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CHANNELING PASCAL

Decision time? The father of probability theory says consequences outweigh probability.

The best investment advice I ever received came from Blaise Pascal, a 17th-century French mathematician, sometime man-about-town, sometime religious fanatic. Pascal's schizophrenic swings between fun and fanaticism had a lot to do with his excellent investment advice. You wonder how far-fetched I can get? Try me.

Pascal lived from 1623 to 1662. He was a world-class mathematician, the father of the theory of probability, and the founder of Paris's first commercial bus line. In 1654, in cooperation with Pierre de Fermat, a lawyer by profession but a mathematical genius as well, Pascal solved a puzzle that had been bugging the experts for about 200 years: How do you distribute the stakes in an unfinished game of chance when one player is ahead of the other? Pascal and Fermat decided that the stakes should be distributed in accordance with the probability that the player who was ahead would win. Up to that moment, no one had ever set out a systematic method for measuring probability. The rest is history—all forms of risk management ultimately depend upon the laws of probability.

In 1654, Pascal's off-and-on obsession with religion got the better of him. He retired to a religious retreat at Port-Royal near Paris, swore off high living, dropped his old friends, and sold all his possessions except his religious books.

While at Port-Royal, Pascal put forward a strange wager. "God is, or he is not," he proposed. "Which way should we incline?" Pascal framed the issue in terms of a game of chance that ends far off at an infinite distance in time. A coin is tossed. Which way would you bet: on heads (God is) or on tails (God is not)?

Your belief, Pascal argued, is not part of this 50-50 bet. You do not wake up one morning and say, "Today I will begin to believe in God." The only choice you have is between acting as though you believe or acting as though you do not believe. You can wager that God *is* by living a pious life of virtue. People who cannot be bothered with that kind of thing can wager that God is not.

If this is the choice, with even odds, how do you determine the value of the two outcomes? Consider the consequences of being on the losing side of your bet. If you bet that God is and you are wrong, by leading a life of "holy water and sacraments" you will certainly have given up some goodies during the brief span of your existence—but that's all you'll lose. If you bet that God is not and you are wrong, by leading a licentious life you will suffer damnation into eternity.

The insight here is profound. Great mathematician though he was, Pascal recognized that probability alone is often an insufficient basis for decisions. Consequences usually outweigh probability.

Consider the notion that the market is efficient—that information moves so rapidly to skilled investors that beating the market, systematically and adjusted for risk, is an impossibility. If you believe the market is efficient, the best strategy is passive management: Buy an index fund. If you believe the market is inefficient—that you can find active managers with the skills to outperform it—you should invest with those managers instead of with an index fund.

What are the consequences of being wrong in each case? If you bet that the market is efficient and you are wrong, you will still do okay on your index fund. You will at least earn the market return, even though some actively managed funds will do better. But if you bet that the market is not efficient and it is, the probability of your under performing is high. The risk, in other words, is much greater if you bet on inefficiency that on efficiency. If you are at all uncertain about how the stock market works, you should not take the risks of active management.

Pascal's wager does not necessarily lead to such caution. In 1981, when inflation was running at 11 percent and panic was at its zenith, long-term Treasury bonds could be bought with coupons of 14 percent; a year earlier, the rates had been reversed—14 percent inflation and 11 percent bond yields. In 1981, every single bond owned by anyone anywhere was selling at a loss. Should you have bought or sold?

What was your risk if you bought the 14 percent bonds at a price of $1,000 each and you were wrong because inflation got even worse? Let us assume you did this in a tax-deferred vehicle like an individual retirement account. The $140 in annual income was big protection: Yields would have had to reach more than 16 percent during the next year before the price decline exceeded your income. Two years later, with $280 in your pocket for every $1,000 invested, yields would have had to jump to almost 20 percent before your principal loss exceeded your income.

But suppose you decided the game was too risky: You passed up the chance to buy—but you were wrong. One year later, in 1982, bond yields fell to 11 percent, and your 14 percent bond was selling at $1,260 for each $1,000 bond you had invested. You had a total return of 40 percent—14 percent income and 26 percent appreciation. Five years later, yields were approximately 8 percent. The bond was at $1,730 per $1,000, which, added to $700 in income, compounded to a total return of 19 percent a year. You would have increased your wealth by 143 percent, even without reinvesting your $140 income back into bonds.

A thousand dollars invested in the Standard & Poor's 500 Stock Index in mid-1986 would have appreciated to $1,920 and that capital gain plus $290 in dividends would have compounded to a total annual return of 17 percent and a total increase in wealth of 121 percent (stocks are supposed to beat bonds, aren't they?). I also wonder where the market would have gone after 1981 if bond yields had risen to 20 percent.

In the face of what you considered a high probability of a deteriorating economic environment, you still had much less to lose if that expectation proved right than you stood to gain if that expectation proved wrong.

Pascal would have told you which investment choice to make in 1981. If you bet that God is and he is not, you are much better off than if you bet there is no God and God is. Never act on probabilities alone. In making "To do or not to do" choices, always weigh the consequences of being wrong in each case. Even Hamlet had the approach figured out—and he lived long before Pascal.

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