

4MFCEZ18 - Investments and Capital Markets

Professor: Fabrice RIVA (English), Juan RAPOSO and Fabien-Antoine DUGARDIN (French)

Contact information:

fabrice.riva@dauphine.psl.eu

christine.lehingue@dauphine.psl.eu

Department: MSO

Semester: 1

Program: Master Finance

Course level: Graduate (M1)

Domain: Business

Teaching language: English

Number of in-class hours: 36

Number of course sessions: 12 + Exam

ECTS: 6

Course description and objectives

The objective of this course is to acquaint students with the concepts that are key to understand the functioning of capital (mostly equity) markets. The course is divided in five parts.

Part 1 is about the organization of trading. The structure of European Stock Exchanges has been considerably evolving over the last 20 years. These evolutions have been fostered by the progress made in information technologies and the changes in the European regulatory environment. Open-outcry markets have been progressively replaced by computer-assisted trading markets. Stocks can now be traded continuously, new trading protocols such as MTF (Multilateral Trading Facilities) have emerged, real-time remote access to markets has been made possible, high frequency trading has become more prevalent (latency times are now lower than 1 millisecond) while trading costs have experienced a dramatic decline. The financial intermediation profession has been evolving too. ISD (Investment Services Directive) constitutes a major change for the European regulatory environment. The concentration of orders on a single stock exchange is no longer mandatory and former national monopolistic stock exchanges must now compete with new entrants. Euronext market share has dropped from 100% to less than 50%. The stocks of major European companies can now be traded on new venues such as BATS-Chi X. To gain understanding in the recent trends that characterize the stock exchange industry it is important to understand where transaction costs (both explicit and implicit) and liquidity arise from. This will be the subject of the first part of the course with a particular focus on the evolution of the Paris stock exchange.

Part 2 covers the core concepts of return, risk and the optimization of the risk-return tradeoff through efficient portfolios. After introducing the definition of returns (discrete and continuous) and various risk measures (volatility and Value at Risk – VaR) for single assets, the course moves to the analysis of the joint behavior of assets when these are combined into portfolios. This will allow student to understand the benefits of diversification, which is a first step towards the computation of efficient portfolios through the Markowitz's program and the determination of asset efficient frontier.

Part 3 is about how investors account for risk in their investment decisions. This part shows how to characterize risk aversion and how risk aversion is accounted for in equilibrium. This part allows to establish the expression of the CAPM (Capital Asset Pricing Model) and, after highlighting some limitations of this model, to introduce multi-factor pricing models (essentially Fama and French 3-factor model).

Part 4 analyzes how information is incorporated into prices. The erratic behavior of stock prices may cast doubt about their actual meaning. Do stock prices convey valuable information? Is there an incentive for firms to be publicly-traded? On an informationally-efficient market, the expected gain from price forecasts is equal to 0. Is it the case? Although there exist so-called market anomalies (abnormal returns), further examination of abnormal returns shows that these arise as a form of compensation for hidden costs (transaction costs, information costs) and risks.

Part 5 is more practical as it illustrates how the concepts developed in parts 1 to 4 can be used by decision makers. We will focus on investment decision, financing decision and portfolio managers performance measurement.

Prerequisites

Though there will be brief reminders during the classes of the mathematical and statistical tools that are needed to understand the various concepts used in the course, students must have some prior knowledge of the following concepts: calculus (derivatives, Taylor expansion), probability (discrete and continuous variables, moments, covariance, correlation), statistics (sample estimators, linear regression), linear algebra (matrix operations) and optimization (Lagrangian)

Assignments and grading

- 1 mid-term exam (50%) and 1 final exam (50%)

The numerical grade distribution will dictate the final grade. The passing grade for a course is 10/20.

Class participation: Active class participation – this is what makes classes lively and instructive. Come on time and prepared. Class participation is based on quality of comments, not quantity.

Exam policy: In the exam, students will not be allowed to bring any document (except if allowed by the lecturer). Unexcused absences from exams or failure to submit cases will result in zero grades in the calculation of numerical averages. Exams are collected at the end of examination periods.

Course Outline

INTRODUCTION : FINANCIAL MARKETS. WHAT FOR?

PART 1 - STOCK EXCHANGES, ORGANIZATION OF TRADING AND TRADING COSTS

CHAPTER 1: MARKETS AND THEIR STRUCTURE

- 1. MARKET STRUCTURE AND REGULATION**
- 2. ORGANIZATION OF TRADES**
 - 1. AGENCY- (BROKER-) BASED MARKETS**
 - 1. CONTINUOUS MARKETS AND TYPES OF ORDERS**
 - 2. CALL AUCTION**
 - 2. ALTERNATIVES TO AGENCY BASED MARKETS**

CHAPITRE 2: LIQUIDITY AND TRANSACTION COSTS

- 1. BID-ASK SPREAD**
- 2. DEPTH AND MARKET IMPACT**
- 3. THEORY OF LIQUIDITY**

CHAPITRE 3: THE ROLE OF REGULATION AND TECHNOLOGY

- 1. MARKET FRAGMENTATION**
- 2. HIGH FREQUENCY TRADING**

PART 2 – RISK AND RETURN

CHAPTER 1: STOCK MARKET INDICES

- 1. INDICES: WHAT FOR?**
- 2. METHODOLOGY**
- 3. ETFs (EXCHANGE TRADED FUNDS)**

CHAPTER 2: RATE OF RETURN

- 1. DEFINITION**

2. ADJUSTED PRICES AND DIVIDENDS
3. DISCRETE AND CONTINUOUS RATES OF RETURN

CHAPTER 3: PROBABILITY DISTRIBUTION OF RATES OF RETURNS

1. REMINDER ON PROBABILITY
2. RATE OF RETURN AND NORMAL DISTRIBUTION
3. RISK MEASURES
 1. STANDARD DEVIATION AND VOLATILITY
 2. VALUE AT RISK (VAR)

CHAPTER 4: RETURN AND RISK OF A PORTFOLIO

1. REMINDER ON PROBABILITY
2. THE NOTION OF A PORTFOLIO
3. THE CASE OF 2 STOCKS
4. NAIVE DIVERSIFICATION
 1. EFFECTS OF DIVERSIFICATION
 2. MARKET MODEL AND DECOMPOSITION OF RISK

CHAPTER 5: PORTFOLIO THEORY

1. CHARACTERISATION OF MINIMUM VARIANCE PORTFOLIOS
2. CHARACTERISATION OF EFFICIENT PORTFOLIOS
3. GLOBAL MINIMUM VARIANCE PORTFOLIO
4. VAR OF A PORTFOLIO

PART 3 - ATTITUDE TOWARDS RISK, MARKET EQUILIBRIUM AND ASSET PRICING MODELS

CHAPTER 1: ATTITUDE TOWARDS RISK

1. SAINT PETERSBURG PARADOX
2. UTILITY FUNCTIONS, RISK AVERSION AND RISK PREMIUM
3. TYPICAL UTILITY FUNCTIONS
4. INDIFFERENCE CURVES AND PORTFOLIO CHOICE

CHAPTER 2: INTRODUCTION OF A RISK-FREE ASSET AND THE 2-FUND SEPARATION THEOREM

1. THE NOTION OF A RISK-FREE ASSET
2. EFFICIENT FRONTIER IN THE PRESENCE OF A RISK-FREE ASSET
3. TANGENCY PORTFOLIO
4. 2-FUND SEPARATION THEOREM

CHAPTER 3: CAPM

1. HYPOTHESES OF CAPM AND MARKET PORTFOLIO
2. DEVELOPING AND INTERPRETING CAPM

CHAPTER 4: BEYOND CAPM – FACTOR MODELS

1. TESTS OF CAPM AND ANOMALIES
2. FAMA AND FRENCH (1992) 3-FACTOR MODEL

PART 4 – MARKET EFFICIENCY

CHAPTER 1: THE NOTION OF INFORMATIONAL EFFICIENCY

1. IMPORTANCE OF INFORMATIONAL EFFICIENCY
2. DEFINITIONS OF EFFICIENCY

CHAPTER 2: SOURCES OF EFFICIENCY

1. CHALLENGER EXPLOSION AND MARKET REACTION
2. HOW DO MARKETS BECOME EFFICIENT?

3. INVESTORS AND EFFICIENCY

CHAPTER 3: CHARACTERISATION OF EFFICIENT PRICES

CHAPTER 4: 3 FORMS OF EFFICIENCY

1. **WEAK FORM EFFICIENCY**
2. **SEMI-STRONG FORM EFFICIENCY**
3. **STRONG FORM EFFICIENCY**

CHAPTER 5: TESTS OF EFFICIENCY AND THEIR RESULTS

1. **WEAK FORM EFFICIENCY**
2. **SEMI-STRONG FORM EFFICIENCY**
3. **STRONG FORM EFFICIENCY**

CHAPTER 6: ANOMALIES

1. **DEFINITION AND IMPORTANCE**
2. **THE JOINT HYPOTHESIS PROBLEM**
3. **INTERPRETING ANOMALIES**

CHAPTER 7: EFFICIENCY AND BEHAVIORAL FINANCE

1. **OVERREACTION AND UNDERREACTION**
2. **WHAT CAN WE POSSIBLY LEARN FROM BEHAVIORAL FINANCE?**
3. **OVERREACTION AND UNDERREACTION: FAMA'S (1998) RESPONSE**

CHAPTER 8: CONCLUSION

PART 5 – APPLICATIONS OF ASSET PRICING MODELS

CHAPTER 1: PORTFOLIO ALLOCATION

1. **STOCK PICKING**
2. **TACTICAL ASSET ALLOCATION**

CHAPTER 2: MEASURING FUND MANAGERS' PERFORMANCE

1. **TREYNOR RATIO**
2. **SHARPE RATIO**
3. **JENSEN'S ALPHA**
4. **LIMITATIONS OF CLASSICAL PERFORMANCE MEASURES**
5. **FUND MANAGERS' EFFECTIVE PERFORMANCE**

CHAPTER 3: COST OF CAPITAL AND INVESTMENT DECISION

1. **CAPM AND FIRM VALUE**
2. **MODIGLIANI AND MILLER (1958) PROPOSITIONS**
3. **INVESTMENT DECISIONS**

Bibliography

- Berck K. and P. De Marzo, "Corporate Finance", 4th edition, Pearson

MyCourse

This course is on MyCourse: **Yes**

Academic integrity

Be aware of the rules in Université Paris Dauphine about plagiarism and cheating during exams. All work turned in for this course must be your own work, or that of your own group. Working as part of a group implies that you are an active participant and fully contributed to the output produced by that group.

Academic calendar

Dates (Monday/Sunday)		M1 droit / SG / S.ECO/S.SSO **
02/09/19	09/08/19	
09/09/19	15/09/19	1
16/09/19	22/09/19	2
23/09/19	29/09/19	3
30/09/19	06/10/19	4
07/10/19	13/10/19	5
14/10/19	20/10/19	6
21/10/19	27/10/19	7
28/10/19	03/11/19	Holidays
04/11/19	10/11/19	8
11/11/19	17/11/19	9
18/11/19	24/11/19	10
25/11/19	01/12/19	11
02/12/19	08/12/19	12
09/12/19	15/12/19	Review w.
16/12/19	22/12/19	Exams
23/12/19	29/12/19	Holidays
30/12/19	05/01/20	
06/01/20	12/01/20	
13/01/20	19/01/20	