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 ad 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.Caracteristics
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