

Writing the Future

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The future must be written, not predicted

The derivatives market is a technology for
writing the future,
not for predicting it

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**THE MEDIUM
OF
CONTINGENCY**

An Inverse View of the Market



palgrave
macmillan

Black Swan vs. Blank Swan

- The radically-emerging event is neither probable nor improbable
- It escapes the category of prevision altogether
- It is a case of *change of context*

Contexts or ranges of possibilities

- The case of incompatible observables in quantum mechanics
- The case of recalibration of derivative pricing models
- Bergson, Meillassoux
- Pierre Menard, author of the *Quichotte*

Objection: measure theory

- The *random outcome*, whether conceivable or not, is not measurable anyway
- Only its effect is, or the event to which it contributes: $\omega \in \{\text{S\&P 500} = 0\}$
- The random outcome is only a *concrete random sample*

Concrete vs. abstract

- The category of point of view and abstraction
- Abstract probability theory only retains a certain *characteristic* of the random sample and cannot treat it in its absolute concreteness
- Continuity and infinity

Recalibration

- For the formalist, the *sample space* is only here (implicitly) to add new sources of randomness (stochastic volatility, jumps, ...)
- Is the derivatives market then an “absolute concrete” that is abstracted away by the representation of the price of the underlying asset as a random variable?

Recalibration

- “Possibly no aspect of derivatives trading has a deeper-reaching impact on pricing than the joint practices of out-of-model hedging and model recalibration.”
- “Similarly important, universal and difficult to justify theoretically is the practice of recalibrating a model to the current market plain-vanilla prices.”

Riccardo Rebonato

Towards a new formalism

- Probability theory not only needs to augment the *sample space* with an *event space*
- It needs to augment itself with *the whole derivatives market*
- The “total state” of the market is not a total of states

Abstract probability theory needs to re-establish contact with reality and with the massive randomness of the concrete world – only it will do so from the opposite end to the *sample space*.

Trading vs. states of the world

States of the world

- Abstract states of the world
- Derivatives are written in advance
- The market “selects” the martingale pricing measure and completes itself (!)

Trading

- The trading pit is the only concrete
- Distinction between contingent payoff and contingent claim (Harrison & Pliska, 1981)
- *Invention of writing* of the contingent claims: they are never redundant and the market is never complete

The market as writing

- A succession of writings, each one of which is a radical step outside the previous context
- *Certainty* of replication of the contingent payoff
- *Event* of writing of the contingent claim

Price surface vs. time series

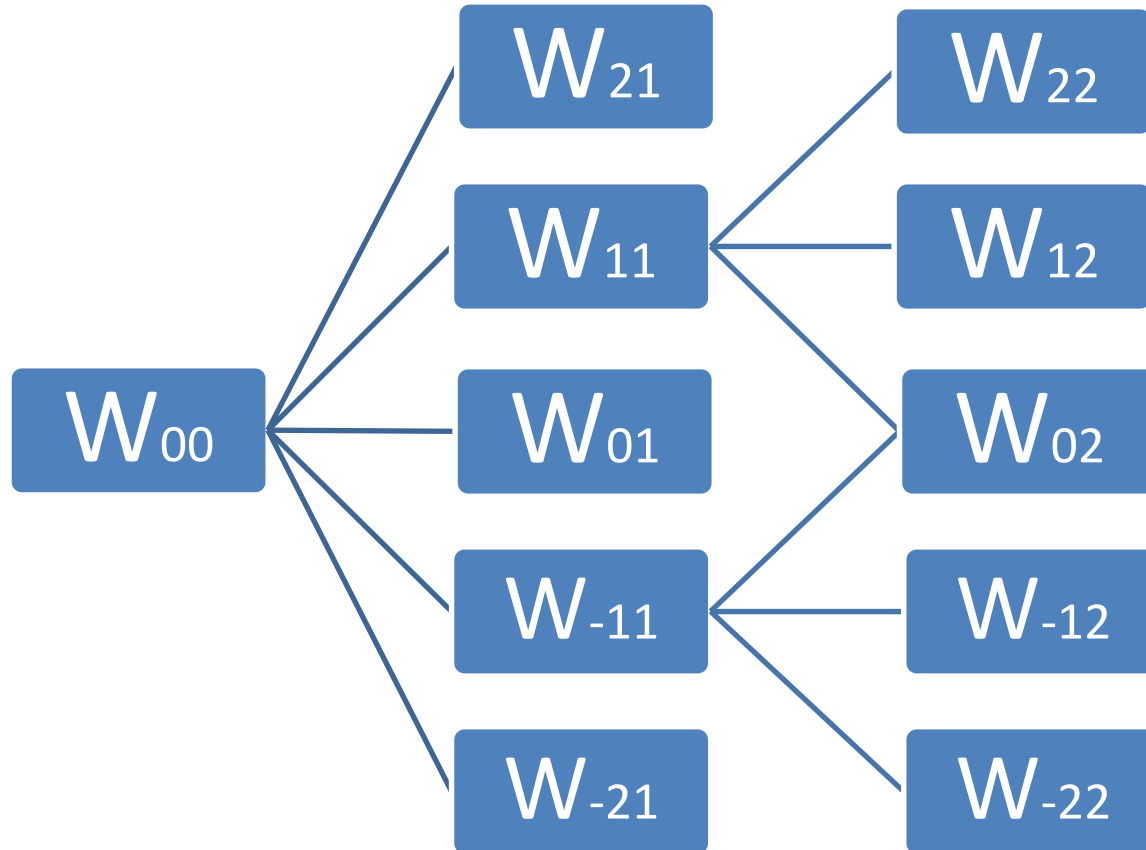
- The formalism completes itself with the void that is outside the formalism
- The contingent claims are not redundant because they don't exist
- Prices have never been identified with valuations and the price surface is an alternative exit to time

States of the world

Time 0

Time 1

Time 2



Marks on paper

