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LECTURES ON COMMODITY DERIVATIVES MARKETS
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PROGRAM

1st session. The development of derivative markets

2nd session. Normal backwardation theory

3rd session. The theory of storage

4th session. The term structure of commodity prices: dynamic behaviour and models

5th session. Applications of term structure models: investment and dynamic hedging

6th session. Recent developments in research on commodity markets

1ST SESSION. THE DEVELOPMENT OF DERIVATIVE MARKETS

Focusing on the development of derivative markets, this session aims to lead to a complete panorama of existing markets, for all underlying assets. As commodity markets where the first to appear, they will take an important part of the presentation.

During this session, we will:

- remind of the key dates concerning the history of derivative markets
- precise how important commodity derivatives markets are today, compared to other derivative markets
- talk about the frontier between over-the-counter and organized markets: the distinction between these two forms of organization tends to disappear, especially in commodity markets, and this transformation makes it more difficult to understand the functioning of derivative markets.

For future research works, this 1st session should be important for two reasons:

- even if derivative commodity markets are becoming more important since a few years (with the rise of natural resources prices), they still have a modest place in the world of financial markets. Consequently, a lot of innovations are first developed on major underlying assets (like interest rates or currencies) in the financial field; latter, they are applied to commodity markets.
- to find data on commodity markets, it is necessary to know how these markets are organized. Today, with the convergence between over-the-counter and organized markets and with the apparition of new commodity contracts, finding the good data is less easy.

2ND AND 3RD SESSIONS. NORMAL BACKWARDATION AND STORAGE THEORIES

The normal backwardation and the storage theories are usually referred to as the “traditional” theories of commodities futures prices, because they were the first to explain the determination of futures prices and the relationship between spot and futures prices.

Despite the fact that they were proposed in the first half of the twentieth century, these theories are still relevant today, because:

- the normal backwardation theory was never truly validated nor rejected
- the storage theory is quite systematically used as a reference for research papers on commodity prices

For these two theories (and sessions), I propose the following organization:

- Presentation of the theory
- Underlying hypotheses
- Limits addressed to the theory and subsequent developments
- Empirical tests and validation of the theory.

4TH SESSION. THE TERM STRUCTURE OF COMMODITY PRICES: DYNAMIC BEHAVIOUR AND MODELS

This session aims to show:

- how traditional theories (normal backwardation and storage theories) have influenced the representation of the term structure of commodity prices
- how to compare the term structure of interest rates and the term structure of commodity prices (the comparison will be centred on the dynamic behaviour of the curves and on term structure models)
- the most important models which were developed in the field of commodity markets, and the difficulties associated with these models
- the empirical results obtained with term structure models of commodity prices

5TH SESSION. APPLICATIONS OF TERM STRUCTURE MODELS: INVESTMENT AND DYNAMIC HEDGING

This session presents the two mains applications of term structure models of commodity prices. In both cases, the derivatives instruments are used for long-term applications in the industrial and/or commercial field.

These two applications are the following:

- the analysis of investment operations through the real options theory; today, this theory is quite extensively used in the petroleum industry, in order to value undeveloped fields. It is also useful for the management of mines;
- dynamic hedging strategies; these strategies can be analyzed through the Metallgesellschaft case. In 1994, this firm has tried to cover long-term (5 to 10 years) commitments on the physical market with short-term (two months) futures contracts.

6TH SESSION. RECENT DEVELOPMENTS IN RESEARCH ON COMMODITY MARKETS

This session is still under preparation.

A few possibilities:

- researches on the impact of derivatives markets on the physical markets

- researches focusing on the simultaneous management of several risk : currency risk, commodity prices risk, technological risk, etc