

Environmental Finance

Number of hours: 24h

Elective course

Instructors:

Romain Féraud

Title/Current position: CE Trading, JPM

Mini-biography (3-4 lines only): Previously Head of Commodity Group at SGAM/BAM

Marius-Christian Frunza

Title/Current position: Head of Structuring, Sagacarbon

Previously 4 years experience in Financial Advisory

Course objectives: The course has 3 objectives:

1. To understand the markets with an environmental specificity
2. To apprehend the particular behaviour
3. To acknowledge the financial products existing in these markets

Course outline:

1. Stochastic model for environmental finance (3h)

- Jumps and mean reverse process
- Generalized hyperbolic distributions
- GARCH and GARCH-like processes

2. Carbon Finance I (2h)

- Upon the Kyoto mechanism and the carbon market
- Carbon market econometrics
- Relationship with the energy and oil & gas market

3. Carbon Finance II (2h)

- Financial products on carbon markets
- Carbon market econometrics

4. Agricultural commodities (3h)

- Markets overview and developments
- Financial products on “soft” markets
- Interest for the agricultural companies

5. Forestry and Environmental infrastructures (3h)

- Overview and link with the commodities market
- Upon real options in price modelling of forestry
- Interest for investors

6. Weather derivatives (3h)

- Overview and modelling of weather underlying (temperature, rain, wind, snow)

- Interest for industries and financial institutions
- Link with the energy and gas markets
- Financial products based on weather derivatives
- Pricing and hedging of weather derivatives

7. Cat bond markets (6h) – R. Féraud

CONTENTS

Introduction

1. CAT bond market présentation

- 1.1. Définition
- 1.2. Legal framework
- 1.3. Characteristics
- 1.4. Risk modelisation and « triggers »

2. CAT bond market analysis

- 2.1. Recent developments
- 2.2. Investor benefits
- 2.3. Issuer benefits

3. CAT bond developments

- 3.1. Investor requests
- 3.2. CAT bond market limits
- 3.3. CAT bond market forecasts

Conclusion

8. Environmental investment strategies (2h)

- Environmental appetite of investor
- How to mitigate the environmental drift with financial investments?
- Investment support for environmental sustainability

References:

1. Options, futures et autres dérivés, John Hull, 2007
2. Energy and power risk management, Alexander Eydeland, 2003
3. Swiss Ré and Munich Ré Research

Assessment: Project based assessment. Students will work in small groups on a research topic