The "human" factor in the economic crisis: a new view in the rules of financial sector

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Abstract
Among the several reasons of financial global crisis of 2007-2008, many of them can be connected with wrong assumption, underestimation or overestimation of events, and, in general, with choices that are not so much eligible to be defined rational. The importance of behavioural factor in banking and financial sector has been highlighted also by the reputational risk, namely that risk connected with loss in profit due to a negative feeling of bank image from customers, partners, shareholders, investors and Authorities. The aim of this paper in to investigate the role of the "human" factor in the development of the global crisis of 2008, by taking into account the rules of the financial sector.

Keywords: *Crisis; economics; finance; uncertainty: banks.*

Among the several reasons of financial global crisis of 2007-2008, many of them can be connected with wrong assumption, underestimation or overestimation of events, and, in general, with choices that are not so much eligible to be defined rational.

As we already know, from a macroeconomic point of view, such a crisis finds its origin in a long period of expansionary monetary policy (in fact, between 2000 and 2002, FED had decreased the short-term interest rates from 6.5% to 1.25%, and had maintained them at that level for the following two years; and also other big economies followed this kind of policy); low interest rates increased stock and houses prices; moreover, low cost of money increased lending, as shown by very high growth rates in the pre-crisis period. Furthermore, this situation had decreased the risk aversion of institutional investors, such as pension funds, insurance companies and asset management companies, pushing them to make progressively riskier choices (Puglisi and Șerban 2019).

But, from a microeconomic point of view, principal reasons of financial instability belong to:

- a new credit model, the so-called Originate to distribute (OTD): even if in theory this model should increase benefits through a better way to manage risk and a credit expansion, actually it has been often used in an inappropriate way, as for instance in case of resecuritizations;

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- the development of the Shadow banking system: crisis has highlighted that most of the risk wasn't properly shared, but concentrated in investors ignoring the real amount of such a risk and not able to face it;
- the presence of wrong incentives in financial sector: manager's wages were proportionally to short-term results; this pushed managers to make choices without looking at the long-run effects.

Also when the regulator tried to solve these problems, the solutions, paradoxically, encouraged irrational behaviours.

For instance, when Basel 2 introduced VaR as a new measure of risk, it didn't realize (underestimating) how unusual could be the dynamics of human behaviour during particularly uncertain economic and financial periods.

Several authors underlined that such an oversight had determined a wrong risk evaluation and, consequently, an inadequate accumulation of regulatory capital.

For instance Molinari: "in practice, during ten years of growing in the pre-crisis period, myopia of disaster pushed the operators to use data not enough wider for their models, discarding so the previous negative periods; […]: the model was wrong because it underestimated the probabilities of stress situations, which were considered too far in the past to be included in the calculation. […]; all models suppose that correlation between future and past prices of investments are similar, and the one of pre-crisis period was minimum; however, during a big recession this principle is not true anymore: most prices collapse at the same moment, since the investors sell their assets looking for more liquidity and safety, so positive correlations widely increase" (Molinari 2011: pp. 95-96).

In the same way Campbell: "risk managers understood that VaR cannot give a full view of bank risks. In particular, it cannot find accurately fat tails or market extreme events: VaR is an instrument created for normal situations, not for stress" (Campbell 2008).

And so Hildebrand: "Basel 2 creates new risks: risks about risk assessments. I am tempted to call them the unknowable unknowns. Under Basel 2, we increase our dependence on risk models" (Hildebrand 2008: p. 4).

Paradoxically, VaR creates a new risk: too much trust in this measurement has pushed most operators to follow the same judgment parameter (*herding behaviour*) (Novarese and Rizzello 2004: p. 40), provoking then a common error.

In an incisive way also Partnoy: "In truth, VAR was dangerous. It gave firms a false sense of complacency, because it ignored certain risks and relied heavily on past price movements. In some markets, VAR actually increased risk, because every trader assessed risk in the same flawed way" (Partnoy 2009: p. 261).

In an article from *The Economist* of 12 October 2000: "So-called value-at-risk models (VAR) blend science and art. They estimate how much a portfolio could lose in a single bad day. If that amount gets too large, the VAR model signals that the bank should sell. The trouble is that lots of banks have similar investments and similar VAR models. In periods when markets everywhere decline, the models can tell everybody to sell the same things at the same time, making market conditions much worse. In effect, they can, and often do, create a vicious feedback loop" (The Economist 2000).

The same opinion for Masera and Mazzoni: "in normal conditions, external risk prevails and operators' behaviours follow a random walk, that, on average, cancel each other. On the contrary, in situations of stress for financial markets, negative news widely increase and operators' behaviours become similar. In such situations, endogenous risk prevails. The effect of bad news is to strongly decrease the value of financial instruments. When there is a stress, the sophisticated stochastic models introduced by Basel lose their validity" (Masera and Mazzoni 2012: p. 80).

Definitively, "measurement methodologies, even if advanced, appeared as an approximate and incomplete representation of real world; these instruments showed limits such as to be backward looking, namely based on past data, and so inadequate to find out the impact of extreme events" (Tutino, Birindelli and Ferretti 2011: p. 35).

It is in this context that we can introduce the *Black Swan* theory by Taleb, that underlines how sometimes the apparent rationality behind the statistical measurements could be a barrier instead than an help (since, in using them, the operator feels himself wrongly safe): "*statistics can fool you. In fact it is fooling your government right now. It can even bankrupt the system (let's face it: use of probabilistic methods for the estimation of risks did just blow up the banking system)*" (Taleb 2008).

Those dynamics are, moreover, well represented by the path-dependence theory from Paul David (David 1985: pp. 332–37) *and Brian Arthur* (Arthur, 1989: pp. 116-131)*; they suggest that the important factors in determining decisional processes are the dependence from the past experience, the rigidities and the self-reinforcing mechanisms generated by random events* (Novarese and Rizzello 2004: p. 97).

We can find one more example of irrational behaviour referring to liquidity risk: until 2007, indeed, the high level of market liquidity made the investors to underestimate this kind of risk.

"Because of the diffusion of OTD models, there was a great belief that markets were so liquid to hold up whatever maturity transformation. That had changed the feeling about liquidity risk: the possibility for the intermediaries to continuously disinvest their assets on the market pushed them to underestimate this risk in the capital management policy, increasing so the spread of leverage strategies and off-balance finance" (Tutino, Birindelli and Ferretti 2011: p. 33).

Consequently, "bank liquidity has been characterized for long time by a less attention compared to other kinds of risks" (Tutino, Birindelli and Ferretti 2011: p. 18).

Then, even referring to the liquidity problem, it isn't possible to discard the cognitive factor among the causes of crisis; so, it is inevitable to introduce Friedrich von Hayek theory about learning process of human being (Hayek 1952) to better understand the determinants of individuals' choices in the pre-crisis period, which had generated a loss in confidence that quickly moved into a liquidity crisis, blocking so the entire financial system.

However, the latest framework considers more deeply these new factors arisen from crisis, by introducing an innovative "way" of regulation based now on logic not purely economic.

Basel 3 introduced, indeed, the *Capital conservation Buffer* (CCB) and the *Counter-cyclical Buffer* (CCCB).

"The reason of this rule becomes from the experience of crisis, when many institutions, in spite of the deterioration of their financial situations and of the related

market, didn't stop profit sharing, increasing so the weakness of those institutions and of the entire system" (Tutino, Birindelli and Ferretti 2011: p. 14).

"In fact, although the forecast about financial sector had shown from long time a negative outlook, the fear that a less profit sharing compared to the previous one could be felt as a weakness signal deteriorated the solidity of the assets side of the balance sheet of many banks" (Tutino, Birindelli and Ferretti 2011: p. 141).

In the same way can be interpreted the introduction of the *Leverage ratio*: "The supplementary ratio, which is a measure of a bank's Tier 1 capital as a percentage of its assets plus off-balance sheet exposures and derivatives, will serve as an additional safeguard against attempts to "game" the risk-based requirements, and will mitigate model risk" (Bank for International Settlements 2011: p. 65).

Also referring to the new liquidity ratios introduced in Basel 3 (LCR & NSFR), some Authors immediately highlighted the problem connected not with economic but psychological question; in particular, someone (Ottolini and Ubaldi 2014) underlined the difficulty in foreseeing economic agents' behaviour in situations of stress liquidity and, consequently, in determining correctly which balance sheet items could be considered stable or not, to well construct the Net Stable Funding Ratio (NSFR).

In both liquidity ratios there is, moreover, the fear about the effects of concentration (pushed by new rules) in some asset classes by banks. It could generate a "run toward more liquid assets" (namely those with less penalty), generating so a decrease in their returns and making them fixed assets in bank portfolio. At the same time, banks looking for higher returns could choose to invest in those asset classes not bounded in satisfying the new ratios, leading so to a higher risk (Ottolini, Ubaldi, 2014).

"Consequences of rules about asset allocation are reflected both in economic results and in management and cultural change. Every time regulator prepares a list of good or bad assets, this necessarily pushes the investors to choose the good ones, penalizing the others and causing so market distortion" (Molinari 2011: p. 208).

The psychological factor has also a great importance in the well-known phenomenon called "too big to fail", regarding those financial institutions hardly pushed to follow the moral hazard logic, due to the belief in an implicit warranty of public help.

That is the reason why, in some matters, some authors suggest to come back to the structural supervision; in particular: "The division of business lines should limit moral hazard of managers and avoid that investors choose the biggest institutions believing that they will never fail because of government help" (Molinari 2011: p. 214).

We can also find behavioural distortion regarding rating models: someone underlined the risk of a potential divergence between the common approach and the validation procedures defined by National Authorities. This could be due, on the one hand, to the fact that authentication of risk models is a new and unknown activity for the regulator. So it isn't possible to exclude the possibility that local big banks had guided the national regulator in validating their own models. On the other hand, the necessity to increase regulatory capital without decreasing credit too much, makes credible the idea of "easier" validations leading to an illusory increase in capitalization, so to not penalize highly both shareholder and economy (Resti 2013: p. 235).

Moreover, the risk of divergent and not conservative national validation procedures has been strengthened by the so-called "regulatory capture", that suggests how, after validating a bank risk model, a regulator couldn't have interest in changing his decision because he doesn't want to contradict himself (Dal Bò 2006: pp. 203-225); the psychological factor prevails on the economic one once again.

More specifically, critics to 3rd pillar highly has increased the difficulty to consider rational something that actually is dominated by non rational factors: "belief in market discipline is wrong. The hypothesis that creditors and shareholders could control the intermediate's behaviour in assuming risks doesn't work in the real world, where there are asymmetric information and, often, irrational behaviours. […]. When there is a shock, market behaviour is not rational as theorists of behavioural economic say (Authers 2010). […]. When intermediates have to face unpredictable events, they try to follow common behaviour instead of making rational choice, to maintain a competitive advantage. […]. This means that, when there is a bubble, all intermediates (even those knowing that it is only a bubble) are forced to continue investing; otherwise, they could lose some gain. […]. But, also in normal conditions, markets are imperfect, because of short-run mechanisms: indeed, the investors don't usually look at the future, but at short-term gain. […]. This push managers to take high risk in investment and to follow the same profitable strategies chosen by competitors (Haldane, 2011).

For all these reasons, it is not possible to give markets either the chance to judge the survival of bank or being the pillar of system supervision. […]. The costs of market failure due to irrational behaviour are too high for people" (Molinari 2011: pp. 212-213; Ilie 2014).

In the same way also Hildebrand: "What has become abundantly clear in recent months is that we do not live in an ideal world. Banks and the risks they incur are far from transparent. In fact, banks exist because of asymmetries of information" (Hildebrand, 2008).

The importance of behavioural factor in banking and financial sector has been highlighted also by another kind of risk: reputational risk, namely that risk connected with loss in profit due to a negative feeling of bank image from customers, partners, shareholders, investors and Authorities.

To minimize such a risk, banking and financial sector has recently improved compliance division, whose aim is, indeed, just to avoid that an operational risk could move into a reputational risk, generating therefore a loss in trust and consequently a liquidity crisis (Limentani and Tresoldi 2013: pp. 66-67; Goga Ilie 2020).

Then, it is clear that the health of banking system depends especially on banks ability in maintaining customers' trust.

So, it is absolutely impossible for banks and financial institutions to discard psychological and behavioural factors, if their aim is "to create a stable economic environment where private individuals and businesses have confidence in the banking system" (Hull 2015: p. 325).

As we can see, it is inevitable the connection between economics and psychology, as first suggested by Herbert Simon and his theory about *bounded rationality* of economic agents (Simon 1955: pp. 99-118). This theory focuses on "real" cognitive and computational abilities of individuals, which are not represented by standard

economic decision models, giving therefore for the first time a valid alternative to the expected utility model proposed by Von Neumann and Morgenstern (that is based, on the contrary, on the assumption that individuals are perfectly rational).

Following this new way, we have also to mention the contribute by Kahneman and Tversky and their *prospect theory* (Kahneman, Tversky, 1979: 263-292); through several experiments of cognitive psychology, the Authors proved Simon's intuition that individuals systematically don't follow economic rationality principles.

And we cannot even forget the *regret theory* proposed by Bell (1982: pp. 961-981), Loomes and Sugden (1982: pp. 805-824): when individuals have to face a choice, they take a decision thinking not only of the potential gain, but also of the potential loss, balancing pleasure for what has been taken and regret for what has been lost.

So, it is necessary to give a new lecture of Basel framework, focusing now on behavioural issues briefly described above; this means to reconsider some rules of banking and financial discipline not only following rational and economic principles, but also the "real" nature of individuals. Perhaps, changing the way to see things, it will be easier to interpret correctly the dynamics of all involved agents, increasing so the possibilities to solve critical events for the whole system (such as bank run, moral hazard, shadow banking system, too big to fail institutions).

And, consequently, it is crucial to rewrite the Committee rules with not only the aim of avoiding new crisis, but also of creating a new system as much as possible ethic and fair for people; in fact they are often the most damaged by negative consequences of potential failure of economic system; we have to highlight that the aim of banking and financial system shouldn't be only to make profit, but also, and essentially, to represent a valid infrastructure of economy: "Lending is a *public good*, worthy to be protected. Bank regulation should be designed also to reach this aim" (Tutino 2014: p. 17). Here, we strongly need behavioural economics: for instance, many experiments about people's participation in public goods showed that "the way to present a problem is crucial" (Novarese and Rizzello 2004: p. 73), and to present it in different ways lead to (sometimes completely) different results (Andreoni 1990: pp. 464-477; Andreoni 1995a; Andreoni 1995b); moreover, the *ultimatum game* (Thaler 1988: pp. 195-206) and the *gift exchange theory* (Fehr, Kirchsteiger and Riedl 1993: pp. 543-569) showed people's desire to be considered in a fair and honest way. Connecting these results to the most important pillar of the banking system, that is the people's trust, we can clearly see that it is possible to lead the actions of banks towards that direction.

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