

Financial Crises and Pandemics in Healthcare Systems: Black Swan Events or Failures in Risk Management Models?

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The global health crisis generated by the Covid-19 epidemic has highlighted the structural weaknesses of the risk management models of our contemporary societies, just as the subprime crisis had highlighted the flaws in the normative fences and predictive models used by the international banking system in 2008.

While half of the global population was confined, many commentators presented the new coronavirus as an unpredictable “black swan¹”, on the fringes of the world's “Gaussianity”.

So, is covid really the new black swan, in the sense of Taleb’s famous work ? It takes just a scratch to the surface of the “black swan” narrative, to figure out this is a flawed cover up attempt of the shortcomings of our healthcare systems and epidemic response and management organisations (just think of the epidemic plans not updated in the last 10 years, the lack of PPE in stocks, ... all despite yearly documentations submitted to WHO with the goal of assessing national preparedness).

But why, you may ask, proposing a parallel between the banking system crisis and the health crisis at a time, when Europe, (and the western civilisations more broadly), is experiencing its second lockdown? Because the 2008 crisis was not a black swan either, and the cause of these two events is ultimately quite similar, that is why it is worth taking a look back to learn about the root causes what can be done and hasn’t yet been done.

If it’s true that Taleb had predicted the then incipient 2008 crisis, a phenomenon apparently more complex to foresee for the profane of finance, covid-19 (and by the way, the same Taleb had been warning in his lectures about the fragility of our world to epidemics for years already) looks more like “an elephant in a hallway”, that only a dangerous policy of burying our heads in the sand could have missed. As a reminder, two years ago, also my humble self had addressed the tragic implications that the removal of AME could have in the event of an aerosol disease epidemic, then taking as example the exponential spread of epidemic clusters of tuberculosis within precarious populations in France², as well as, by repeatedly stressing in various posts

1 <https://www.cairn.info/revue-afrique-contemporaine-2011-1-page-157.htm>

2 <https://disputatiomagistrorum.wordpress.com/2019/11/21/restricting-laide-medicale-detat-a-health-and-economic-aberration/>

the need to invert management logics and start preparing, both at the technical and financial levels, for the plausible WHO scenario named “disease X”.

In facts, for the past ten years hospital caregivers have been explaining that the healthcare system is on the verge of breaking down, asking for financial resources, and increases in staffing that would lower the individual burden and offer more (and better) opportunities to pursue continuing education, also by updating the hospital and territory organizations... But little politics has offered them little heed despite an ageing population leading to increases in long-term medical care, and more vulnerabilities. At the same time, since 2018, WHO has been pushing National Governments to invest in preparedness in the face of growing global pandemic risks through its disease X program³, the main potential candidates being germs from animal/human contamination, i.e. zoonoses, which account for around 75% of current emerging diseases. SARS in 2003-2004, MERS, Ebola, H1N1, Nipah virus, West Nile fever, Zika, and Covid-19 are all zoonoses whose emergence can be linked to a specific flavour of exploitative human activity: progressive deforestation bringing humans into contact with new pathogens for ebola and likely Covid-19; intensive poultry farming models for avian influenza; livestock farming models for Nipah, cattle often being a reservoir, an epidemiological bridge, between infections present in wildlife and humans⁴...

Despite all of this being widely recognised, Western political choices have favoured the development of models of risk largely minimising the likelihood of large-scale pandemics, seeking a risk / benefit balance in favour of reducing the investments on both equipment expenditure (masks, visors, gloves ... for hospital staff and the population), and personnel training and hiring, achieving unprecedented results in terms of cost efficiency by expenditure control on public health (reminding the proverbial story of the ass unfortunately dying a few days after having been successfully trained to not feed). The pitfall here is in the definition of efficiency, for a system largely driven by short-term economic choices has neglected the contribution of two major aspects of health risk management in the face of a crisis: medicine, as an individual lifelong act around the person, (patient care), and operational and effective, large scale, public health policies. A bit like if, accelerating along a straight on the highway, deciding that one could make the car lighter and more economic by giving up the steering system.

By taking the above into account, one can start to build a new causal narrative for the long

3 <https://www.who.int/activities/prioritizing-diseases-for-research-and-development-in-emergency-contexts>

4 L.Paolozzi, J-C Liébart (dir), *Introduction à la microbiologie*, Dunod, Paris, 2019, p.178.

lockdowns that our western populations are facing, when many Eastern powers, and even LMICs, have shown a various flavours of response, all with greater effectiveness... and the politics of efficientism in welfare contribute to explaining the extremely serious socio-economic repercussions we are witnessing, when individuals are invited to bear the grunt of sacrifice to protect society, with failing/missing mutual aid. In other words, it is not covid-19, as a supposedly unpredictable event that generates the cascade of critical events that we are experiencing, but the primary fact that the law of normality, (already contested by Mendelbrot in the 1960s for its failure to take extreme margins into account), is still used as a predictive model for the comfort of certain political decisions, whilst being too limited to offer a satisfactory global perspective of possible marginal events.

In other words, it is because choices to save budgets have been made for years despite growing dissonant warnings of impending fragility, that the current debacle is happening, shaking our societies. Thus, it is optimisation, and the acceptance of a shallow definition of fitness/efficiency, that has allowed for years to offer increasing savings of taxes of the *haves*, that we are now facing a crisis that is spreading billions of losses on the *have-nots*, as fallout of successive lockdowns hitting the ability of families and small local businesses to sustain themselves.

Will we go “back to normal”?

If one could hope that struggling in the face of the pandemic would re-establish a little humility and clarity to the relationship between humans, and humans-and-nature, we have to note that our societies (us all?) desperately try to cling the same methods and thought patterns that led us to failure before, apparently in the blind hope that an economic system whose faults some (many?) of us have benefitted from for a few years could be saved, thus avoiding questioning the win and losses of the past, trying to proactively neglect how it has driven us into the wall, both in 2008 and today.

Just as the 2008 crisis highlighted the inadequacy of certain risk measures, the first coming to mind Value-at-Risk (VaR), widely criticized by some experts⁵ deeming it to be at least co-responsible for the subprime crisis and its implications, with the SARS/Cov2 pandemic the tools adopted to guard against major health crises have shown their limits, in particular a certain school of thought about evidence accumulation and decision making in the face of risk and uncertainty, relying on tools and models whose effectiveness is short of properly estimating the

likelihood of adverse “rare” events, those that are precisely capable of tipping a system optimised underestimating the chances of their realisation.

People wish for a return to “the pre-pandemic”, to “normality”, to the same models and to the same World, but what part of the old normality should be saved? And how are the costs going to be negotiated across social layers? To the benefit of whom, in sum, would the old normal be defended and re-established, beyond the words that at face value seem to unite us all?

But we were talking of the models... what’s the matter with them?

It is not a question, here, of harassing the reader with tedious mathematical demonstrations, by opposing the Gaussian normal law and the power law (e.g. Pareto distribution) defended by Schumpeter as being able to lead to the development of a new economic theory, but to offer a pedagogical discussion, accessible to people.

Value at risk (VaR), used by financial institutions, is based on probability calculations that predict that we will not lose more than a certain amount of money or stock ... in a given time. For example, if the 10-day VaR at the 99% confidence level is \$ 5 million, that means there is a 99 in 100 chance of not losing more than \$ 5 million on 10 consecutive days. However this measure is not subadditive (a portfolio risk exposure should, at worst, simply equal the sum of the risk exposures of the individual positions that compose the portfolio, if subadditive) outside the gaussian case, and the gaussian case belongs to a class that focuses on the manageable risks near the center of the distribution whilst ignoring the tails (excessive but remote risks).

If you want to learn more about VaR shortcomings, and more about credit risk management in general we recommend you follow a free online course... we would recommend you [this one](#) by Pasquale Cirillo.

Yet it is always the marginal or unforeseen events that seem to form the basis of the History at the end, and not the so-called normal events... In May 2008, the default of the insurer AIG, then slowly recapitalized by the US Treasury starting September the same year, gave a late warning about the health of the financial sector and raised questions about the credit default swap system that was used by banks to minimize their capital requirements (evidently exposing them to a greater risk of default, thus defining a large systemic risk for the world of finance)... Months later, in September 2008, it was the bankruptcy of Lehman Brothers (600 billion in debt) to cause a major shock wave in that fragile financial world, spreading due to the interdependence and interconnection of financial institutions, the rest is history forcibly known to most of us...

Fast-forward to 2020 and it was an instance of “disease x”, covid-19, to shut down half of the world for several months and counting...

It's apparent that a problem exists with the risk assessment methods chosen today to inform risk management and investments, too focused on allowing optimisations of running costs in steady conditions, and relegating possible events in the limbo of the margins, aptly underestimating their likelihood, thus forcing the system to respond rather than to prepare and prevent.

In facts, the 2020 pandemic teaches us the same lessons. We run-after rather than anticipating, we ignored the warnings of health workers and caregivers, ignored WHO recommendations and even ignored plenty of warning signals from the recent past suggesting that zoonoses really present a threat at the global scale in the current world order, and failed to prepare adequate political and societal countermeasures.

Covid-19 is part of that not so small percentage of events of low likelihood that our interpretation frameworks of choice have relegated to the margins, but it is not an unforeseeable event *tout court*, in the true sense of the term. And for the sake of the future we need to break free of what Whitehead called “the fallacy of misplaced concreteness”⁶ ...

In light of this, two measures would be highly recommended:

- 1) to rethink our risk estimation models and tools, as to take in adequate consideration fat-tailedness and realistic likelihood of “extreme” events
- 2) to update our risk management strategies, abandoning our obsession for optimisation, and reminding ourselves of lessons learnt from the past⁷

Globalisation should not be an excuse for oversimplification of economic and logistic tissues⁸ ... it is worth reminding that at the time of this writing, France and Europe as a whole still have a strong dependence on China and India, for example, in terms of drugs and masks manufacturing, which (if very financially convenient during stable times) has proven itself a vulnerability when despite globalised trades new prioritisation criteria have disrupted the flow of goods before the exploding requests in emergency.

6 [https://en.wikipedia.org/wiki/Reification_\(fallacy\)](https://en.wikipedia.org/wiki/Reification_(fallacy))

7 https://en.wikipedia.org/wiki/Lindy_effect

8 <https://www.cottica.net/2020/10/09/regional-policies-in-the-eu-from-convergence-to-exploration/>

PULMONOLOGY

But will reason triumph? If we can learn anything from the summer of 2020, when the pandemic slowed down and European Countries should have, according to their own promises in the first semester, started investing in a long overdue potentiation of local/proximity healthcare and a revision of welfare in general to enhance the resilience of our societies, if not really build virtuous antifragilities... well, if we can learn anything, it is that across Europe a large portion of political representatives, and the population itself, are ever more eager to defend the status quo, to celebrate the end of the crisis, and bring forth the politics on which their careers and social statuses have been built, maybe even inviting to sacrifices to cover for the extra costs of relaunching the economy... but here we should probably postpone to a later post our conversation, to be informed by Carlota Perez⁹ and Mariana Mazzucato¹⁰ reflections on value creation, and appropriation.

For now, let us part ways with a goodbye, and a warning: in the kingdom of the ostriches, black swan is King.

9 <http://carlotaperez.org/pubs?s=tf&l=en&a=technologicalrevolutionsandfinancialcapital>

10 <https://marianamazzucato.com/publications/books/value-of-everything/>