

# Using the future in the present: risk and surprise in financial markets

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## ***Circularity in economics***

The financial crisis still involving us has many distressing aspects. On the theoretical level, however, it is also a great opportunity: not only because it gave rise to a new interest in finance and its enigmas, but especially because of the stimuli it offers to sociological reflection. New problems appeared, which must be studied and analyzed, and there is apparently a new openness to consider approaches different from those of classical economics, which during the crisis have proved if not insufficient, in any case not able to offer an orientation.

The success of the studies on performativity and of the social studies of finance (McKenzie 2006; Callon/Millo/Mouniesa 2007; MacKenzie/Mouniesa/Siu 2007; MacKenzie 2009), which offered an alternative reading of the course that led to the crisis and of the peculiar blindness of economic theories, is undoubtedly linked to this condition. It is a however a sobering success. On the one hand because the attitude of markets did not change much: after the most acute shock related to the crisis, and despite a continuing state of instability, the mode of operation remained more or less the same. Despite some doubts, the ones who followed models go on following models (often the same), as if one had not yet understood whether and where they are wrong or the confidence in models is wrong - and there are no convincing alternatives. Negative results are often attributed to undefined categories as “greed” – an accusation that in finance does not explain anything. On the other hand the scope of the concept of performativity remained limited: it still lacks a connection both with general sociological theory (the Actor Network Theory it refers to remains fairly isolated) and with other voices raising similar criticism inside and outside economics<sup>1</sup>.

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<sup>1</sup> Also because of this, probably, they curiously still maintain that performativity is limited to theory (“do economists make markets?”), without extending it to the circularity and reflexivity of economic action in general. They

This extension, however, would be possible, and presumably very useful. The strength of performativity lies after all in having highlighted the component of circularity, or reflexivity, which is hardly without precedents - particularly in sociology, which not only has always known it (think only of Mead or Simmel) but also learned to study its practical consequences for the construction of the world and of society – in a positive (social constructivism since Berger and Luckman) as well as in a negative sense (such as Merton's self-defeating prophecies). Many other examples could be mentioned; the awareness of circularity is deeply rooted in the discipline and in some cases is precisely its point of departure and its constant reference. The theory of social systems, in Niklas Luhmann's version, grounds the social on the basic condition of double contingency ("I do what you want if you do what I want": Luhmann 1984: 148ss. - in reference to Parsons 1951: 16) and on the assumption of autology (Luhmann 1997: 16ff. - the awareness that theory is inevitably part of the world it observes and cannot be placed outside it: its own observation has consequences on its object, and it should be able to consider them). The tools developed to take account of it, primarily the theory of second order observation<sup>2</sup>, can be seen without forcing as integrations or developments of the idea of performativity – in the broader context of a general theory of society<sup>3</sup>.

Even outside sociology there are many trends going in the same direction: voices external to economics such as Benoît Mandelbrot, but also internal theories (often even awarded with the Nobel) that emphasize the operational effects of circularity. Asymmetric information, moral hazard, various kinds of market failures, can all be read in a performative key (communication affects the world it talks about), and one cannot help looking for connections with the corresponding theories, by now equipped with an established tradition: information economics (starting from the Austrian school, and then Stiegler, Akerlof, Stiglitz) or the reflections on uncertainty (in the various versions of Simon, Knight, Shackle or Davidson).

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rather introduce doubtful distinctions like confined economists and economists in the wild (Callon 2007: 336; Callon Çalışkan/2009).

<sup>2</sup> Observation of observers, who themselves observe the world and other observers with their worlds, which include also the first observer: von Foerster (1981).

<sup>3</sup> ANT is not interested in a theory of society, and has its reasons. This however has costs: the reference to society allows for example to show that similar mechanisms are at work in different fields of society - performativity in economics reminds to the reference to public opinion in the political sphere, to the "newsmaking" of mass media, to positive law, to formulas like "learning to learn" in education, to the very use of "performances" in art, and many others. One can then make comparisons and see the differences, or even study the structural factors underlying this type of orientation in modern society.

## ***Money and time***

How can we go a step further, inserting performativity into a broader context? And how can we usefully combine so different approaches and traditions? Again, the crisis can be an opportunity, because it powerfully brought to the fore a classical topic of economic reflection, in a new and particularly dramatic form: *time* and its significance for the economy.

That the reference to time is crucial to economy is obvious to everyone. Often this awareness takes the form of a critique of the static attitude of the discipline and its inability to take account of dynamic elements, transformation and innovation. Time appears as an additional complexity, a further factor requiring more difficult and complicated theories. Other authors, however, evaluate time positively as a resource, indeed as the fundamental resource of economic behavior: time, understood as the openness of the future, hence as uncertainty, is according to Shackle what enables creativity, initiative and profit. Uncertainty is not an obstacle but rather the real engine of economic action, which feeds on uncertainty in order to build the future it looks to. The economy, oriented to the future, produces the future and renews it continuously.

In this perspective money itself, which is the basis of modern monetarised economy, in its essence is nothing else than time and is useful precisely because of this (before the three classical functions of medium of exchange, medium of payment, or measure of value): money is primarily a “medium of deferment and of search” (Shackle 1990: 213; 1972: 160) that allows to delay to an indeterminate future the satisfaction of needs – providing thereby a surrogate of security. In front of the obscure and unknowable future of our risk society (Beck 1986), where no one knows what he will need but knows that he will have needs and would like to be equipped to satisfy them, the possession of money allows us to postpone the decision and to collect the information produced by the course of time. Whatever these needs are (which don’t have to be foreseen today, nor must we know when they will arise), if one has money one knows that he will be in the condition to meet them. There is no need to know today tomorrow’s needs. Money stays for the indeterminacy of the future and therefore is never sufficient: the future is still not there and one can’t know what one will need – therefore one always needs money, and money is never enough. We always need more money because thereby we acquire more indeterminate possibilities, i.e. finally more future.

## ***Selling and buying risk and future***

This temporal nature of money<sup>4</sup> has been greatly emphasized in financial markets (which as we know sell money), especially since the 1970s with the cancellation of the Bretton Woods agreements, the spread of uncertainty and the availability of new tools to deal with it, such as the models for the management of risk and especially the explosion of derivatives. The mysterious movement of structured finance explicitly gave up any reference to the world and to concrete goods (which for derivatives become at least the “underlying”, which can be anything and often gets lost in the dizzying traffic of transactions), to become an autonomous field of operations - and it is not clear what they are dealing with. In this virtual finance, one wonders, what is the relationship between Wall Street and Main Street? What is sold and bought in financial markets that move a mass of capital exceeding by 20 times the entire world GDP, which then clearly does not refer to the goods (even if they were available, they would not be enough)?

The answer requires two steps. First risk: as many say (Arnoldi 2004; Li Puma/Lee 2005; Pryke/Allen 2000), the “new finance” of recent decades is new first of all because it became evident that in markets one sells and resells risk – an abstract and formalized risk, objectified and “commodified” (Bryan/Rafferty 2007: 136) with the use of elaborate techniques like models for the computation and management of volatility<sup>5</sup>. In the markets one sells volatility; volatility, which measures the turbulence and unpredictability of the markets, stands for risk; in the esoteric markets of structured finance, then, one sells risk.

But why are we interested in doing it? What motivates this huge circulation of risks in the form of financial exchanges? Here we move to the second step, going back to the roots of economy and money, i.e. to our issue of time: in the form of risk finally one buys or would like to buy the future – a future that is made of indeterminate possibilities, of open options that cannot yet be known. In the traffic of risks one buys and sells the availability of open possibilities in an unknown future, the guarantee that when the future becomes present one still will be able to operate and to make decisions. The models for portfolios management, with their promise to operate in “risk-neutral” markets and to handle the different risks and riskiness in general, provide a warranty with respect to risk – and do it in a fairly complex and refined way, because they do not pretend to know the future. Like the Black-Scholes formula, which succeeded in offering a reliable method to price options

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<sup>4</sup> Not only time is money, as people have always said, but much more radically money is time.

<sup>5</sup> Especially the curious implied volatility, measured in an adventurous way with the help of the Black-Scholes formula to price options (McKenzie 2006, ch. 5) – a device to calculate the unpredictability of the future starting from the (now known) unpredictability of the past.

referred to a future date by renouncing the claim to know the future, so the models of structured finance promise to offer a general guarantee with respect to the threats and the events to come without claiming to know what will happen. The future remains unknown, but it should not be threatening any more for those who use the models and their complex formalizations. The calculus of volatility, the use of leverage, diversification and complicated hedging techniques<sup>6</sup>, contribute to build models that promise to consider all possible future courses and offer a guarantee for each of them, with no need to know which one will occur. Of course risk remains, in the sense that in the future adverse events can always occur and today we cannot know them – but it is neutralized (not deleted): for the one who uses models, risks (bought, sold and combined with one another) should no longer be risky. What is sold in the form of volatility is finally the riskiness of risk, i.e. the openness and availability of the future.

### ***Present and future present futures***

If this is true, or is believed, then the exasperated use of techniques like securitisations, which are mechanisms for using the future in the present, also makes sense: they translate a future credit in present liquidity, used then to build the future that will allow greater wealth for everyone – with an investment, an enterprise, any activity requiring liquidity to generate profits (which would not be there if one had not resorted to future wealth). In the economy this has always been done, and is the basis of the ability to exploit uncertainty and to use the future as a resource: all forms of credit rely on a circuit of anticipation of the future in the present – tomorrow's money is used today in order to produce the wealth that tomorrow will (also) allow to repay the debt. In the recent financialization of credit, however, this mechanism has been radicalized up to its extreme consequences: it is not limited as in the past to *one* future course considered reasonably reliable (for which actually warranties were required and information was sought) but uses *all* possible futures - all those considered by the models of risk management, combining and compensating them with the help of financial techniques. There is no need even to find too many guarantees of the solvency of creditors (also NINJA – No Job, No Income no Asset - loans were granted) because one believed to be protected in any case, since the models consider every possibility and are equipped to deal with it. Then it is convenient, and does not appear hazardous, to use in the present all this future

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<sup>6</sup> Together with a variety of techniques that not by chance became widespread in the same years, like fair value, mark-to-market, the calculations of ratings – all mechanisms that moved from a historical assessment (from the past to the present) to a perspective estimate (from the future to the present).

availability, which is no longer risky and can be relied on - as it happens with the sale and resale of risks and risks of risks in the circuit of securitizations, ABS, CDOs, CDOs of CDOs and so forth. According to the logic guiding it, this should not be a multiplication of risks but rather a conscious construction of the future and of its opportunities: anticipating it in the present, the models promise to increase the variety of the future they make possible.

It should not be forgotten, in the mistrust that followed the crisis, that for several years this mechanism actually worked, greatly reinforcing its dynamics: in the “performative” phase of finance described by McKenzie the models were able to shape markets, which confirmed the models and built a future compatible with their promises - and financial wealth grew for everyone. As we know, however, with the crisis this mechanism was reversed, turning into a counter-performativity as effective (i.e. capable of building the future), but contrary to the promises. It remains true that the models shape the future (which without them would not have come about in the same way), but not necessarily the future they expected. How can we explain this reversal (that with the tools of ANT remains rather obscure)? Why at some point performativity turned into counter-performativity, confirming itself but not the promises of the models?

The weak point (if you want the error) is the image of time and of future assumed by the models, which is very complicated computationally but too simple conceptually, especially in a complex and self-referential society as the current one and in a nervous and reactive sector as finance. We know since centuries that the future is not a given nor a repertoire of given – the field of Augustine’s “things to come”, already decided in advance and known to the higher perspective of God (who can access eternity), but unknowable to the limited vision of men, condemned to earthly time. Also economists are aware of it and orient their models to a multiplicity of future courses (of possibilities), knowing that today no one can know what will occur tomorrow. The future, however, is not even a repertoire of already given possibilities, from which the course of time can choose, actualizing some and disregarding others - as implicitly assumed by risk management models that aspire to consider all possible options. Even if one succeeded in considering all possibilities, one still would not be dealing with the future, but always with the present and its projections: what is considered (and what models consider) is only the “present future” (Koselleck 1979), i.e. the image of the future and of its opening as they appear from today’s perspective and on the basis of the information available at the moment – maybe even in the form of a multiplicity of present futures, taking account of all possible combinations of possibilities (but still those accessible to the present).

Risk management models are oriented to this future, which remains open because it is articulated into a multitude of available present futures, but is not the complex and self-referential future

afflicting our risk society: a society knowing that today the future does not exist as a given but not even as a possibility, because it will be constructed by present decisions and actions - the possibilities that will be processed and selected in the future depend on what we do or don't do today, thinking of the future we want to anticipate (which will usually surprise us). What will become real in the future is usually none of the present futures, but a “future present” (Luhmann 1991: 48ff.; Esposito 2011: 23ff.) different from each of them, because it results from the very attempt to prepare it and react to it. The only future the models are not able to consider is what actually occurs: a future in which past there are the models trying to predict it. The models weren't wrong (and even the crisis did not normally lead to the discovery of mistakes), but paradoxically did not work precisely because they were correct and have been followed: we can say that they correctly predicted all possible future courses as they would have occurred if no models had been formulated – and then self-falsified themselves. The future is the more different from the predictions of the model the more the model is right. Or more correctly: if the unpredictable future confirms the predictions of models it is only by chance. It can happen (“performativity”) or not happen (“counter-performativity”), but in any case this discrepancy constitutes a risk factor that can not be considered by the models of risk management – and then the world is no longer “risk-neutral”.

### ***The expectation of surprise***

With all their revisions and corrections, the models fail to consider this circularity – therefore the warning of performativity is still ineffective and the markets go on operating in the same way. They fail to consider and to valorize the inevitable circularity of the orientation to the future – which is also what makes it always open and surprising. This circularity is the basis of the specific “model risk” produced by the use of risk management models (Rebonato 2001) and of the much discussed “volatility skew” afflicting the attempts to calculate the movements of volatility with statistical tools (MacKenzie/Millo 2003, MacKenzie 2006: 202; Mandelbrot & Hudson, 2004): contrary to the assumptions of the models, volatility seems to show more and more often a pattern (the skew or ironically the “smile”) which reveals that markets seem to expect improbable events to happen, while deem less probable that probable events occur. Probability becomes improbable and improbability probable: in other words, it seems that markets have learned to expect surprises.

How can we explain this enigmatic performance? This happens because markets begin to observe no longer or not only the future/futures prefigured by models, but the very prefiguration of

the future by models, i.e. the fact that models are used and certain things and certain possibilities are expected. One can then look at this given rather than at the projected futures and expect the improbable, i.e. what the models don't expect: the attitude registered by the volatility skew, which leads to falsify the models and to multiply risks – not the unpredicted ones (the models did not overlook anything), but more radically the unpredictable ones. The markets become then counter-performative, i.e. performative but unpredictable.

From this perspective, the financial crisis appears as a crisis of the future: with all the careful planning and the control of investments, one found oneself in a situation where one had the impression of being left without a future – to have no available future to shape any more, because all possibilities had already been used and bound by past operations. The lack of liquidity and the fear of deflation show it: they are phenomena resulting from the refusal to use the future in the present – exactly the opposite of what one previously did. Whereas formerly there was an excessive use of the future, during the crisis one moved to the opposite excess – paralyzing the economy, which as we have seen relies on time and on the construction of the future.

Obviously the future will be produced all the same, but without control. From a certain point of view it is true that less future is produced, because fewer possibilities of action and decision are generated. The future, as we have seen, results from the present, and this should be considered: if today we don't do and don't project anything, the future will be less rich with opportunities, and presumably we will be less able to meet and exploit them. This does not mean however that the future should be foreseen and determined (the classical idea of control), but rather (in the sense of cybernetics) that one should be able to trace how today's choices and decisions generate the (always unpredictable) possibilities that we will face in the future. Performativity, basically, means that the future results from the present – but precisely for this reason it is uncontrollable and always surprising.

The crisis is linked to the fact that we didn't learn to expect these surprises and to use them to direct our behaviour – we didn't learn to use the production of the future without claiming to control its possibilities. Luhmann (1976) labeled as “techniques of defuturization” the various attempts to bind in the present the openness and uncontrollability of the future: first the current use of statistics, but also many utopian constructions and of course morals. What today's markets require is not the refusal of technique (in the form of Taleb 2001), i.e. giving up the construction of the future (quite useless, since the future results in any case from our actions and omissions), but rather a use of techniques without defuturization, aiming on the contrary at multiplying possibilities and observing them – just because it doesn't pretend to control them. This kind of attitude is already



present on the markets (e.g. the cases described by Preda 2007, or even the practice of “reflexivity” in George Soros 1987; see also Esposito 2007: ch. 13) but still lacks a theory that describes and frames it: a task that today more than ever seems to be up to sociology.

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