

EDITORIAL

Mortality: The Alpha and the Omega of Risk

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The relationship between human beings and the risks of their world is both ancient and complex. It is the stuff of myth and literature as well as philosophy and science. War, plagues, famine, flood, and earthquakes mark many of the turning points of the Hebrew Bible, and Greek mythology provides a generous reservoir of risk-based metaphors: Achilles' heel, the Sword of Damocles, etc. In modern times, epic disasters – such as the *Titanic*, Pearl Harbor, *Apollo 13*, and Chernobyl – have assumed their own roles in our collective psychology.

Today, problems of risk form the basis for insurance and other financial services industries, and are studied rigorously by scholarly researchers. But regardless how these problems are formulated and analyzed, they all flow from the same source: *the specter of mortality*. Like a serpent coiled around the trunk and branches of the Tree of Life, the risk of death squeezes at every aspect of human existence.

Downside Risk vs. Upside Risk

Although the word “risk” generally has negative connotations because of its association with destruction, it also can suggest positive, albeit uncertain, developments. The asymmetry between the positive and negative aspects of risk arises because random change is more likely to damage than to enhance the carefully wrought equilibrium of the *status quo*, especially in the short run.

Nevertheless, whether we see risk as primarily negative, or as a balance between negative and positive potentials, is largely a matter of perspective. If one assumes that a human being's

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life on earth should be unending, then clearly any degree of mortality risk will be seen as negative. However, if one views each human being as entitled only to the expected lifetime given by the actuary's mortality table, then a reasonable balance will be struck between negative outcomes (early deaths) and positive outcomes (delayed deaths).

When embedded in the financial products of modern economic markets, risks naturally assume a degree of symmetry by way of the pricing mechanism. Although an office building, taken as an isolated entity, is exposed primarily to the "pure" (negative) risks of fire, flooding, etc., the *purchase* of an office building at market price is subject to "speculative" (both positive and negative) risks, including an increasing demand for office space, as well as a decreasing supply of space (which, for example, could be caused by fire or flood damage to competing buildings). Likewise, stocks, bonds, and various financial indexes and derivatives generally trade at prices that recognize the potential for both increases and decreases in value.

In today's business world, professional risk managers often construct extensive lists of pure and speculative risks, including every imaginable type of uncertainty to which individuals and firms are exposed. Any comprehensive list must include hundreds of items, running the gamut from the familiar to the esoteric.

Fundamental Exposures

Fortunately, a remarkable simplicity underlies this myriad of risks. Despite the great number of individual *sources of risk*, there are only a very few exposures *subject to risk*. These fundamental exposures are: *Life, Health, and Possessions*. The table below shows (in rough terms) how this short list of exposures can be applied at the levels of individuals, corporations, and society at large.

		Quality of Life	
	Life	Health	Possessions
Individual	Personal Survival	Personal Health	Personal Possessions
Corporation	Firm Survival	Firm Revenue, Market Share, etc.	Firm Profitability, Net Worth, etc.
Society	Collective Survival	Aggregate (Average) Quality of Health	Aggregate (Average) Standard of Living

To simplify things further, one could collapse the two shaded columns into one composite column representing *Quality of Life*. Probing this new category, one then might ask: What is the basis for concerns about the quality of life?

The following two principles provide the answer:

The Morbidity Principle – An individual/corporation/society whose quality of life is damaged will have a greater chance of death.

The “Opportunity Cost” Principle – An individual/corporation/society whose quality of life is damaged may not have the opportunity to enjoy recovery of health or restitution of possessions before death occurs (i.e., “a good quality of life today is worth more than a good quality of life tomorrow”).

In short, *the life exposure underlies all other types of exposures.*

For individuals and societies, the morbidity principle would have been particularly evident in the Old Stone Age, when human beings had developed useful tools but were still primarily hunter-gatherers. At that time, quality-of-life exposures, while they existed, could not be separated easily from the life exposure because the loss of health (through injury or illness) or possessions (clothing, shelter, or hunting implements) would increase significantly the chance of death in the near future. Hence, loss of quality of life was nearly tantamount to loss of life.

The morbidity principle continues to apply to individuals and societies today, but not as dramatically. Despite the various “safety nets” that modern governments provide for their more vulnerable members, it is still an empirical fact that the injured and ill, as well as the economically poor, die at faster rates than others. This is also true for societies at large, as can

be seen in the disturbing declines of several national populations in Africa as a result of war, famine, and HIV infection. With regard to corporations, reductions in revenue, market share, or profitability are in many cases harbingers of firm bankruptcy.

Although a cursory review of today's financial products might give the impression that quality-of-life exposures actually overshadow the life exposure – after all, the only financial product that specifically addresses mortality is life insurance – the “opportunity cost” principle belies such a conclusion. If anything, the role of mortality is difficult to discern because it is so prevalent that we tend to overlook it.

The life exposure underlies all traditional insurance policies, whether held by individuals or commercial enterprises. This is because the policies are designed to provide reasonably quick medical attention or restitution of property, presumably before the policyholder's life terminates. In addition, the life exposure is fundamental to all financial-transaction risks. Lenders, whether they be individuals, corporations, or governmental bodies, must be compensated for the possibility that they will cease to exist before their loans are repaid. In other words, mortality is the principal reason why “a dollar today is worth more than a dollar tomorrow,” and thus why the so-called “risk-free” rate of return must be greater than zero.

The Death of Mortality?

Will we ever be able to protect the life exposure from all mortality risks?

Essentially, human societies already have the potential for unending survival given sufficient cooperation from their individual members, and if desired, a society simply could mandate the continued survival of a given corporation. The only real question is whether or not individual human beings will ever enjoy practical immortality.

Looking to the distant future, it seems reasonable to believe that scientists and engineers

will not only take control of the human aging process, but also develop techniques to preserve an individual's consciousness and memory indefinitely in organic or inorganic media. As we approach that privileged time, the notion of risk inevitably will undergo dramatic change – perhaps even disappearing from the human vocabulary.

While a young child (but old enough to be troubled by the knowledge that everyone eventually must die), I took a measure of comfort from a table of futuristic predictions made by the British science and science-fiction writer Arthur C. Clarke. Published as an appendix to his 1962 book, *Profiles of the Future*, Clarke's table indicated that human immortality would be achieved sometime in the last decade of the twenty-first century.

Doing the necessary math, I initially was discouraged by the fact that I would have to live beyond 130 years to survive until the desired time period. However, upon closer inspection, I noticed that Clarke also predicted a process of suspended animation by 2050 – suggesting that I need survive only to about age 90, when I could be frozen promptly, and then thawed and immortalized in forty or so additional years.^[1]

Such optimism regarding one's final disposition is not unusual. As Sigmund Freud observed: “. . . [A]t bottom no one believes in his own death, . . . in the unconscious every one of us is convinced of his own immortality.”^[2]

So what is the lesson here for risk managers?

Just this: *Always keep in mind that the first step after “risk identification” is often “risk denial.”*

References

Clarke, A. C. (1962), *Profiles of the Future*, Victor Gollancz, London.

Freud, S. (1915), *Thoughts on War and Death*, The Hogarth Press, London.

[¹] Interestingly, Clarke revised his predictions in an updated version of the same book (published in 1982). The later table suggests a closer date of 2015 for suspended animation, but a more distant time – “beyond 2100” – for immortality.

[²] Freud, S. (1915), *Thoughts on War and Death*.