversiones. Capitulo 5 y 6	
3° *September 3rd – 08th*	3. Optimal Portfolios 3.1. Characteristics of the Asset Free of Risk. 3.2. Loan and Indebtedness with the Asset Free of Risk 3.3. Sharpe Ratio and the optimal portfolio 3.4. Determine portfolios of minimum variance 3.5. Determine portfolios of maximum variance 3.6. Determine optimal portfolios by maximizing Sharpe ratio 3.7. Identifying portfolios for risk levels. GORDON J. ALEXANDER et al. Fundamentos de Inversiones : Teoría y Practica. Capitulo 9 ZVI BODIE et al. (2004) Principios de inversiones. Capitulo 5 y 6	
4° *September 10 – 15*	4. Risk Management in Portfolios 4.1 Deconstructing Risk : Market and Unique Risk 4.2 Beta : Concept And Estimation 4.3 Market Model 4.4 Market Model vs Mean-Variance Model 4.5 VaR Risk Models HULL, JOHN. Risk Management and Financial Institutions. Third Edition. Capítulo 9 ROSS – WESTERFIELD & JAFFE. Finanzas Corporativas. Capítulo 11. RUIZ, G., JIMENEZ, J, & TORRES, J. La Gestión del Riesgo Financiero. 2000. Capítulo 4.	

5° *September 17 – 22*	5. Risk Management in Portfolios (continued) 5.1 Applied Case	**1st Practial Exam**
Learning Unit II. Financial derivatives **Learning outcomes:** 3. Identifies the mechanics of financial derivatives that establish purchase or sale obligations: Forwards and Futures; As well as its use in the different markets where they are traded. 4. Identifies the mechanics of financial derivatives that set purchase or sale rights: Options. It differentiates the European options and the American options, determining its valuation methodology. 5. Describe the strategies of speculation and hedging with options and characteristics of Greek letters to value options. 6. Identify exotic options as a second-generation instrument that are non-standard and are tailored to customer needs. 7. Describes financial swaps as hedging instruments and their application to the underlying assets.		
6° *September 24 – 29*	5. Introduction to the Management of Financial 5. Derivatives - Forward Contracts 5.1 Introduction to Derivatives: Types and Markets of Negotiation 5.2 Forward contracts: Characteristics and Valuation	
7° October 1 – 6	**COURSE MID TERM EXAM**	
8° October 8 – 13	**MID TERM EXAMS WEEK**	
9° October 15 – 20	6. Forward Contracts (continued) 6.1 Forward Strategies : Hedging, Speculation, Arbitrage 6.2 Forward exchange rate 6.3 Interest rate forward - FRA 6.4 Applied case study	
10° October 22 – 27	7.- Futures Contracts 7.1 Futures Contracts: Key Features 7.2 Coverage of future contract 7.3 The Clearing House 7.4 Maintenance of margins JOHN HULL. Introducción a los Mercados de futuros y opciones. Capítulo 7.	
11° October 29 – November 3	8 Futures Contracts (continued) 8.1 Applied case study : Stock index futures, commodities, fixed income instruments JOHN HULL. Introducción a los Mercados de futuros y opciones. Capítulo 5 y 6.	**2nd Practical Exam**
12° November 5 - 10	9. - Options 9.1 Calls and Puts - Payoffs 9.2 American options and European options. 9.3 Options Market Characteristics JOHN HULL. Introducción a los Mercados de futuros y opciones. Capitulo 8 9 y 10	

13° November 12 - 17	10. - Options Valuation 10.1 Appreciation of a synthetic option - Arbitration 10.2 Valuation by Black-Scholes-Merton Model 10.3 Option´s Greeks JOHN HULL. Introducción a los Mercados de futuros y opciones. Capitulo 11 Y 12	
14° November 19 - 24	11.- The Swap Contracts 11.1 Main Features 11.2 Types of Swap Contracts and Valuation 11.3 Applied case study : Plain Vanilla Swaps ROSS – WESTERFIELD & JAFFE. Finanzas Corporativas. Capítulo 25.	**DELIVERY FINAL GROUP ASSIGNMENT**
15° November 26 – December 1	**COURSE FINAL EXAM**	
16° December 3 – 8	**FINAL EXAMS WEEK**	

VIII. Bibliography

- ZVI BODIE & ALEX KANE & ALAN MARCUS. (2004) Principios de inversiones, Quinta Edición. España: MacGraw Hill.
- JOHN HULL. Introducción a los Mercados de futuros y opciones. Sexta Edición. México (2009). Editorial Pearson.Educación.
- GORDON J. ALEXANDER, WILLIAM F. SHARPE, JEFFERY V. BAILEY(2003) Fundamentos de Inversiones : Teoria y Practica. Editorial Pearson
- COURT, E & TARRADELLAS, J. Mercado de Capitales. Primera Edición (2010). México: Editorial Pearson Educación.
- HULL, J. Risk Management and Financial Institutions. Third Edition (2012). Wiley Finance.
- ROSS & WESTERFIELD & JAFFE. Finanzas Corporativas. Octava edición, México (2009). Editorial Mc Graw Hill.

IX. Professor

Pablo Boza : pboza@esan.edu.pe