As a former student of philosophy, I have thought for a long time that the question of knowledge versus ignorance is greatly under appreciated by economics. Moreover, having made plenty of mistakes myself, including during thirteen years as a CEO, I know the feeling of trying to remember why certain bad decisions were made and concluding that: “It seemed like a good idea at the time!”

**EUROPE’S BANKS AND ENTIRE monetary system are in crisis from the sovereign debt of financially weak governments. But the capital requirement for banks to hold such Euro denominated debt was zero. It was defined as “risk free,” but has instead led to massive losses.**

What an amazing set of blunders, it now seems, both by those who bought the debt and those who wrote the capital requirements—especially since there have been 250 defaults on sovereign debt since 1800! We are in process of adding to the list.

Similarly, many investors, including government sponsored enterprises, bought AAA rated mortgage backed securities made out of subprime loans, to their sorrow. These securities were given especially low risk based capital requirements by international financial regulators. Why? And why were the rating agencies passing out these AAA ratings?

The private, government and government sponsored actors who made what are in hindsight so obviously blunders were intelligent and well educated, not stupid. The majority of them, one must believe, were well intentioned. So why were the risks, which turned out to be disastrous in both cases, not appreciated until it was too late?

In thinking about the financial crisis, Jeffrey Friedman and Wladimir Kraus emphasize the “cognitive limitations” of regulators and central bankers, as well as of private decision makers. In other words, they are talking about mistakes. They argue that mistakes are a much more powerful explanation than the “incentives” and “agency problems” that economists are so fond of.

“There is no reason to think that the bankers, in any significant number, knew that they were making a mistake in buying these securities,” they wrote. This is undoubtedly correct. “Nobody should be blamed for honest mistakes… [which] are inherent in the human condition,” they continue, including the mistakes “apparently transmitted to the regulators by modern democracy’s most trusted academic experts.”

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The central problem may be simply stated: the human, and thus the financial, future is unknowable. It is worse than risk — it is uncertain. As pointed out long ago by Frank Knight, while making the famous distinction between risk and uncertainty: Uncertainty means not only that you do not know what will happen in the future; it means you do not even know the odds. In fact, you cannot even know the odds.

Of course, you can build models, including very complicated ones, to estimate the odds. Unfortunately: “Historical model analysis is easier work than forecasting the future. ... It is possible to construct the model so it tracks the past very well. No such assurance exists in forecasting.” So wrote the distinguished economist, Otto Eckstein, in 1979, discussing the financial crisis of 1973-76. Do you even remember that there was one? He called it the world economy’s “most dangerous adventure since the 1930s.”

Uncertainty is an unavoidable fact of life, yet we still have to make decisions and to act. In the marvelous epigram of the philosopher Soren Kierkegaard, “Life can only be understood backward, but it must be lived forward”. It is easier to act if we do not focus on uncertainty, and convince ourselves that we know exactly what we are doing. But with uncertainty, there are guaranteed to be mistakes, even if the incentives are perfectly aligned and every regulatory rule is carefully followed.

That font of perpetual banking wisdom, Walter Bagehot, observed almost 140 years ago: “a manager sometimes committed frauds which were dangerous, and still oftener made mistakes which were ruinous. ... Error is more formidable than fraud: the mistakes of a sanguine [i.e. optimistic] manager are far more to be dreaded than the theft of a dishonest manager. Easy misconception is far more common than long-sighted deceit. And the losses to which an adventurous and plausible manager, in complete good faith, would readily commit a bank, are beyond comparison greater than any which a fraudulent manager would be able to conceal.... If the losses by mistake in banking and the losses by fraud were put side by side, those by mistake would be incomparably greater.”

True in 1873 when Bagehot wrote it, true now.

I am often asked, “Will we learn the lessons of the financial crisis?” “Yes,” I reply, “We learn the lessons after every crisis, but it doesn’t stop the next one from happening.”

Arnold Kling has presented a provocative discussion of how the lessons may be tricky. Regulators, he says, carefully studied the collapse of the savings and loan industry of the 1980s, which bankrupted the government’s savings and loan deposit insurance fund and cost the taxpayers about $150 billion. They drew three great lessons, which were that they needed:

1. Securitization of mortgages
2. Mark-to-market accounting
3. Risk-based capital requirements.

These lessons of the 1980s became the solutions which were promoted by the government. Each of them, and all of them interacting with each other, became major contributors to the crisis of the 2000s, the results of which we are still unhappily liv-
ing with. These include the collapse of the heirs of the savings and loan industry, the government promoted enterprises Fannie Mae and Freddie Mac, which have so far cost the taxpayers $180 billion. Lessons led to mistakes.

Considering "the ubiquity of ignorance," Friedman and Kraus suggest that "the more complex the world gets, the more serious we can expect the problem of human error to be." I am not convinced by this argument. Error was prevalent in the days of Bagehot; plenty of banks failed in what we think of as "simpler" times. These banks, by the way, often had no incentive or agency problem whatsoever, since the banker was personally liable for the bank.

If the human future were determined by knowable laws, the complexity would not be such a problem—physical science has solved lots of extremely complex problems. The central issue is not complexity, but recursiveness. Everything about financial markets is self referential, with multiple actors' beliefs about the beliefs of other actors feeding back with effects impossible to know for sure in advance.

An essential point in this context is that financial "tail risk" is not an objective probability given in nature: it is dynamically created by the recursive interactions of financial participants, including regulators and central banks. It may start off very small, but grows during a bubble to be virtually 100%.

It has been understood since the ancient Greeks that self reference leads to paradox. In financial markets and their attendant regulation, recursiveness guarantees uncertainty. Thus mistakes will continue, so having generous margins for error is the top risk and uncertainty management commandment.