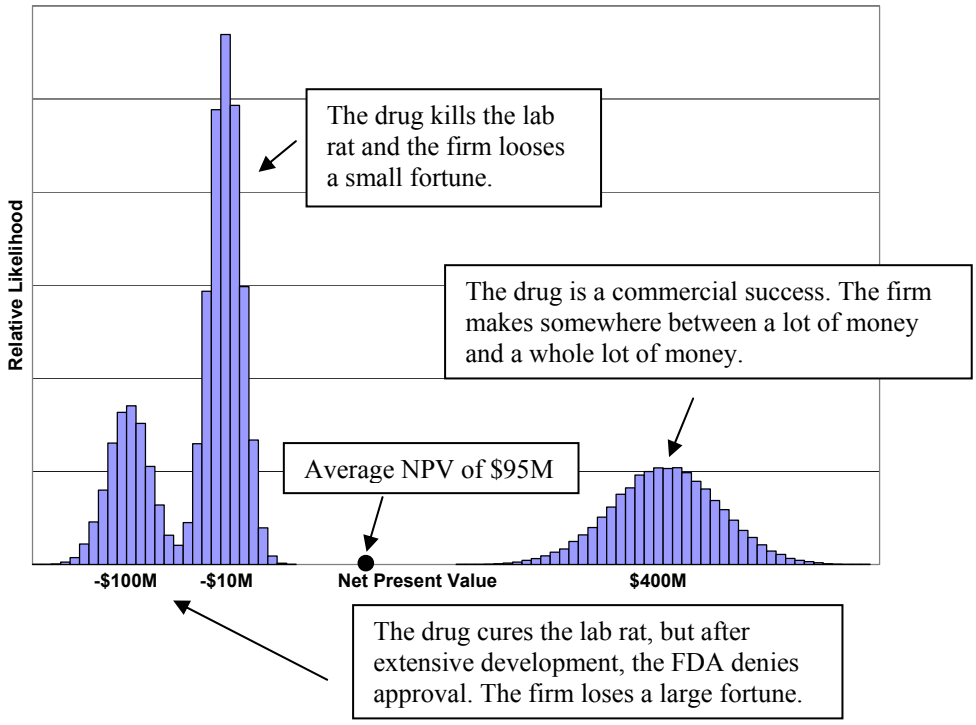
Some Gratuitous Inflammatory Remarks on the Accounting Industry[1]

By Sam Savage

The Enron debacle reminds me of an old joke. Three accountants interview for a job. When asked to evaluate 2 plus 2, the first responds "four," and the second, thinking it's a trick question, says "five." But the third, whom they hire on the spot, says: "what do you want it to be?" I wasn't laughing, however, when I learned that the behavior of candidate three lies within generally accepted accounting practice. The evidence is an article in *Accounting Horizons* on rules for recording uncertain numbers in financial statements. The authors of this 1993 article expose a smoking arsenal of officially sanctioned accounting ambiguities and inconsistencies.

Before getting to the article itself, I will discuss the concept of *uncertain numbers* in their own right as I have found great confusion on this subject, even among graduates of statistics courses. According to the latest scientific thought (which, by the way, hasn't changed much for over 100 years) an uncertain number is a shape. The shape, called the distribution, is a bar graph showing the relative likelihood that the number in question will take on various values[2]. Consider a pharmaceutical firm with a program to develop an experimental drug. The net present value of the program (an uncertain number if there ever was one) looks something like this.



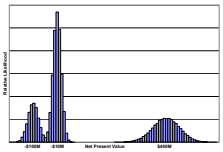
[1] An expanded version of this paper co-authored by Marc Van Allen appears in the Fall 2002 edition of the Journal of Portfolio Management.

[2] If you want to split hairs, some distributions can be viewed as smooth curves instead of bar graphs, but I abandoned this perspective after a computer scientist discovered that the smallest positive number was 2^{-32}.

The Flaw of Averages

If Darwin was correct, consistently successful managers of risky ventures have an inherent understanding of the shape of things to come for their own business. But when they need to estimate the NPV of a project for an accountant, they will inevitably be asked for *a number*. Now what number would *you* use to characterize the above shape? It is common to use the *average* or balance point[3], which for the current example is $95 million.

But give me a break.



$\neq 95$

Plenty of trouble can arise when single numbers are substituted for distributions. I refer to this problem in general as *the flaw of averages*, and it comes in numerous forms. The accounting article describes some whoppers.

The Article

"Expected Values in Financial Reporting" by Johnson, Robbins, Swieringa, and Weil appeared in the journal *Accounting Horizons* in 1993. It raises important questions about "how accounting deals with uncertainty." Although the article contains several examples of inconsistent accounting practice, I found the following one particularly striking[4]. It involves the manner in which accountants assess the value of accounts receivable.

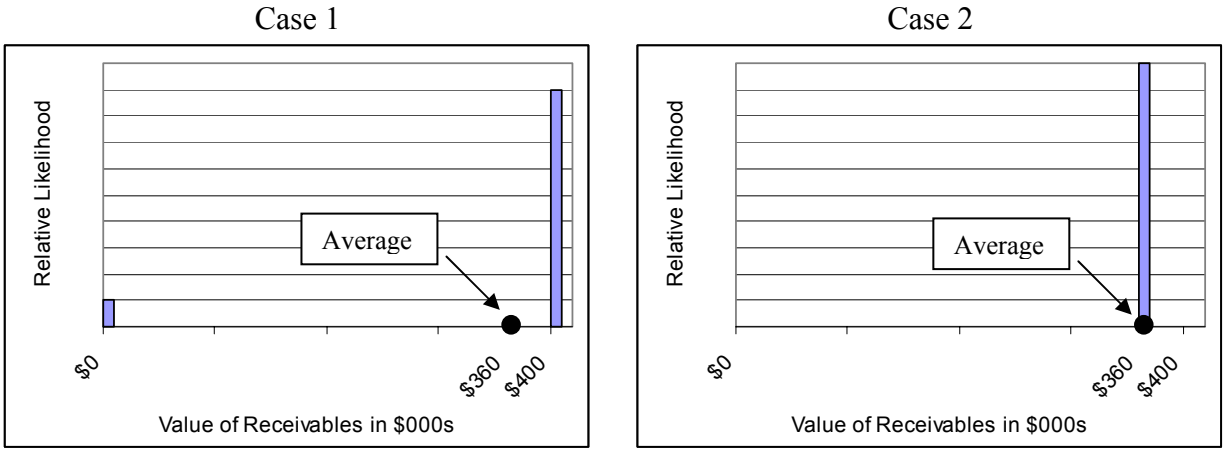
Case 1: A firm has $400,000 in receivables with a single customer who has a 90% chance of paying in full, and a 10% chance of defaulting.

Case 2: A firm has $100 in receivables with each of 4,000 customers, all of whom have an independent 90% chance of paying in full and a 10% chance of defaulting.

How should we compare these two situations? Through their shapes of course, as depicted below. In case 1, the firm either gets the full $400k or nothing. The average, or expected value of $360k appears at the black dot. In case 2, there could be numerous outcomes depending on exactly how many of the 4,000 customers defaulted. However, the width of the bars in the graphs is $10,000, and given the assumptions, virtually all possible outcomes would lie within the bar centered at $360k.

[3] If the bars were made of a dense solid material and placed on a very light beam, the average is where the whole thing would balance.

[4] I have slightly changed the numbers from the original to make the arithmetic easier without materially changing the results.



So here are two portfolios of assets with the same average value. What are their market values? Harry Markowitz and Bill Sharpe shared a Nobel Prize in economics for work related to this problem. Their nearly-universally accepted work states that when two assets have the same average value, the market will place greater value on the one with smaller risk. Thus the diversified receivables in case 2 would have higher market value than the single large receivable in case 1.

But back to the accountants. According to the article, the Financial Accounting Standards Board (FASB) would value the assets of Case 2 at $360k. Given that the asset of Case 1 has greater risk it should have a lower value. However, the FASB rule for Case 1 is that with only a 10% chance of default, "it is not probable that an asset has been impaired." Therefore they would apply the full value of $400k to the less valuable asset! Markowitz and Sharpe would turn over in their graves if they were dead, but as of this writing they are both alive and well, and probably mad as hell.

If 2 = 1, I am the Pope

So what's all the fuss over a little inconsistency? Bertrand Russell pointed out that if you accept any falsehood, you can prove any other falsehood. "What?" he was reportedly asked. "Do you mean that if we assume that 2=1, you could prove that you were the pope?" "Of course," replied Russell. "The Pope and I are clearly two, but if two equals one, then the Pope and I are one. Hence I am the Pope." How might this play out in business if we accept that asset 1 is worth $400k and asset 2 is worth $360k?

Consider a firm whose only asset is the receivables of type 2. The firm has a paper value of $360k. Now assume someone wishes to increase the firm's paper value even if it reduces its real value (assume away says Zero Mostel). The firm swaps their type 2 asset for someone else's type 1 asset (there will be a lot of takers). Their paper value has increased while their real value has decreased. This makes it easier for them to raise more money to pursue more such bad deals that drive their paper value even higher and their real value even lower, without the blink of a warning light on the FASB's instrument panel. When Enron's Skilling says he relied on his accountants, it explains a lot.

Reform

The thrust of the 1993 article was not to get the FASB to recognize distributions, but merely to highlight some of the inconsistencies in current practice. But I believe the accounting profession must face up to uncertainty, and learn to model it explicitly. The Information Age is improving our perception of risk and uncertainty as profoundly as x-rays improved our perception of broken bones. Instead of demanding numbers, accountants should be demanding distributions. No one has stated this more eloquently than Francis Bacon, who said:

> "If a man will begin with certainties, he shall end in doubts, but if he will be content to begin with doubts, he shall end in certainties."