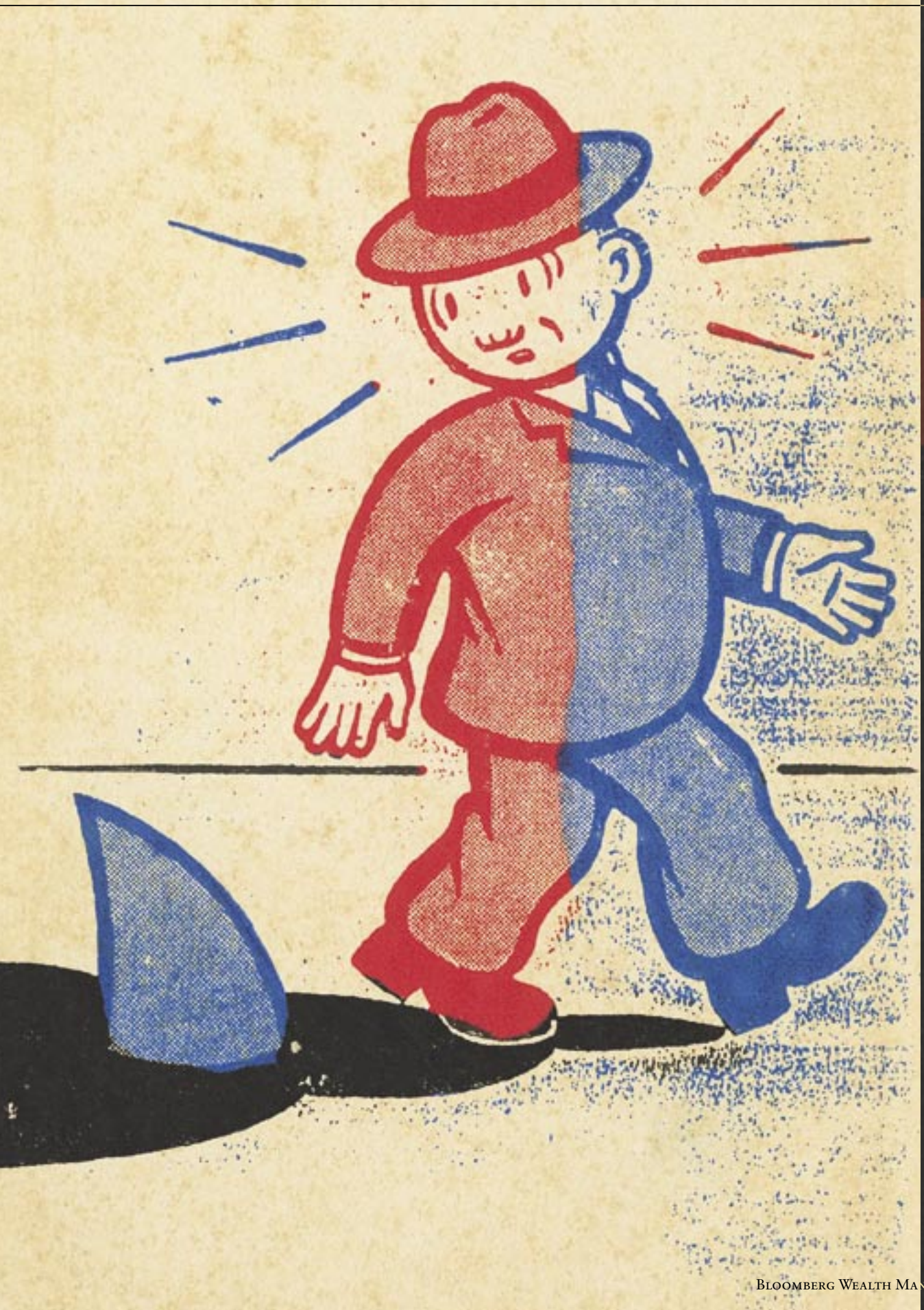
DANGEROUS MEASURES

VaR, MAR, and beta each has its own way of telling you when a portfolio may be in trouble, but the one that's most effective may have less to do with the method itself than how well your client understands it • BY GREGORY TAGGART

ILLUSTRATIONS BY GARY TAXALI



NOT LONG AGO, BEN WARWICK COMPARED THOSE WHO HEDGED their risks with pessimists who bring umbrellas to picnics. "With the solid gains persisting on Wall Street," he wrote in SEARCHING FOR ALPHA: THE QUEST FOR EXCEPTIONAL INVESTMENT PERFORMANCE (Wiley), "many investors have simply not seen much risk to hedge." Well, that was then—the book came out in 2000—and this is now. Risk showed up in the spring of 2000 and ruined the picnic for everybody. Now, almost every investor wants an umbrella. "With the markets we've had, it's easy to understand why risk management should play an integral and connected part of the investment process," says Martin Nemeth, head of wealth-management products at RiskMetrics Group in New York. "It's a discipline that needs to be added to every investor's tool box."

The discipline requires more than understanding risk and how to measure, monitor, and control it. Advisers must also find a way to communicate that knowledge to their clients in terms that are meaningful to them. "You wouldn't pay attention to someone who told you that your return was conservative," Nemeth says, "because you're used to hearing things like, 'Your return was up 34.5 percent or down 10 percent.'" Be just as precise when you're discussing risk, he says. "Vague words like conservative, aggressive, or balanced don't add much clarity to the process."

The trouble with being precise, of course, is that while you're busy looking at what's most likely to go wrong, something else goes awry instead. Still, here's a look at some of the most popular instruments for telescoping portfolio risk. And for those who think an ounce of prevention is worth a pound of observation, we offer a critique of some tactics for keeping risk at bay.

Among the first to slice and dice this territory, Nobel laureate William Sharpe divided portfolio risk in two: systematic, or market, risk and nonsystematic, or company-specific, risk. To protect your clients from the latter, he says, diversify their holdings across asset classes and sectors. According to *The Theory and Practice of Investment Management* (Wiley) edited by Harry Markowitz, another Nobel laureate and father of modern portfolio theory, and Frank Fabozzi, adjunct professor of finance at the School of Management at Yale University, studies have shown that a diversified portfolio of about 20 randomly selected stocks will eliminate most nonsystematic risk. That leaves market risk, something Kenneth Phillips, managing principal at RCG Capital Partners in New York, thinks you can reduce by "not having all of your investments in one market."

The systematic-nonsystematic dichotomy begs the question of how to define the risk that remains even after you've diversified across markets. Markets do go up and down, after all, and your clients' investment portfolios go right along with them. Markowitz, for one, defines risk as "essentially the uncertainty in the return that you get this period, with 'this period' being a month or a quarter or a year." Frank Sortino's definition is less statistical and more pragmatic. To Sortino, director of Pension Research Institute in San Francisco, risk is simply not "accomplishing your goal." John O'Brien, adjunct professor at the Haas School of Business, University of California at Berkeley, is even more investor-focused in his definition: "The investor typically sees risk as a loss, an absolute loss, not loss relative to a risk-specific investment, but usually relative to zero." Finally, Ron Surz, president of PPCA, an investment-consulting firm in San Clemente, Calif., maintains that "at the end of the day, for an investment client, it's the possibility of financial disappointment. That doesn't necessarily mean losing money; it means earning less than you expected or needed to earn."

However you define risk, you must be able to measure it, then communicate that measurement to clients. For Markowitz the statistical concept of standard deviation proved useful in measuring the uncertainty of return, or risk, in a security or portfolio as part of his groundbreaking modern portfolio theory. First developed in his 1952 article "Portfolio Selection," published in the *Journal of Finance*, the theory holds that the standard deviation, or volatility, of a portfolio as a whole depends not only on the standard deviations of the individual securities but also on the extent to which the deviations are correlated. "It's supposed to be a forward-looking measure rather than a backward-looking measure," he explains.

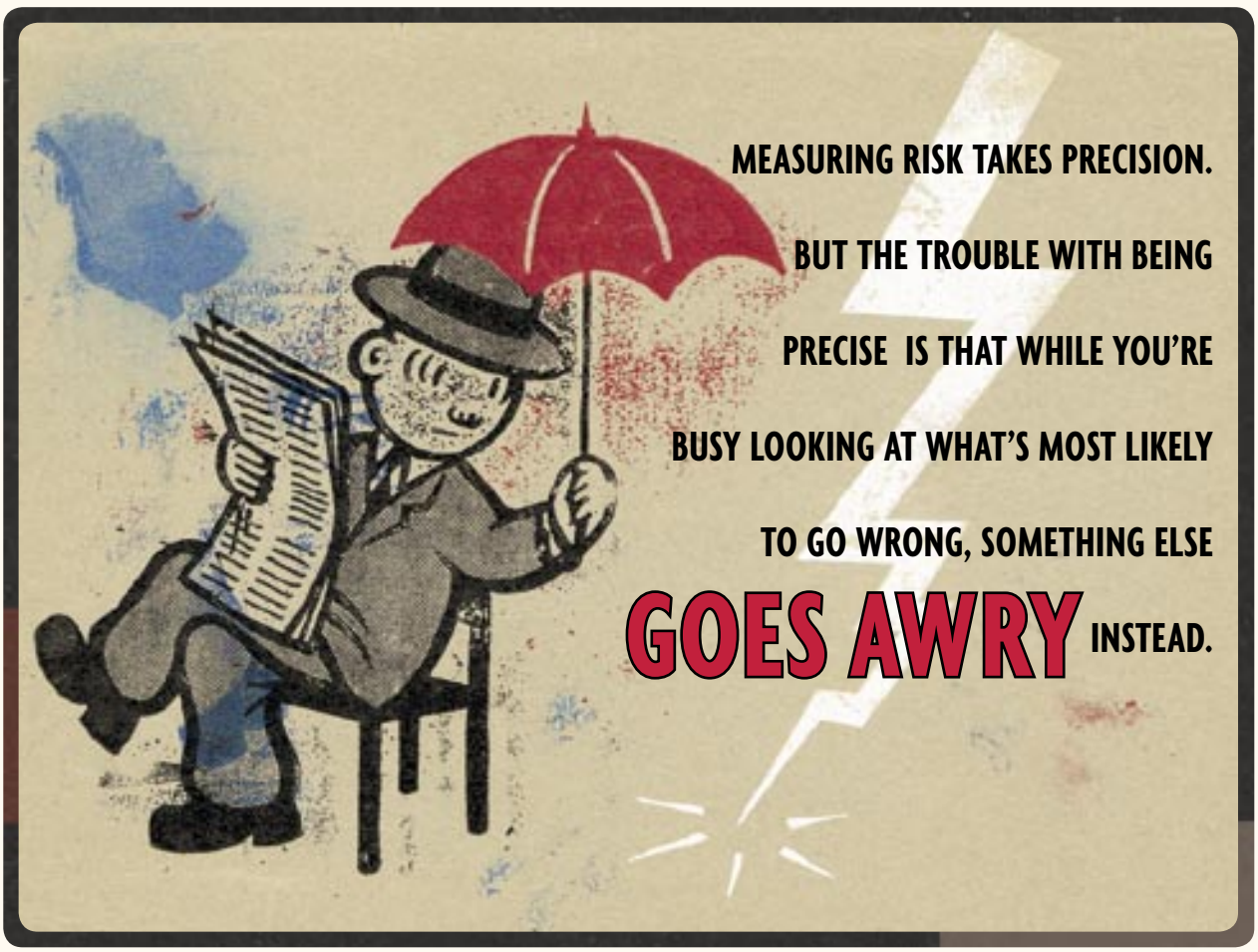
As a yardstick for risk, standard deviation has its detractors—Markowitz among them—largely because it measures

not only downside volatility (the risk of loss) but also upside volatility (the volatility that feathers an investor's nest). Markowitz explains the concept of semivariance, or downside risk, as an alternate measurement in his 1959 book, *Portfolio Selection: Efficient Diversification of Investments* (Wiley). "It's the more plausible measure, but it's more complicated to use," he says. Nevertheless, he continues to use standard deviation for two reasons. First, it's a forward-looking measure. Second, he says, "I have done some experiments in which it turns out that standard deviation is good enough—as long as your probability distribution is between, say, a 30 percent loss and a 40 percent gain—but I certainly wouldn't argue with somebody who wants to go through the extra fuss of using downside risk."

One such stickler is Sortino, the leading proponent of downside risk as a measure of danger (see www.sortino.com for a free program to calculate downside risk). Comparing his definition of risk with Markowitz's, he asks what achieving an average return over a particular period of time has to do with achieving a goal. He has similar problems with the risk measure known as value at risk, or VaR. "It's simply a linear measure of risk. It says that losing all your money is twice as bad as losing half of your money. I don't think so," he says. "It's at least 10 times as bad."

The primary problem Sortino has with standard deviation, VaR, beta (a measure of the risk, or volatility, of individual stock prices relative to the market as a whole), the information ratio (the difference between the return that a manager achieves and the return of a benchmark)—"probably the worst measure I can imagine"—and other risk gauges is that they measure risk relative to the wrong thing, whether it's risk relative to an expected return or risk relative to the market. In short, he maintains, other risk measures begin with the wrong reference point, ignoring what most worries the investor. "The main difference that separates my view of what's risky from the way others view it is [the concept of] minimal acceptable return, or MAR: for most investors, there's some minimum rate of return that must be earned to accomplish a specific goal—say, retiring at age 65 or funding your pension plan within your cost constraints."

On the other hand, value at risk is a statistical measure of risk exposure, giving the investor an idea of his potential



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loss and the likelihood it will occur over a given time horizon, generally with a confidence level of 95 to 99 percent. On the positive side, investors can get their arms around the concept of a potential loss expressed in dollars and cents. The problem with VaR is that it's best suited for short time horizons—a day, week, month, or quarter. "Maybe a year," says Barry Schachter, managing director of risk management at SAC Capital Advisors in Stamford, Conn., a large hedge fund. "But at that point, you're at the outer range."

What's more, he argues, the assumptions inherent in VaR may cause problems in the mathematics of the optimization process, so that "the adviser receives the wrong signals as he feels his way toward the optimal portfolio." For example, the process may point toward an optimal portfolio when it in fact is not, or the process may assign certain risk-return characteristics to a portfolio that may not be realistic. Unaware that this may be happening, the adviser "continues searching in the direction of the signal," he explains. "So when he converges on a solution, he can't be sure that solution is the optimal one."

And what about beta, another widely used risk measure? "Beta is dead," Ron Surz says.

Dead may be overstating it, says Sortino, but it should be. "I'm afraid it lives on." The problem with beta, he says, is that correlating portfolios to the market leads to the misleading notion of beating the market. "What's that got to do with achieving MAR?" he continues. "Nothing." As everyone knows, beating the S&P by 5 percentage points when the S&P is down 20 is a very small favor to the client whose portfolio just lost 15. Besides, the assumptions behind beta are all wrong, he argues. "It was a great starting point. Before beta, we did not have the risk-return framework to look at, so it was a great beginning. But that was 30 years ago. It was never designed to help people manage an individual portfolio."

So what measure should you use? If you're trying to help your clients achieve their objectives and you want to be able to communicate risk to them in something other than vague terms, VaR and downside risk seem the best way to go. VaR helps because your clients will understand the bottom line. It also gives them some idea of the probabilities of success or failure. "I think VaR gives a more meaningful measure of risk," says O'Brien. "But you have to realize it's just a way of expressing standard deviation that has more gut appeal because it translates volatility into an absolute risk number, usually expressed as a dollar amount."

Accounting for downside risk helps because it's the only measure that takes the client's goal into account, then measures the portfolio manager's performance against the MAR needed to reach that goal. In short, it's a very practical measure of an individual client's risk. Consequently, the client can readily see whether the manager is taking enough or too little risk to reach the target, and he may decide to adjust the goal in the face of that much risk. "You can't overestimate the importance of a tool that makes it easier to communicate with your client," Schachter says. "In fact, I would be willing to adopt a somewhat less accurate risk measure if it made it easier to communicate the risk and I could make better decisions with it."

Whatever measure you settle on, portfolio risk has to be monitored. Prudent advisers should gauge a portfolio's holdings for risk and its performance relative to a risk benchmark. The first task is simply a matter of discipline. For Creg Ostler, principal of Private Wealth Management in Phoenix, that means having a routine to follow and rules to obey. Twice a year, his firm analyzes each portfolio it manages to make sure the concentrations in each match the S&P 500 within predetermined tolerances. For instance, the target concentration in the health-care sector is 16 percent, although that can vary by plus or minus 5 percentage points. Consumer staples, at 7 percent, can vary by as much as 3 percentage points. "If we're okay tax-wise," Ostler says, "we'll take it right down on the money. If we're outside the tolerance, we do something."

Ostler's analysis doesn't stop at sectors. Industries and individual stocks receive the same scrutiny. Though he'll allow one stock to make up as much as 10 percent of a portfolio, he'd rather keep it closer to 5 percent. "Even that gives me heartburn," he remarks. Nor does he limit the analysis to twice a year. Whenever there are significant inflows or outflows or 9/11-type events, he does the same analysis. "We follow our discipline," Ostler says.

Today, there are relatively inexpensive tools available to help you measure the risk relative to one or more

benchmarks. For example, RiskMetrics' WealthBench, BarraOne, and Reuters's Intelligent Advisor offer many of the tools found in their more expensive institutional offerings. For as little as $300 a month, you can use PortfolioScience's RiskAPI Institutional Add-In with an Excel spreadsheet to track down the risk in a portfolio, even to the sector, industry, and individual stock level, using VaR, standard deviation, beta, and other measures. Using such a tool in conjunction with an analysis of sector concentration, an adviser can make better decisions about which positions to reduce to stay within concentration tolerances. "Our program allows managers to drill down and look at individual positions to find the one or two stocks that clearly have far more risk than others," explains Ittai Korin, president of PortfolioScience in New York.

Of course, monitoring risk is one thing. Controlling it is another. For most advisers, diversification and asset allocation are the tools of choice, maybe of habit. If those habits are getting to be routine, it may be time to try something new. These new benchmarking tools, in addition to helping measure and track down undesirable concentration in a portfolio, offer you alerts and e-mail notices when you've exceeded a client's risk parameters. "WealthBench, for example, looks for exceptions in terms of risk and asset weighting and alerts the adviser to pay attention to the fact that a client's portfolio may be slipping away from the agreed-upon target," Nemeth says.

THE PROBLEM WITH STANDARD DEVIATION, VaR, BETA, AND OTHER RISK GAUGES IS THAT THEY MEASURE RISK RELATIVE TO THE WRONG THING. THEY BEGIN WITH THE WRONG REFERENCE POINT, IGNORING WHAT MOST WORRIES THE INVESTOR.

Acting on that alert, you can massage the portfolio and either reduce your client's exposure in a particular stock or sector or increase some uncorrelated position to offset the risk. In addition, some long-only advisers are thinking of taking a page from the books of hedge fund managers and adding short positions, buying puts, and using stop-loss orders to ensure that their clients don't suffer significant losses again. Many experts, however, wonder whether long-only managers are equipped for short selling. Phillips, for one, maintains that short selling skills—the skills of a hedge fund manager—are not easily cultivated in a long-only manager. "There are long-only managers every day trying to make the move over to shorting," he reports. "But it's not a simple transformation."

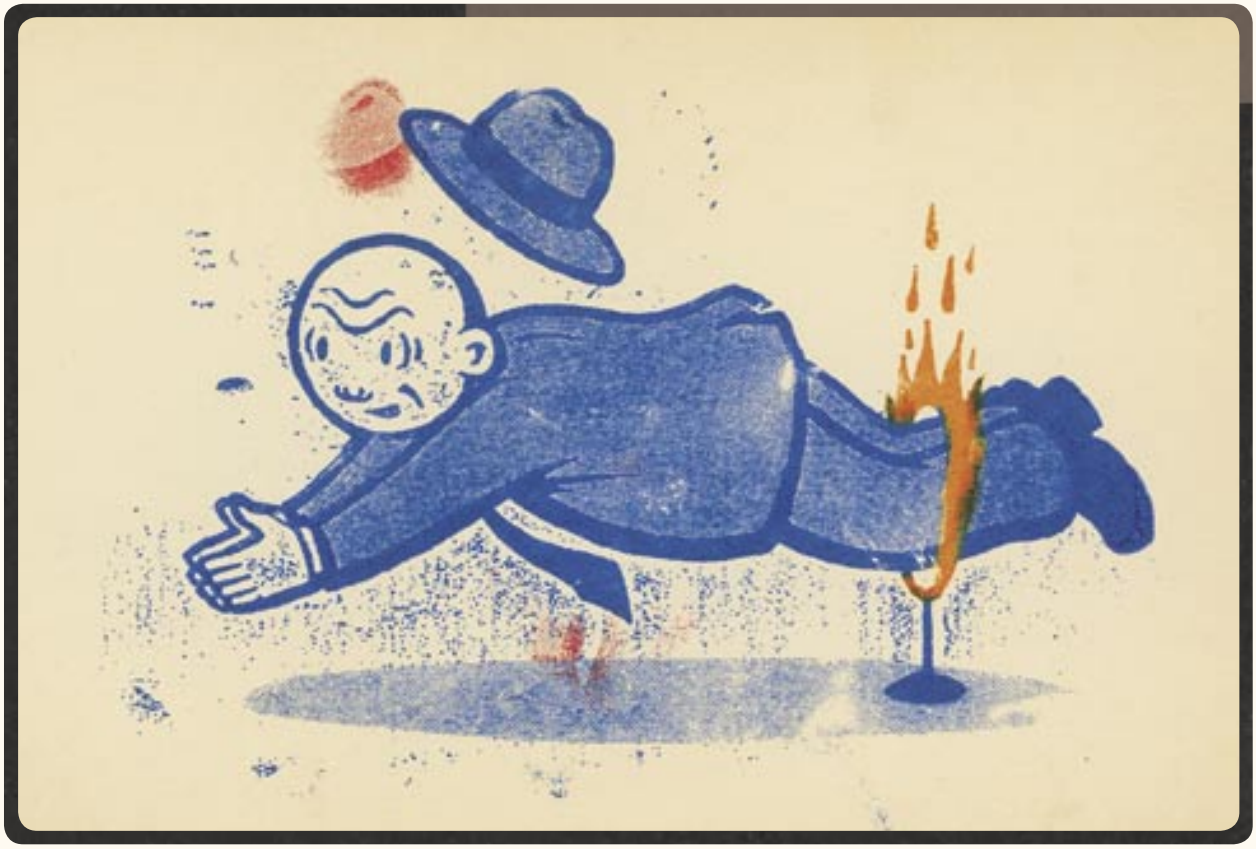
Sortino, for one, is adamant that long-only managers should be wary of short selling, but for different reasons. Typically, their clients are people who don't understand the risks. What's more, to such investors, shorting is the worst of all possible worlds. They can lose more than they would gain—two, three, four times as much. And it's difficult to pick losers, Sortino says, even counterintuitive. "I think selling short should be illegal for all but institutional accounts, those whose managers understand the risks involved."

But to every rule there is an exception, and Jeffrey Van Orden, principal in the Philadelphia office of Milliman USA, thinks one should be made for a long/short or market-neutral strategy in a very diversified portfolio. "Not as a substitute for equities," he explains. "But it's probably not a bad substitute for cash—a horrible investment for a long-term investor."

O'Brien agrees. Though he thinks most individual investors would be uncomfortable being short in the market, if they want to protect the downside, they've basically got two reasonable choices. "One is to buy a put option to protect the long position; the other is to sell the long position and put the money into cash equivalents or maybe a long/short, market-neutral hedge fund."

A market-neutral strategy involves holding an equal amount of short positions in overvalued stocks and long positions in undervalued stocks that are generally highly correlated with the market. Theoretically, market swings don't affect market-neutral holdings—they just sit there like cash. "But the cash equivalents you're selecting are expected to have a higher return than T-bills, assuming the manager is doing a good job," he says. "Most of the managers who are doing this will tell you that they're looking for 500 to 1,000 basis points over the Treasury bill rate."

Buying put options, on the other hand, allows your client to stay invested long with the assurance that if the market, or a particular stock, goes south, he can get off north of the Mason-Dixon Line or realize a profit in the option. For example, suppose you have your client in a portfolio with



a beta similar to that of the S&P 500, and it's at or near an all-time high. He could sell and move into cash equivalents. Or he could buy a put on the S&P to cover his bottom. What has he lost? The cost of the option—a cost that will vary, depending on the volatility of the market, the option's strike price, and the term of the option. "When you establish a 10 percent out-of-the-money put, you'd find the price of that put to be very affordable—as little as 1 to 1.5 percent a year," says Phillips. "I think put options are the cheapest and most efficient way to take a market-short position and/or manage market-related systemic risk."

What does the client gain? The ability to stay in the market and participate in whatever upside remains without losing sleep—or his shirt. Unfortunately, many investors may have to do this part of their investing by themselves. According to Phillips, portfolio managers are generally unwilling to buy puts because the investment industry tends to emphasize performance more than it does risk management. "I think the long-only manager could easily take on buying puts," he says. "But they've been unwilling to do it because it's perceived as a drag against performance."

The explicit cost of a stop-loss order, however, is only the commissions paid and therefore not a major drag on performance. They work well in two instances, explains O'Brien. If a stock never goes down, you've paid very little for the downside protection and get all the upside. And if the stock drops, never to rebound again, you've saved everything but the commission and the difference between the market price before the drop and the stop price. However, when a stock's price drops, triggering the stop loss, then soars, the investor suffers a whiplash he's bound to resent. "You can avoid that unhappiness by paying the premium for a put option," he says. "The only unhappiness is the fixed price you agreed to pay for the put."

Investors still squirming from the market descent that began in the spring of 2000 should be more than happy to discuss risk management with you. Diversification and asset allocation weren't sufficient to protect them from huge market declines then—the S&P 500 lost almost 50 percent of its April 2000 high over the next three years—and they won't protect them next time. Such dangers require more than routine safeguards. "Nobody can forecast the future," O'Brien cautions. "Sometimes the entire market is going to go down, and there is no protection inside the market for the market. For that, you have to go outside the market." Umbrellas anyone?

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