



Elie Ayache

# Being and the Market

## Thinking caps on for the first of a two part article

Dear Professor Wood,

First I have to thank you for the great discovery that I made through your work, or rather, for the opportunity you offered me to put words on something I was more or less experiencing on my own: the performative imperative. Indeed, I first became acquainted with your themes through your book, *Thinking After Heidegger*<sup>1</sup>, while I was myself engaged in the process of writing a book that I hope will be soon published in France.

So allow me to introduce myself. I was trained as an engineer and graduated from École Polytechnique de Paris in 1987. I then got involved in the financial markets, and exercised an activity of option trader from 1987 until 1996. Those were the times (October crash of 1987) when the quantitative models of option pricing (pioneered by Black & Scholes in 1973) were starting to get widely used on the trading desks and the listed exchanges, and banks were big in hiring engineers. The general idea was that option trading involved more than one dimension of variability and risk (as opposed to the spot market where only one variable could move), convexity, and time decay. The banks thought they would hire brains familiar with partial derivatives ...

In 1996, I quit the trading floor and engaged in the more reflective activity of thinking about the theoretical models in finance, and developing such models. My experience on the floor had also had the consequence of turning me to philosophy, as it left me asking big questions such as: What was really happening out there in the market? How could the present spot market trade on future predictions, therefore embed some sort of probabilistic model presupposing a more or less stable view of the states of the world, yet change its trading and



its view of the world every second, under no apparent rule other than a process of pure actualities? Could the market ever be framed by representational thinking? Or could it only be “thought about” performatively?

From 1998 until today I pursued two activities in parallel: further developing the theory and the applied models of quantitative finance in a software company I had founded, and writing a PhD dissertation at la

Sorbonne. I had indeed enrolled in a philosophy program, starting with philosophy of science, then philosophy of language (Wittgenstein); then I became interested in objectivity and objective knowledge (Carnap, Cassirer) and the reinterpretation of the logical positivists as philosophers in the semantic tradition (J. Alberto Coffa, Michael Friedman).

With Cassirer I then diverged to the “world of expression,” leaving behind the “world of cause” and my writing started to become reflexive. My “thesis” soon turned into a reflection on philosophy itself, and the “art of writing philosophical theses.” I could no longer escape Heidegger, or Maurice Blanchot or Paul de Man. This second part of my dissertation (unacceptable to my original advisor) later became the book that will be published soon.

This is what brings me to you. Indeed, in this book I investigate themes that relate thinking, temporality and writing with one another. (The title of the book is *L'Écriture Postérieure*). Blanchot provides me with the hinge when he writes: “... in a literary work, one can express thoughts as difficult and of as abstract form as in a philosophical essay, but only on the condition that they are not yet thoughts. This “not yet” is literature itself, a “not yet” that, just as it is, is accomplishment and perfection.” I then immediately fear that Heidegger’s slogan, according to

which “Most thought-provoking in our thought-provoking time is that we are still not thinking” might interfere with my desire that writing, rather than thinking, should be what is most thought-provoking (as it is not yet thought).

I feared that Heidegger’s *What Is Called Thinking?* (which I was discovering as I was writing my book) might eclipse both my “what is called writ-

ing?” and my general idea that writing really came after thinking, that it was posterior (therefore superior) to thinking, that it exceeded thinking and opened a proper space beyond thinking. When I later discovered the title of your book, *Thinking After Heidegger*, it almost struck me like the magic formula (or magic medicine) I was looking for to get out of my predicament. It gave me the answer of performativity and intransitive writing and simultaneously introduced me to that other original writer whom I was very cautiously evading all along, Derrida.

I finally completed my book without one word about Derrida but I was certainly more than eager to read him, or about him, at last. I absorbed what you wrote about him in your book and really spent all of last year discovering other sources such as Rodolphe Gasché, Christopher Norris, and the books that Derrida himself had written in the late sixties and early seventies.

At about the same time, I started writing a “philosophy column” in an avant-garde financial magazine. I was back to my philosophical questioning of the market and of option pricing. A parallel emerges between writing (or the impossibility of writing) and the market. Indeed, I generalize the philosophical lesson from Quantum Mechanics according to which the algorithm producing the quantum probabilities can always be written, provided the context of experiment is first determined (provided it is first determined whether, for instance, we are measuring position, or measuring momentum, etc.). When this context is not yet determined, or in other words, when it is not yet settled whether the states of the world are going to be the eigenvectors of the position-observable, or the momentum-observable, etc., the only thing we can write is the wave function with its weird “interference of probability” term, and classical probability theory, with the classical passage between the possible and the actual, does not apply.

In other words, the representational stage of thinking (where the world is clearly split in perfectly representable states of the world) presupposes that the context of experiment should be determined. However, the preliminary stage where such a context is determined can only be performative – it is the stage where, I, the experimenter, actually resolve to perform this experiment – and as such it escapes theoretical representation by necessity. The market strikes me as the generalization of this lesson, because I tend to think of it, in the last analysis, as a limiting stochastic process where the “context of experi-

ment” is so to speak modified at every instant. The general philosophical question therefore becomes: How can I write (represent) a process where each instance is an actual instance of change of context, i.e. a performative instance that exceeds representation? How I can possibly write such a process of “strong actualities”? How can I write the market?

Derrida must have been really on my mind throughout this period, for themes from Derrida quickly permeated my text, and the rest of my column very soon became unsuitable for the financial magazine. The idea here is that, since the market essentially poses a difficulty of writing, I might perhaps “define” the market as the difficulty of writing. The writing of Derrida about writing (or rather, about arche-writing, or *différance*, or the trace, etc.) on the other hand, is another instance of the difficulty of writing (perhaps the exemplary instance), for how can it apply to itself what it has to say (or write) about writing? And how can it not apply it to itself?

It soon becomes apparent, in the process of my writing, that the market and the difficulty of writing are two general themes (more general than what we normally understand by the “market” and by “writing”) and perhaps not so foreign to each other. And perhaps the only way the market can be, in the end, and be written, in the end, is that it be written in a text like mine which writes the market at the same time as it writes about the market, and which writes about the difficulty of writing, or the difficulty of writing about writing (i.e. which reads and writes about Derrida) at the same time as it experiences the difficulty of writing.

I take the liberty to attach to this mail an excerpt from my text, and to seek your advice as to what the fate of this kind of writing could be. Could it be published? To what audience and what scope? Does it even make sense? I also happen to have had the fortune of recently discovering your older book, *The Deconstruction of Time*, in its newest edition. I am currently studying it, and I am very excited to read that the way after Derrida, as well as a non metaphysical notion of temporality which would escape Derrida’s blanket criticism, might perhaps lie in a new style of (philosophical) writing.

Looking forward to hearing from you or reading you soon, with my best regards and admiration,

Elie Ayache

## The unwritable process of “strong actualities”

My letter to David Wood is still awaiting an

answer. By itself, it certainly says the philosophical ambition I am harboring for quantitative finance and the altitude at which I desire to establish a link between the market and the greatest philosophical themes – a link that traverses the reflexive activity of writing. As a word of warning to the readers who will no doubt sense a change of tone since my last column, I will say that the philosophical stakes have actually been raised: *Perhaps the market, and derivative pricing, can now teach us something big about Philosophy.*

Recall that we had reached a point, in the previous column, where we could not *know* – let alone write – the process of “strong actualities” which ultimately governed the change of contexts, for the reason that representational knowledge could only make sense *within* a determinate context. Recall that Michel Bitbol is the philosopher of science who holds that Quantum Mechanics is a meta-contextual “theory of predictions” – or a probability calculus generalized to the situation where alternative experimental contexts do not commute.<sup>2</sup> Also recall that Nassim Taleb is the philosopher of science who believes in essential uncertainty rather than essential actuality, and in the end of knowledge rather than the limit of knowledge.<sup>3</sup>

We had concluded the previous column with the question: “Are we not finally reaching the ‘epistemology’ we have announced earlier: the epistemology where probability is eliminated and where actuality is the only thing that counts?” Notice that this new arrival seems, on the face of it, to agree with Taleb back again. In our new epistemology, we, too, seem to want to *focus only on what we do not know*. Only it is for stronger reasons than Taleb. The reason we cannot know the process of strong actualities is essential actuality, not essential uncertainty. And this is because the whole representational schema, involving *both* old knowledge and essential uncertainty, ends before we get even started with our notion of strong actuality. Also recall that we had deduced *new knowledge* – the knowledge of the trader at the exit of *Dynamic Hedging* and *Know Your Weapon*<sup>4</sup> – as the form of performative (not representational) knowledge suitable for actual trading. Since Taleb was speaking as a

trader, not as a philosopher, when he said “he focused principally on what he did not know” and that his fund “had models that were far more robust than those then existing in the world of quantitative finance<sup>5</sup>,” we wish to give him the benefit of the doubt and assume it is our essential actuality that he had in mind when he spoke thus, not his essential uncertainty, and that the “far more robust models” in question are precisely the models that we believe must include, in our new epistemology, the living trader as indispensable component.

The reason why the non-existence of the data generating process (or random generator) is

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stronger in our case than in Taleb’s essential uncertainty is that to try to represent a “process of strong actualities” is a philosophical impossibility. Rather than blocking epistemological or ontological access to the random generator, we block the weakest form of access, which is representational access.<sup>6</sup> To be sure, the successive contexts and the successive outcomes occurring within a context will look like a time series from the outside. Only this “outside” is the absolute outside. Any attempt at writing a stochastic process for this time series will have to take place relative to a certain context – if only the context of pausing for a minute and wishing to write a stochastic process – therefore will bounce back to the “inside.”

### Writing the process and the process of writing

And we wonder: Who wants to spend time on the outside anyway? Who wants to have anything to do with this “no man’s land”? Enough

for today’s epistemological lesson if we learn that Quantum Mechanics is a meta-contextual probability theory and that something extra-theoretical, something performative not representational, has to step in and pick up the particular context in the particular quantum measurement, so why worry about, or even try to imagine, something like the time series of these distinguished contexts? While everybody cares, in Quantum Mechanics, about the statistics of measurement of the spatial position or the momentum of a given particle or system of particles, about jointly measurable variables and canonically conjugate variables, no one really cares about the sta-

tistics of the activity of the quantum laboratory as a whole: about the frequency with which the experimenters decide to conduct an experiment to measure the position of the particle or an experiment to measure its momentum, or the frequency with which they change the object system altogether and look at a collection of particles instead, etc. No one has ever thought, in Quantum Mechanics, of writing a stochastic process for the whole “process of change” that was taking place *outside* – and this ‘outside’ not only involves now the change of the context of quantum measurement, but also the change of the whole context of research, the change of the general topic the laboratory are investigating, the change of their list of priorities, perhaps the change of the head of the laboratory himself or at least his change of mind, even the change of the nature of grants donated to that laboratory and of the “sociology of the science” as a whole. All these matters have to remain outside.

True, one of the big philosophical advances of

Quantum Mechanics has precisely consisted in relativizing the distinction between an ‘inside’ and an ‘outside,’ and in insisting that the metatheory should be made part of the theory. For instance, the classical conception of the measuring instrument as a passive component of the scientific epistemology, supposed to illuminate and reveal a separable and perfectly independent object, was completely abandoned. Still, the other pragmatic factors not directly related to the elementary particle, such as the decision to conduct this or that experiment, to create this or that laboratory, to build this or that center of research, had to remain outside, otherwise how could we ultimately feel distant enough from our topic, and confident enough about it, to begin to write about it?

If the decision process leading to this particular research program, and implying this particular list of priorities and the corresponding sequence of experiments, could be internalized in turn and represented by means of a stochastic process – perhaps we are attempting to write the global wave function of all the quantum physical entities residing in the laboratory, including the brain of the head of the laboratory, and perhaps the whole history path of the laboratory can be picked up as a particular eigenstate of that global wave function – then something more external could not. The end of writing and the end of theoretical representation just have to take place somewhere. Ultimately, the decision to *write papers* about the whole quantum measurement problem, like Bitbol’s, and to propose a dissolution of the problem by way of the meta-contextual theory of probability, has to be taken in isolation and to stand for our ultimate, un-recuperable, actuality.

We reach here a kind of rhetorical limit (which may even be stronger than the representational limit). A paper like Bitbol’s is designed to introduce the problem of measurement in Quantum Mechanics (dating back its roots to the inception of probability theory itself and to the philosophical-historical struggle between primary qualities and secondary qualities), then to build up the philosophical tension, and finally to resolve that tension with the unveiling of the meta-contextual formalism and the correspon-



ding dissolving result. A paper like Bitbol's is supposed to deliver the "last word" in the *context of the philosophy* of Quantum Mechanics. Therefore, the context of its writing is rhetorically the ultimate context. It cannot itself get re-embedded into a "writing process." *Writing a stochastic process* (as we have many times used that expression) has to be distinguished from *writing a philosophical paper*, supposed to dissolve the given problem. From our own writing perspective, the first is arch-representational and the second is arch-performative.

### Intransitive writing and the moment of thinking

Bitbol's writing is the last *actuality* and the last news in the philosophy of Quantum Mechanics. We cannot admit that it may be "re-processed" (turned into a process) and "re-written" (recuperated by representational writing) in turn, unless we enlarge our perspective and believe in an even more general "process of writing actualities," an instance of which could be Bitbol's paper and another – why not? – the paper we are in the process of writing *right now* ourselves. But then the context of writing of Bitbol's paper (a step towards a transcendental deduction of Quantum Mechanics) will be seen to be so incompatible with ours (a critique of the existing smile models, which has digressed into the meta-epistemology of quantitative finance), that you will be left wondering what kind of "intellectual preparation" (to borrow the quantum mechanical term) can initially justify that we should envisage for it such alternative and diverging contexts. The absolute disposition of mind *to write* meta-epistemologically and meta-contextually perhaps? To write intransitively,<sup>7</sup> that is?

Could it be that there must exist, behind the "last actuality" we mentioned (the actuality of writing *about* the problem of quantum measurement or *about* the central problem of risk management), an actuality more ultimate and more *actual* still? Something like the last imaginable degree on the performative scale of writing which would break with the last vestige of representation – for in writing the last word about Quantum Mechanics or the definitive smile story, we are still *representing* something; we are

still representing something like a *last word* and something like a final story; we are still representing the traditional rhetorical schema involving a) a philosophical topic that first faces us, b) our rhetorical engagement with that topic and finally c) the invasion and the exhaustion of that topic. Could it be that there must exist something more radically actual and imperative, something that no longer stages the separation between a subject matter and the writing subject who takes it up, something purely performative that David Wood describes, in *Thinking After Heidegger*, as the "the moment at which a break with representation occurs, at which we cease to speak about, and begin to speak, we cease to write about, and begin to write<sup>8</sup>"?

In Heidegger, such a break and such an enactment mark the *moment of thinking* – the thinking of Being as that which is "structurally withdrawn" and which constantly escapes the recuperative attempts of representation. Being as the meaning of "going to the encounter of another thinker," as the "entering into what is unthought in a thinker's thought<sup>9</sup>", or in other words, Being as the entering of the open dimension of the other thinker's own encounter with Being.

Perhaps there is just *thought* as the one single *preparation* lying behind all the different contexts of rhetorical disclosure, incompatible with each other as they may be. And perhaps the most general *state* of mind (to borrow the quantum mechanical term) that we could be contemplating behind Bitbol's paper and ours, behind the writing context actualizing his meta-epistemological thinking in Quantum Mechanics and the writing context actualizing our own meta-epistemological thinking in quantitative finance, is just that *we are thinking*.

This would be taking the last step on the reflective scale, first initiated by Taleb then completed by us, one step further still. This would be turning the reflective mirror towards (or shall I say against?) thinking itself, and instead of asking: "What is probability, and what is *thinking about* probability?" this would be committing to the last intransitive step and asking with Heidegger: "What is called thinking?" Maybe the only question admitting of no answer but purely

performative, as we cannot imagine having thought about thinking in a representational fashion – as if the representation of our thinking were independently available to us – and having *fully* thought. Only *through* thinking are we fully able to answer the question about thinking. But thinking about what exactly? Any attempt at populating the thinking of thinking with a proper object of thought will miss the point. This is why Heidegger has proposed the *un-thought* as the solution of this fixed-point problem. "Most thought-provoking in our thought-provoking time, he says, is that *we are still not thinking*."

### FOOTNOTES AND REFERENCES

- 1 David Wood, *Thinking After Heidegger*, Polity Press, 2002
- 2 Cf. Michel Bitbol, "Some steps towards a transcendental deduction of quantum mechanics," in *Philosophia Naturalis*. 35. 253-280. 1998
- 3 Cf. Nassim Taleb, *Dynamic Hedging: Managing Vanilla and Exotic Options*, John Wiley & Sons, New York 1997, *Foiled by Randomness: The Hidden Role of Chance in the Markets and Life*, 2nd edition, Thomson Texere, New York and London 2004.
- 4 Espen Haug, "Know Your Weapon," *Wilmott* magazine, May/June 2003.
- 5 "Chasing Tail," *Wilmott* magazine, May 2001.
- 6 'Weaker' has here to be understood in the mathematical sense of the 'weakening of a condition.' Since we manage to block the weakest form of access, our blockade is the strongest.
- 7 We borrow this expression from Roland Barthes and from his formula that writing is an intransitive act, a theme that he developed in pieces such as "To Write: An Intransitive Verb" (1966) and which culminated in *The Pleasure of the Text* (1973). As Steve Evans, a commentator of Barthes, writes: "By the 'intransitivity' of writing, Barthes means to invoke a condition in which the writing subject disperses into an irretrievable contemporaneity with their practice: "the modern *scriptor* is born at the same time as his text," Barthes writes in "The Death of the Author," "he is not furnished with a being which precedes or exceeds his writing, he is not the subject of which his book would be the predicate; there is no time other than that of the speech-act, and every text is written eternally here and now." [*Poetry Project Newsletter* February/March 2000: 9-12]
- 8 op. cit. p. 170.
- 9 Martin Heidegger, *What Is Called Thinking?*, tr. J. Glenn Gray, Harper & Row Publishers New York 1968, p. 77.