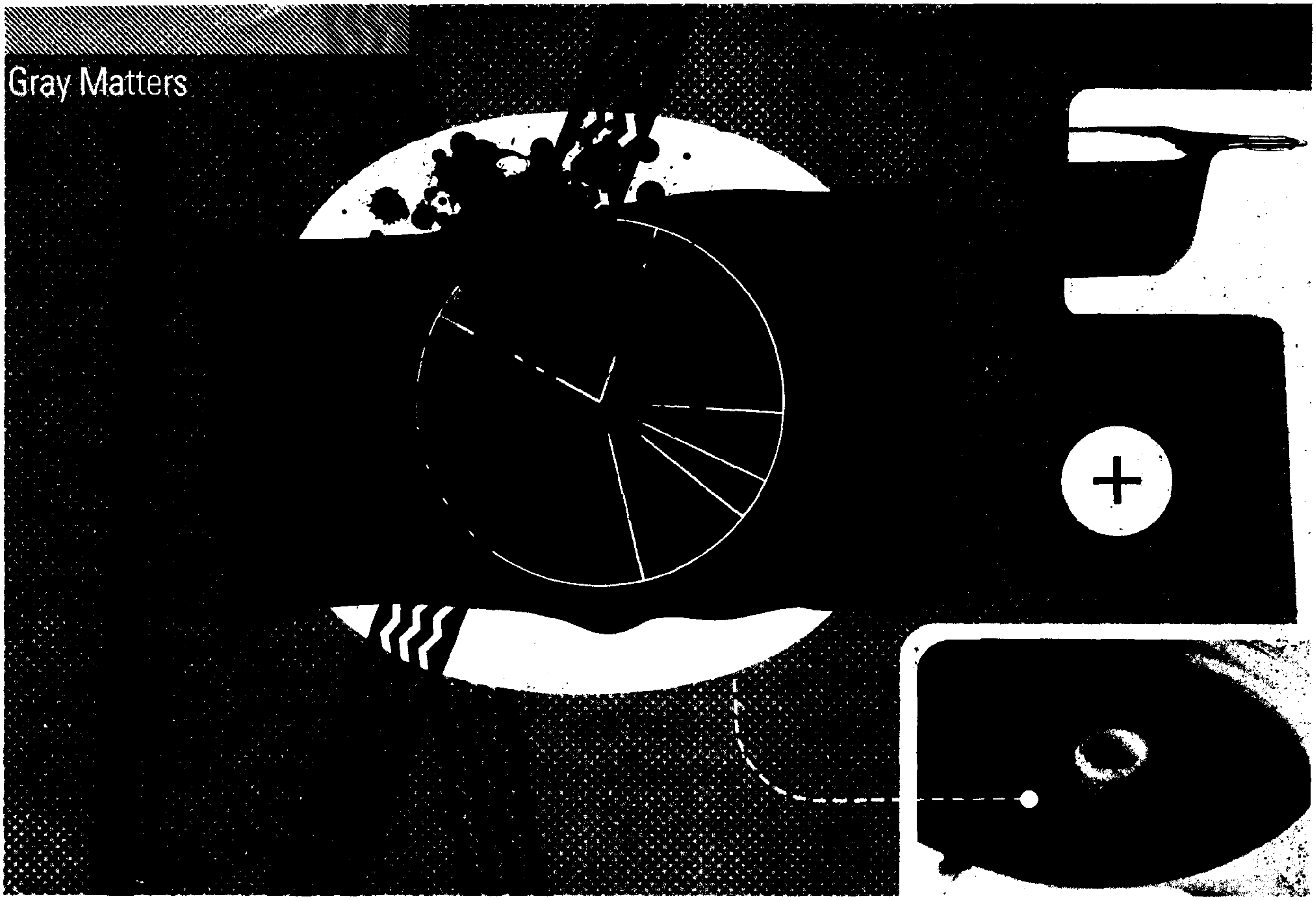

MPT Put Through the Wringer

After another market crash, advisors question whether Modern Portfolio Theory is the best way to tackle asset allocation. We asked two experts to debate its merits.

On the heels of the financial crisis and market crash, advisors are asking whether Modern Portfolio Theory is a valid approach to asset allocation and portfolio management. To shed light on this issue, I asked Steven Fox, director of capital markets research at Russell Investments, and Michael Falk, vice president and chief investment officer of ProManage LLC and an adjunct professor at DePaul University in its Certified Financial Planner program, to debate this question on May 28 at the 2009 Morningstar Investment Conference. Here is an edited transcript of our discussion.

Paul Kaplan: Steven, the current market environment reminds us again that capital markets can be very risky. Less than a decade ago, we had the tech bubble burst. We had the crash of October 1987, we had the bear market of the 1970s, and we had the great crash of 1929. Nearly every time there's been a crash, years pass before the market reaches its previous peak. Yet, the way that Modern Portfolio Theory models risk implies that these sorts of events never happen. In light of capital market history, why should investors use Modern Portfolio Theory?

Steven Fox: This question reminds me of the debates we've had in the past decade or so. We had the death-of-beta debate, which was probably premature, and the debate about the equity risk premium, which we could argue still exists. The common characteristic of all these debates is that a market event caused stress on investors. We're all looking around for explanations of something that in advance of the event seemed impossible.

Today, we're calling into question one of the most powerful, intuitive, and accessible

Steven Fox, Paul Kaplan, and Michael Falk

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tools that advisors have for financial planning, which is Modern Portfolio Theory. Embedded in MPT is a very concise way to measure the trade-off of risk and return and the trade-off of commonality measured as correlation among assets. Those trade-offs, and the results of the theory, tell us some very powerful things about how we should put portfolios together, such as: 1) how much you hold of an asset is inversely related to your perspective on risk; 2) similar assets should have similar status within a portfolio; and 3) diversification mitigates risk.

What you call into question here, Paul, is more the relevance of capital markets' history for making our planning decisions. If we look at the historical record, the average annual return of U.S. equities since the 1920s through 2007 is something like 12% and the standard deviation about 20%. Investors have a one in four chance in any one year of earning a negative return. They have a one in six chance of seeing a return that is less than one standard deviation, or minus 8%. Conditional upon both of those events occurring, we end up with a fairly serious expectation for a negative outcome. If we're in a world where we're seeing less than zero for an equity return, the average outcome is about minus 12%, based on these numbers. If we're down below one standard deviation, we should expect something substantially less than that, around minus 18%. So there's room in the capital markets' record, even if you distill it down to summary statistics, for these once-in-a-lifetime events to occur.

Kaplan: Michael, isn't diversification good advice? Shouldn't investors hold less of an asset the more risky that they think it is?

Michael Falk: MPT has two parts, the way I define it. One is diversification. The other is the math for how you decide how you allocate the assets/asset classes you have selected to use in your diversified portfolio.

Diversification, absolutely, is a good idea. The way I talk about it with students is that when you are properly diversified you will at all times have a dog in your portfolio. Think about that for a second. You want to ensure that at no given time will your entire portfolio bark at you. That is the objective of diversification.

Now, the math part. Because it is intuitive and elegant in its simplicity, MPT has attracted a great number of followers. The greater the following became, the fewer questioners debated its merits. The dogma ate their homework. The assumptions baked into MPT are perceived as certainties: They're mathematical, and we trust numbers. Maybe we shouldn't. Because the issue is simple: The math doesn't work. The markets are not normally distributed. Therefore, standard deviation cannot function. We need accurate ex-ante predictions for the inputs for returns, standard deviations, co-variances, and the future is unknown. It assumes that all investors at all times are risk-averse.

How do you argue with Dr. Harry Markowitz, a Nobel Laureate? You use another Nobel Laureate—2002, Daniel Kahneman, economics. Kahneman says that investors are not risk-averse; they're loss-averse. They have an S-shaped utility curve. They are risk-averse with gains, and risk-seeking with losses.

Why are we having these 100-year events every few years? Has anybody thought that maybe the definition is just wrong? The market is not normally distributed. If the market is not normally distributed, standard deviation doesn't hold as a definitional statistic. Garbage in, garbage out.

Kaplan: Steven, you spend a good deal of your time at Russell coming up with assumptions. Garbage in, garbage out?

Fox: I certainly hope not! I hope that my assumptions are an informed view of what could possibly happen. As soon as you put a portfolio together, you're taking a viewpoint about what's going to happen in the future. We can't disengage our portfolio decisions from that. MPT gives you a structured set of rules by which to make that decision,

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given a certain set of assumptions. Nobody knows what's going to happen in the future. But I think we can make some fairly educated guesses and form some expectations based on good information. They may not always come true, but in the absence of anything else, I think we have to do that.

Kaplan: Michael, with the models that Steven works with, asset-allocation weights explicitly come out of assumptions about expected returns, standard deviations, and correlations. You have a very different point of view on how to come up with asset-allocation weights.

Falk: I've learned that the only thing forecasts do for you is that they make you wrong. So why not just avoid forecasting? Let's start with diversification and the building blocks of a portfolio. We could all probably agree that there are six to 12 basic asset classes. Which ones you choose is the investment diversification selection. What's the allocation or weighting of those selections? One choice would be to market-weight them, and another is one-over-N. People may know this as the "naïve diversification theory." Equal-weight asset classes? You're probably thinking, how did this guy get on this panel?

In 1988, in an interivew for *Money* magazine, Jason Zweig asked Dr. Markowitz how he invested his retirement dollars. His answer was, "I have half of my money in stocks, and I've got half of my money in bonds." Sounds like one-over-N to me. Zweig then asked Dr. Markowitz how he came to that allocation. Was it through a quadratic calculation? He said, "Jason, I probably should have done some form of calculation to decide my weights. But the reality is, I do not know which one is going to perform better in the future, and I do not want to regret making the wrong choice."

The man whose theory so many are following was a one-over-N man. That's how I got on this panel!

Kaplan: So Steven, what is it that you're doing at Russell again?

Fox: I'd argue that Michael is also doing forecasts. There is a view embedded in one-over-N that in the MPT space would come out as: Every asset class has the same marginal contribution to total portfolio risk. So you'd allocate equally across all those assets.

But I also have to acknowledge that forecasts can be wildly wrong. The minute you say that return to asset class X is going to be 10%, as a forecaster, I know that's going to be wrong. The beauty of MPT is that I have some idea about how much uncertainty there is around the expectation of that forecast. That's where the concept of risk gets introduced in MPT. It's standard-deviation proxies, both investor preference for risk and my uncertainty surrounding what I think the future is going to hold. You're really a forecaster, Michael. Just admit it.

Falk: As long as you remember that the standard deviation—which is a measure of uncertainty, not a measure of risk—only fits in if it's a normal distribution. If it's not a normal distribution, standard deviation has no merit in terms of the calculus.

Fox: Suppose for a moment that, in fact, the world is not normal. It has slightly fatter tails than standard deviation would allow you to believe. Question: How much weight do you want to put to that part of the outcome space in your portfolio decision, if instead of a one over six chance of there being a minus 8% return, it's one in four?

The alternative to using MPT is not well specified. So you have to be very careful with assuming that, well, the model offers a horrible approximation. But it may be that it's good enough, in the sense that you don't want to strongly overweight low probability events. You might want to take a different approach to mitigating that type of risk.

Falk: Which really goes to the other side of the one-over-N, which is it doesn't have to be the complete portfolio. It can be within a core/explore framework.

The core, 60% to 80% of the portfolio, is the one-over-N, or market. These are liquid, typical asset classes. Let's start with the macros: domestic equities, foreign equities, U.S. Treasuries, U.S. corporate bonds, foreign bonds, commodities, and cash. If you want to throw real estate in there, feel free. But if you're going to use active management instead of passive in the portfolio, just know your active managers are buying REITs at times, hopefully the right times. On the equity side, you can get more granular. U.S. equity can be large, mid, small. On the foreign side, you could do large and "smid"—because we don't have a well-defined mid and small—and if you want to, throw in emerging markets. But if you're using active managers, again, know they may use emerging in their portfolios. What we're really talking about is six to 12 asset classes for core. The reason why I go a little more granular myself is because I do still hold regression to the mean near and dear, and I want a little bit more to rebalance with.

The 20% to 40% explore is what I refer to as the TAIL: Tactical. Active risk tilting. Insurance.

Leverage. This is where you bring in your active strategies to express a view. Tactical could be a hedge fund play or a go-anywhere manager. The insurance is Vineer Bhansali's tail-risk hedging strategies at PIMCO, or it could be an advance life-delayed annuity contract for a retiree. My point is that if you want to express views, it's OK. We're human. Our clients, ourselves, the PMs we give money to, all have biases built into their decision process. But we should try to sequester the lion's share of our portfolios away from these biases. Don't let your views overarch the core.

Kaplan: Moshe Milevsky of York University in Toronto has a book called *Are You a Stock or a Bond?* What Milevsky is saying is that whether your human capital—the present discounted value of all of your future income—is more correlated with stocks or with bonds depends on the nature of sources of income. A tenured professor is a "bond" because like a bond her future income is at a known fixed level. In contrast, a stock trader is a "stock" because the value of his career is highly correlated with the stock market. Is MPT a general-enough framework for us to deal with that adequately?

Fox: To the extent that you can define something in terms of measurable return and risk, it can fit into the MPT framework. As soon as you introduce multiperiod structures and cash-flow requirements, you're stressing its limits. But in general, to get a broad, adequate picture of what a portfolio should look like, sure there's room.

Kaplan: What about for a one-over-N'er?

Falk: Human capital is critical to the equation. When you expand the asset picture from paper assets, stocks and bonds, and real assets, you think of the human capital, Social Security, and pension assets. What we find is that people have a much bigger portfolio than they think they do, and it is heavily weighted towards fixed income.

Kaplan: Is that a problem for MPT?

Falk: All depends on how you create the inputs and the value of those securities. It's one thing to model Social Security, which is fairly consistent. If we're considering an individual a stock or a bond, what happens when the person loses his or her job or changes career paths or starts a company? You'll have to make changes in how you calculate that.

Kaplan: Nevertheless, when those changes occur, would you change the asset mix or not?

Falk: Typically, I don't change the asset mix. I use it as a tool in the rebalancing argument, because the reality is, we're not selling anywhere nearly as much bond to buy stock as clients think we are, because their bond asset is significantly larger than they think it is.

Fox: Did I hear you right? Did you say that you don't change a portfolio allocation when a client's circumstances change?

Falk: One-over-N is the core. Why would you reweight a purposely equally weighted allocation? The explorer portion of the portfolio is where you will reshape a portfolio based upon clients' changes. The challenge here, as we think of classic risk tolerance, is how we then produce allocations. Risk tolerance is two things: risk preference and risk capacity. Risk preference may be consistent, other than the fact that investors are loss averse. Risk capacity is what we're talking about when clients' goals change. Do we change the portfolios? Do we change the definition of the goal? How much should they be saving? This gets into managing expectations.

Fox: Because the university professor who goes from MIT to Wall Street thinking he can be a trader suddenly moves from being a bond to a stock. I think that should fundamentally shift your perspective of what the portfolio allocation should be. That's an easy translation to make, in terms of the structured decision you'd get from MPT.

Falk: ... if you think he's going to stay on Wall Street. Because again, we're talking about something that we think we can count on. It's a challenge. The human capital asset can be very big, and the accuracy of forecasts about its value is critical due to the inordinate impact they can have on the allocation. The allocation framework is where you get to a lot of the art of this business.

Kaplan: When we do asset allocation, we're always looking for what else can we put in a portfolio that's not going to go down at the same time that stocks and bonds go down. We've just gone through an event where pretty much most of the asset classes went down. Is there really such a thing as a non-correlated asset class?

Fox: An uncorrelated asset is a myth. It doesn't exist. An example I use is oil and large-cap equity. It goes through fits and starts where correlation goes between plus 0.5 and minus one. It depends on which window you're looking at, as to how big that number is.

Falk: Not only doesn't it exist, but if it's ever actually found, we would ruin it. Think about this for just a second—the pursuit of alpha, assuming that actually does exist, versus beta. We've moved into esoteric asset classes. We've moved into potential illiquid asset classes that the early adopters could extract additional returns, alpha. Once those asset classes have reached a level of popularity and have become more liquid through other investment vehicles—ETFs, ETNs, etc.—the pursuit becomes beta. It is no longer alpha.

Fox: Your ability to gain returns, disproportionately to the risk inherent in it, goes away.

Falk: Yes.

Kaplan: On that point of agreement, let's conclude the session.

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