



Course syllabus

Portfolio Management and Financial Derivatives

March – July 2019

Boza Torrejón, Pablo

I. General Information

Subject:	Portfolio Management and Financial Derivatives		
Requisite:	Financial Instruments	Code:	07040
Precedent:	N/A	Semester:	2019-1
Credits:	3	Cycle:	-
Weekly Hours:	3	Type of the course:	Class Presence
Type of course	Elective	Course Coordinator	Jhony Ostos Marino. jostos@esan.edu.pe
Career(s)	Administration and Finance		

II. 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. Course Objectives

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:

- Identifies risk and return theory, the capital asset valuation model in order to maximize its investment portfolio.
- It differs the theory of pricing by arbitrage, the cost of capital and capital budget through cases.

- 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.
- 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.
- Describe the strategies of speculation and hedging with options and characteristics of Greek letters to value options.
- Identify exotic options as a second-generation instrument that are non-standard and are tailored to customer needs.
- 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

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:

CONTINUOUS 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:

$$PF = (0, 30 \times EP) + (0, 40 \times PEP) + (0, 30 \times EF)$$

VII. Program content

WEEK	CONTENT	ACTIVITIES / EVALUATION
<p>LEARNING UNIT I. PORTFOLIO THEORY LEARNING OUTCOMES:</p> <ul style="list-style-type: none"> • Identifies risk and return theory, the capital asset valuation model in order to maximize its investment portfolio. • It differs the theory of pricing by arbitrage, the cost of capital and capital budget through cases. 		
<p>1° March 21st - 27th</p>	<p>1.1 Risk and performance 1.1.1 Yield of holding period 1.1.2 The performance of stocks and yields</p> <p>1.2 Risk free 1.2.1 The normal distribution and its implication of standard deviation 1.2.2 Applied case study</p> <p>Lectura obligatoria: Bodie, Z.; Kane, A. y Marcus, A. (2004) <i>Principios de inversiones</i> (5ta ed.). Capítulo 1. Alexander, G.; Sharpe, W. y Bailey, J. (2003). <i>Fundamentos de Inversiones: Teoría y Práctica</i>. Capítulo 1 y 4</p>	
<p>2° March 28th – April 3rd</p>	<p>1.3 Previous concepts 1.3.1 The utility function and its relation with risk and performance 1.3.2 Indifference curves and risk aversion 1.3.3 Calculate risk and yields of a portfolio of financial assets. 1.3.4 The effects of correlation and diversification. 1.3.5 The possible set and the efficient frontier.</p> <p>Lectura obligatoria: Alexander, G.; Sharpe, W. y Bailey, J. (2003). <i>Fundamentos de Inversiones: Teoría y Práctica</i>. Capítulo 7 y 8 Bodie, Z.; Kane, A. y Marcus, A. (2004) <i>Principios de inversiones</i> (5ta ed.). Capítulo 5 y 6</p>	
<p>3° April 4th- 10th</p>	<p>1.4 Optimal Portfolios 1.4.1 Characteristics of the Asset Free of Risk. 1.4.2 Loan and Indebtedness with the Asset Free of Risk 1.4.3 Sharpe Ratio and the optimal portfolio 1.4.4 Determine portfolios of minimum variance 1.4.5 Determine portfolios of maximum variance 1.4.6 Determine optimal portfolios by maximizing Sharpe ratio 1.4.7 Identifying portfolios for risk levels.</p>	

	<p>Lectura obligatoria:</p> <p>Alexander, G.; Sharpe, W. y Bailey, J. (2003). <i>Fundamentos de Inversiones: Teoría y Práctica</i>. Capítulo 9</p> <p>Bodie, Z.; Kane, A. y Marcus, A. (2004) <i>Principios de inversiones</i> (5ta ed.). Capítulo 5 y 6</p>	
<p>4°</p> <p>April 11th – 17th</p>	<p>1.5 Portfolio Modelling</p> <p>1.5.1 Deconstructing Risk: Market and Unique Risk</p> <p>1.5.2 Beta: Concept and Estimation</p> <p>1.5.3 Market Model</p> <p>1.5.4 Market Model vs Mean-Variance Model</p> <p>1.5.5 Multi factor risk Models</p>	<p>1st Practical Exam</p>
	<p>Lectura obligatoria:</p> <p>Hull, J. (2012). <i>Risk Management and Financial Institutions</i>. (3era ed.). Capítulo 9</p> <p>Ross, S.; Westerfield, R. y Jaffe, J. (2009). <i>Finanzas Corporativas</i> (8va ed.). Capítulo 11.</p> <p>Ruiz, G.; Jiménez, J, & Torres, J. (2000). <i>La Gestión del Riesgo Financiero</i>. (1era ed.). Capítulo 4.</p>	
<p>5°</p> <p>April 22nd – 27th</p>	<p>1.5.6 Practical Case.</p>	
<p>LEARNING UNIT II. FINANCIAL DERIVATIVES</p> <p>LEARNING OUTCOMES:</p> <ul style="list-style-type: none"> • 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. • 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. • Describe the strategies of speculation and hedging with options and characteristics of Greek letters to value options. • Identify exotic options as a second-generation instrument that are non-standard and are tailored to customer needs. • Describes financial swaps as hedging instruments and their application to the underlying assets. 		
<p>6°</p> <p>April 29th – May 4th</p>	<p>2.1 Derivatives - Forward Contracts</p> <p>2.1.1 Introduction to Derivatives: Types and Markets of Negotiation</p> <p>2.1.2 Forward contracts: Characteristics and Valuation</p>	
<p>7°</p> <p>May 6th -11th</p>	<p>COURSE MID TERM EXAM</p>	
<p>8°</p> <p>May 13th – 18th</p>	<p>MID TERM EXAMS WEEK</p>	

<p>9° May 20 – 25th</p>	<p>2.2 Forward Contracts (continued) 2.2.1 Forward Strategies: Hedging, Speculation, Arbitrage 2.2.2 Forward exchange rate 2.2.3 Interest rate forward - FRA 2.2.4 Applied case study</p>	
<p>10° May 27th – June 1st</p>	<p>2.3 Futures Contracts 2.3.1 Futures Contracts: Key Features 2.3.2 Coverage of future contract 2.3.3 The Clearing House 2.3.4 Maintenance of margins</p> <p>Lectura obligatoria: Hull, J. (2009). <i>Introducción a los Mercados de futuros y opciones</i>. (6ta ed.). Capítulo 7.</p>	
<p>11° June 3rd – 8th</p>	<p>Applied case study: Stock index futures, commodities, fixed income instruments</p> <p>Lectura obligatoria: Hull, J. (2009). <i>Introducción a los Mercados de futuros y opciones</i>. (6ta ed.). Capítulo 5 y 6.</p>	<p>2nd Practical Exam</p>
<p>12° June 10th- 15th</p>	<p>2.4 Options 2.4.1 Calls and Puts - Payoffs 2.4.2 American options and European options. 2.4.3 Options Market Characteristics</p> <p>Lectura obligatoria: Hull, J. (2009). <i>Introducción a los Mercados de futuros y opciones</i>. (6ta ed.). Capítulo 8, 9 y 10</p>	
<p>13° June 17th – 22nd</p>	<p>2.5 Options Valuation 2.5.1 Appreciation of a synthetic option - Arbitration 2.5.2 Valuation by Black-Scholes-Merton Model 2.5.3 Option's Greeks</p> <p>Lectura obligatoria: Hull, J. (2009). <i>Introducción a los Mercados de futuros y opciones</i>. (6ta ed.). Capítulo 11 Y 12</p>	
<p>14° June 24th - 29th</p>	<p>2.6 The Swap Contracts 2.6.1 Main Features 2.6.2 Types of Swap Contracts and Valuation 2.6.3 Applied case study: Plain Vanilla Swaps</p>	<p><u>DELIVERY</u> <u>FINAL</u> <u>GROUP</u> <u>ASSIGNMENT</u></p>

	Lectura obligatoria: Ross, S.; Westerfield, R. y Jaffe, J. (2009). <i>Finanzas Corporativas</i> (8va ed.). Capítulo 25.	
15° July 1st -6th	FINAL EXAM ELECTIVE COURSES	
16° July 8th – 13th	FINAL EXAMS OBLIGATORY COURSES	

VIII. References

- Bodie, Z.; Kane, A. y Marcus, A. (2004) *Principios de inversiones* (5ta ed). España: MacGraw Hill.
- Hull, J. (2009). *Introducción a los Mercados de futuros y opciones*. (6ta ed.). México: Editorial Pearson Educacion.
- Alexander, G.; Sharpe, W. y Bailey, J. (2003). *Fundamentos de Inversiones: Teoría y Práctica*. Editorial Pearson
- Court, E y Tarradellas, J. (2010). *Mercado de Capitales*. (1era ed.) México: Editorial Pearson Educación.
- Hull, J. (2012). *Risk Management and Financial Institutions*. (3era ed.). Wiley Finance.
- Ross, S.; Westerfield, R. y Jaffe, J. (2009). *Finanzas Corporativas* (8va ed.). México: Editorial Mc Graw Hill.
- Ruiz, G.; Jiménez, J, & Torres, J. (2000). *La Gestión del Riesgo Financiero*. (1era ed.). España: Ediciones Pirámide

IX. Lab Support

Laboratory is required throughout the cycle.
Support: Microsoft Office

X. Professors

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