

An Interview with Rex Sinquefield

By Peter Tanous
Investment Gurus
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Rex Sinquefield works in an ideal environment. His large Santa Monica, California office has an even larger terrace, decked out with tables and chairs and an unobstructed view of the Pacific Ocean. Traffic moves quietly on Ocean Avenue just below, a Riviera-like setting with lanes of palm trees which parallel sandy beaches.

Sinquefield is chairman of Dimensional Fund Advisors, a different kind of money management firm. What they do is rooted in an investment philosophy to which they adhere with religious zeal. This firm manages \$18 billion using proprietary fund vehicles which emulate different style and size attributes of various securities markets worldwide. What this means is that he might have one fund that behaves like the S&P 500, another that correlates with just the value stocks in the S&P 500, and other funds might emulate the performance of all small-cap stocks, and so forth. The idea is to allocate funds among these different vehicles to create an optimal portfolio. No one does this better than Rex Sinquefield. Welcome to the world of passive investment.

Passive investment proponents like Sinquefield are passionate people. They believe, ex-cathedra, that you simply cannot beat the market. As you will see, when you confront them with the truth that there are managers out there who do beat the market, they revert to distribution charts which show that there will always be some who beat the market, but you really can't predict who they are in advance. Thus, active investment is a waste of time. You are far better off, they say, spending your time, energy, and money deciding what types of stocks you want to buy, and then buying those index funds that correspond to the types of stocks you have chosen, thereby saving time and money. Don't try to reach for that brass ring because you won't get it. Convert to passive management and your problems will be over.

Beware: this is the take-no-prisoners philosophy at this firm, whose board includes some of the best known academics in the investment field, not to mention a Nobel Prize winner or two.

If you believe in active management, and that a good manager can beat the market, prepare to be just a little shaken: Sinquefeld is very convincing. Judge for yourself.

Peter J. Tanous: Let's start from the beginning. When did you first get interested in stocks? Was it as a kid? There's usually an anecdote or two associated with people in our business who have been as successful as you are.

Rex Sinquefeld: When I was studying to be a priest in the Diocesan Seminary at Cardinal Glennon College in St. Louis, I owned \$200 worth of one stock. I would check it periodically in the newspaper. Now here I was studying to be a priest, so why should I even be interested in this? After three years, I left the Seminary. At that time I owned two stocks. I just got interested in the process, but I fell on wayward times. You see, I was dabbling with active management when I was a college student. So, there is no question that in terms of financial experience, I've had a sinful past.

Okay, Rex. As they say in the ring: "Let's get ready to rumble!" It's time to get into the active versus passive management controversy. I'd like you to start by defining active investing and passive investing.

It was originally just a question of, can you beat the market or can't you? Back in 1973 when the world was simple, the first index funds were started, one at American National in Chicago and one at Wells Fargo in San Francisco. These funds were designed to emulate the performance of the market. I was fortunate enough to be heading up the one at American National. Back then, you could use the word "passive" or "S&P 500" as perfect synonyms.

When our firm, Dimensional Fund Advisors, began in 1981, we started creating a variety of passive or structured portfolios, to go after a lot of different asset classes. [The reason for having different asset classes is that different types of stocks, e.g., value and growth, or big and small, behave differently as a class.] None of these are pure index funds. You can't buy every stock in an index and perfectly emulate the index. In fact, if you tried that, you'd get killed—because of trading costs and other restrictions.

We get back to the question, what is the difference between active and passive management? Passive investing generally refers to the idea that you are going to get market rates of return from whatever category you're investing in. [If you are invested in stocks, you will do no better or worse than the market over time. If you limit yourself to, say, small-cap stocks, then your return, over time, will be no better or worse than the returns on the aggregate of small stocks.] We believe that you're not going to be able to do much better than that because the market doesn't misvalue securities. The prices are right. If you believe in active management, you're saying that there are people who can make valuation judgments that are superior to the market.

We've set the stage for where you're coming from. Let's grant that markets are efficient—the hypothesis we are discussing. Isn't it reasonable to assume that some analysts are better at predicting factors that may not be in a given stock price at a given time? For example, the fact that this particular company may grow faster than most people think, the fact that the public may develop an appetite for a product, demand which is not widely anticipated. It could be Barbie Dolls, Hula Hoops, or Pentium chips?

Your question is, basically, are there some people who can systematically see the future? That's what it comes down to. The problem here is understanding how the market mechanism works. The central point is that no one person has very much information. In fact, regardless of how smart they are, or how informed they are, they have a tiny fraction of the information that is available to the entire market at any point in time. The markets are completely interrelated. Do you think it is credible that there is one person who systematically has more information than a dispersed market of six billion people? That's not remotely credible. But that's the condition that somebody has to prove. That there is such a person who has all this information—and the information changes second by second—who is so good that he or she is going to come to better conclusions than the worldwide market that is setting hundreds of millions of prices every moment? That's not plausible.

Let's put this in practical terms by talking about someone you know, a very successful active manager, Richard Driehaus.

Yes, I know him. Before Richard Driehaus was on the DePaul endowment committee, the committee had raised the subject of hiring an active manager. That didn't happen in my tenure as chairman, although it's happened since then. At one point during my tenure, Richard Driehaus's name came up. I expressed my reservations and nothing happened. Then someone mentioned that Richard was thinking about giving a substantial sum of money to the University. It turned out he was going to give an amount equal to about half of what we were considering having him manage. So I said, not only is it an excellent idea to hire him, but I think that sets the appropriate standard for hiring any active manager. I have reminded them of that consistently, and I think all universities should follow that model.

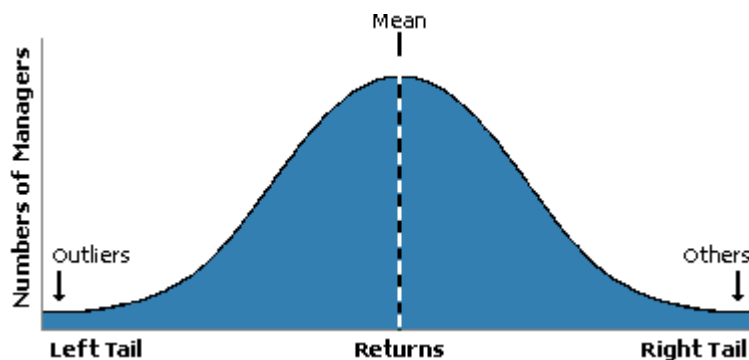
No doubt that Richard Driehaus is the quintessential example of the active manager.

Driehaus is an unusual example because he has an exceptionally good track record. He is what we call an "outlier" as far as active managers go.

Rex, please explain "outlier" for some of our readers.

Figure 1

Normal Distributive Curve



This is someone on the far right tail of a normal distribution curve. [The classic bell curve. Those on the far right tail have above average returns. Those on the left tail are also outliers, but their returns are below average.] Richard has an incredible record but he also has, as he

will acknowledge, an extremely high variance [a measure of volatility or risk] strategy. I've not seen a strategy with as much variability as his. Nor with as high a return as his. It is not for the fainthearted.

But my point is that there is a method to his success. Richard primarily seeks what he calls "positive earnings surprises."

I know. I've heard his presentation.

Perhaps his methodology works. Here's one of his examples. The Street is expecting XYZ company to earn \$0.24 per share this quarter. The Street is wrong; the analysts are wrong; the company comes in with \$0.38. All of a sudden the estimates start getting revised and now this stock is on a tear. They're doing a heck of a lot better than everybody has thought they were going to do. Now this is what Driehaus look for, and this is how he makes his money. How does this differ from what you're saying?

Clearly, if someone comes up ahead of time with an expectation that is much higher than what is expected in current prices, and their expectation turned out to be right, then, in that particular case, the stock price will shoot up and they're going to look like a genius. There's no way we can explain those particular anecdotes, or gainsay them in any way, with any of the models or concepts of efficient markets. In fact, it's good to think about the difference between social sciences, like economics, and physical sciences in the nature of what they are able to predict. Physical science can make predictions about things in the physical world in great detail. Once they have figured something out, that prediction is always going to be true down to the nth degree.

They behave systematically.

In physical science, they've got to behave the same way all the time. It is as if they are subject to whatever new rule was discovered; there is no deviation from it. That's why predictions in the physical sciences can be precise and detailed. In the social sciences, like economics, predictions are going to be very general. They're going to be more pattern-type predicting. They will not be able to predict detail at all. The good social scientist or economist would never attempt to do so. Why? Because social science involves people who can change their beliefs and their objectives at any time. What is important one day may cease to be important the next.

So, when someone says, how can you explain this event or that event, the point is that the social sciences, including economic science, wouldn't even pretend to be able to explain a specific event by their models. It could be the case that Richard [Driehaus], or any other active manager, made a superior forecast and ex post facto the market was wrong. It could also be the case that it was just plain luck. There is no way to know for sure.

Let's talk about lucky people then. How do you explain the coterie of managers who appear to consistently beat the market over time? And I don't mean the guy who has one to two lucky years.

The answer to that is contained in your question. The guy that had one or two lucky years isn't the one we look at any more. We only look after the fact at those who ended up having a very good long-term record. We pull these people out from the right tail of the distribution. These are the most successful managers. How do you explain them? I could counter by saying how do you explain the three people at the left side of the tail, but we don't know who they are. They dropped out of the game. Table stakes were taken away from them a long time ago. In fact, there are probably many more of them than there are at the right end of the tail. So we have this huge problem of ex post facto selection bias when we look at the very successful people. We know 20 years from now, 30 years from now, there will be three or four or five other people. But we don't know who they are now. It would really be helpful if we could tell in advance. There have been loads of scientific studies looking for evidence that one can tell successful managers based on prior records. These studies do not meet with success. There is just no reliable evidence that there is persistence in professional manager performance.

I believe you have made the point in your writings that the burden of proof is on the active managers. Active managers must prove their ability to predict future price movements in a systematic way. Are you saying this has not happened?

It hasn't happened. Let's think about what would happen if someone was able to give a convincing proof that active management works across a broad sweep of managers. If so, what they're proving is that the *raison d'être* for the capitalist system is wrong. Market prices are wrong. But the study of market efficiency won't allow you to take a specific manager and prove whether or not he beat the market by skill or by luck. That's getting down to a level of forecast that is too precise and too detailed. All we can do is examine the vast array of managers and see if, in aggregate, their performance conforms to a model that says, yes, it seems that market prices behave with uncanny accuracy.

What does that mean, "Market prices behave with uncanny accuracy?"

The best assumption is that market prices are always right. Yes, they fluctuate, but that's because there's constant news coming to the market.

This is important. You're saying that the changes in market prices are nothing but a reflection of changes in circumstances?

Right. Every moment in time. The information that comes and affects a given company need not even come from the company. Let's take an American drug company. We can see the price fluctuating and not understand what is going on. But perhaps there was a development made by a drug company in Europe that is going to have devastating consequences for the American drug company. As a result, people over there are taking action on the price. You don't know where the information is going to come from. But the market will impound it quickly as long as somebody acts on it.

Let's get into that. Let's talk about some of the studies that back up your thesis. Let's start with market efficiency.

Start with the two big experiments of the twentieth century. You have the consistent success of what we today call capitalism, and capitalist societies survived. But without exception, we witnessed the failure and collapse of systems, like communism, that are organized around the idea that you don't need free market prices. That's one very general and repeated experiment

in mankind's history. I don't know how many civilizations there have been, several hundred or several thousand, but it's that many versus zero. It all goes one way.

Then we have all the work in the academic world for the last forty years. Nobody has been able to find that traditional managers have been able to outguess markets by anything more than you get by chance. If all of these funds had been run by orangutans, we would get the same distribution of returns.

You mean we'd still get a Warren Buffett and a Peter Lynch?

You'd get Warren Buffett; you'd get Peter Lynch. And they'd probably work for less. In fact, they'd probably work for peanuts! All of this research suggests that you just can't find any evidence that active managers do well. From a practical point of view, investors are probably better off if they just assume that markets are efficient. It will save them the distraction of wondering whether this fund manager is better than that one. There's huge risk in buying an active portfolio. The average investor is not able to assess all of the risks of an active manager. Suppose this active manager suddenly starts holding a concentrated portfolio and it falls 60%. Well, I hope no one has a serious amount of money in that portfolio! That kind of risk isn't going to happen to a market-wide portfolio. It's always possible that the entire market will fall 60%, but that's a much different event than an individual portfolio falling 60% because the managers have concentrated positions. Investors can have a much simpler life if they say, okay, I'm just going to assume that markets work. Now I'm going to think in terms of asset-class portfolios or index funds. What I really want to think about is how much risk I want to take. [An investor who wanted to take market risk could just buy an index fund that emulated the market. An investor who wanted to take less risk than the market might put a portion of his assets in the market index fund, and the rest in a fund that emulated short-term interest rates, for example, since that is less risky than the stock market.]

How do I configure my portfolio using asset classes?

Current research looks at three dimensions. How much do I want to have exposed to equities? Within equities, how much do I want to have exposed to companies that are really struggling, i.e., value stocks? How much to small stocks? The person who wants equities that will earn more than market returns over time, and recognizes that it entails above market risk, has only two avenue to pursue, based on current research, value and size attributes. [That's because research shows that value stocks have higher returns than growth stocks and small stocks have higher returns than large stocks. But both value stocks and small stocks are riskier than the market as a whole.] And, you can go domestically and internationally with both. There are lots of index funds available to do this. Those are the dimensions from which investors must choose.

If an investor decides to think in these terms and makes choices using asset class portfolios, life suddenly gets real simple. He doesn't have to burn the midnight oil figuring out what stocks to buy or what fund to buy. He doesn't have to buy all of those reports that list mutual funds; he doesn't have to read publications or listen to programs that are void of substantial content. I like to refer to this as "investment pornography."

Let's move to another discussion, which I know is dear to your heart; that is, the style question. Let's say that the world now agrees that the efficient market theory is correct, that over time it's pretty hard to beat the market consistently. If there are

people out there who predict the future, we're not sure who they are or whether they're just lucky or not. That's the thesis. Now, once we decide to invest in the market, we still have some choices to make. Asset classes are the choices. Let's start there and move on to growth versus value.

Okay. It's one thing to say that markets are generally efficient. We have to add a second thing which is that, in any well-functioning market, the only thing investors get compensated for is taking risk. If people need to lay off some risk, they are going to have to compensate the people who will take that risk. It turns out that research over the last ten or fifteen years has really enriched our understanding of the types of risk that are in the market and that are priced accordingly.

There are lots of risks in the marketplace, but if the market doesn't reward them, then the investors will stay away. People can take all sorts of foolish risk, but the market won't reward them for doing that. What seems to emerge, in the equity markets at least, are three types of risk. There's overall market risk. Then there's value-type risk, which is a poor choice of words but we're stuck with it. This refers to the risk in companies whose current and future earnings are not going to be very good. The market seems to correctly assess who those companies are. That risk factor is at one end of the spectrum. At the other end, are the growth companies, those companies that are having fabulous earnings and will continue to do so. So we have this value/growth dimension.

Another dimension is the big/small dimension. Small companies seem to be similar to value companies in that, on average, they're going to have future earnings problems. That's a source of risk. The market doesn't like that. So, small stocks and value stocks seem to be associated with higher rates of return. But it's really a cost of capital question. The value companies are struggling, and because they have this type of risk, they have to pay more for equity capital. The high cost of capital for the firm means a high rate of return for the investor. Investors should not look on that as a free lunch. They are simply getting compensated for risk that they are bearing.

So getting back to your question, the choice is that, if I am going to buy equities, I still have to make decisions as to which classes of equities I want. Then I have to say, do I really want to take a lot more risk than is contained in the market in general to go after above market returns, or would I be happy with just market-wide risk? As we know, market-wide risk has provided returns on the order of 10% per year since 1926. There are now studies that go back much farther.

In fact, Jeremy Siegel, in his very well received book: *Stocks For The Long Term*, goes back much farther.

There were also two professors, Wilson and Jones, at North Carolina State University, who some years ago came out with a paper on studies of rates of returns from about 1870 to 1925. Their subtitle could have been "The World Before Ibbotson and Sinquefeld." What surprised me was their finding that the average inflation-adjusted return and the distribution of real returns on stocks was virtually identical to what Roger [Ibbotson] and I had found through the seventies. This was remarkable. It would suggest that now that we have over 100 years of data, the market says it wants about a six to seven percent premium over inflation for market-wide risk. So investors can think in those terms. I can buy a CD or a Money Market

Fund. Or, if I am willing to take market-wide equity risk, I get another six or seven hundred basis points per year on average with acceptable risk.

Conversely, an investor could say, you know what? I want the higher returns of equities, but I want to be much safer. Then that investor can choose the growth stocks; stocks with high earnings. Those stocks will have lower returns, on average, because the companies have low cost of capital. They don't have to pay a lot to raise equity money or to borrow money. This is very counterintuitive. It goes against everything we were raised on in the markets. This is the essence of the three-factor story which I'll explain later. What Fama and French were about to show very well was, that when it comes to companies with high earning growth, the market knows who they are. Companies that are shooting the lights out in terms of earning do not have high costs of capital. They are not risky. So, why should they provide unusual rates of return? If they're going to provide a 25% per year return on equity, that's not the same as saying their cost of capital is 25%. They're the safest companies around. It's the companies that are struggling, hanging on for dear life, that should have to pay 25% for their equity capital. That's the essence of the story.

Yeah. But, the other side to that—the side we were all brought up on—is that the safe thing to do is to buy a value stock because it's on its back and it's going nowhere. It's selling at a discount to its book value, and the downside risk is real low because it's already flat on its back.

Right. That was part of the story. But you left out a part. If it's flat on its back, it's in the intensive care unit. You forgot to mention that, for a lot of people in the intensive care unit, the next stop is the cemetery.

Okay. Let's talk about value. The concept that's going around is the value stock thesis based on book value, Warren Buffett's approach. Now you wonder whether or not, in the new economy we are experiencing, this approach still has merit. The real value of many corporations in the technological age is not in hard assets. We're not talking steel plants or automobile manufacturers any more. We're talking about technological developments and software, the Microsofts and the Sun Microsystems. Doesn't this change the way we value companies in terms of their assets or the nature of their assets?

Some things might change but that's no reason to think that the three-factor model will. Even in an industry that doesn't have a lot of plant and equipment, you're still going to have a ranking of, say, book-to-market ratios. The companies with the lowest prices relative to their book values are probably those in trouble. And those with the highest prices relative to their book values are those that are having great earnings success and are going to continue to do so. Typically, we don't find a wide dispersion within an industry because companies in the same industry, to some extent tend to thrive or struggle together. The time periods covered by many of these studies also witnessed changes of many types. Accounting variables are also subject to changes which pose problems.

The point here is not so much that we will still rely on high book-to-market ratios alone. The question is how do you value the assets today in the new technological age? Aren't you convinced that the economy has changed enough so that the way we value assets ought to change? That is, the basis for book value.

I don't know because I'm not an accounting expert. Book-to-market is not the essence. That's simply a measure that helps us spot prospective success or failure. Other, better measures may emerge. The driving force is really the fluctuation in the price. All the news being equal, a falling price is a market statement that this company is in trouble and, if they want to raise money, either equity or debt money, they're going to have to pay a lot for it. That's the same as saying that you investors, you have a high expected return if you buy this company, and there's a reason you have a high expected return. It's because you're taking a lot of risk.

Let's get down to the investor. You obviously have a value bias. This might be a good time to examine the value versus growth conundrum.

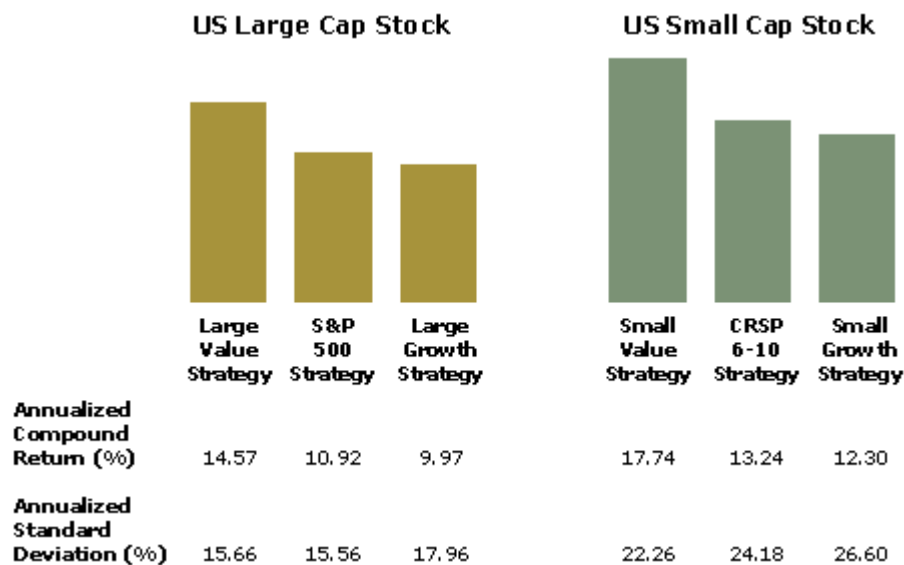
Sure. Let's rank companies in terms of size, breaking them arbitrarily into large and small. First, we rank the New York Stock Exchange companies in terms of market capitalization [that's the stock price times the number of shares], from large to small. Companies larger than the median size NYSE company we consider large; the rest are small. American Stock Exchange and NASDAQ companies are then assigned to these two size groups. We create index funds like this, using the different size groups.

I presume you do this because the largest 50%, say, behaves differently from the smallest 50%.

Right. The smaller companies have a higher return, on average, and more risk. The next cut is book-to-market. We use the same ranking, from lowest to highest. Now we have a sort based on book-to-market, which separates value from growth [the companies with a low book-to-market value are the growth companies; those with a high book to market ratio are the value companies]. We also have a sort based on size [large companies versus small companies]. Now we take the intersection of these. Any company that is both a large company and a value company will be in the large values strategy and any company that is a small company and a value company, will be in the small value strategy. Same is true for the growth strategies. Now let's look at the returns.

Figure 2

**Investment Dimensions: Size of Company and Financial
Strength Historical Returns**
Quarterly Data
January 1964-December 1995



*Center for Research in Security Prices, University of Chicago, and Fama and French. Stocks ranked by size deciles. 6-10 deciles are the lower (smaller) half of companies traded on the NYSE and equivalent size companies on the AMEX and NASDAQ. Standard & Poor's data courtesy of Roger Ibbotson and Rex Sinquefeld, *Stock, Bonds, Bills and Inflation: Historical Returns* (Dow Jones Irwin, 1989); updates by Ibbotson Associates Yearbook.

When we do these combinations of value and growth, large and small, you can see that value stocks outperformed both the overall stock market, represented by the S&P 500, and also large growth companies, by substantial margins.

This is particularly counterintuitive. The difference in these returns is staggering. The annualized compounded rate of return for the large value strategy is 14.57% per year for 32 years, versus 10.92% for the S&P and only 9.97% for large growth. Who would have thought? And interestingly, and I suppose that is just a coincidence, the standard deviation for the market-wide value strategy is almost the same as for the large growth strategy.

That's a coincidence. But the way you read this is that the standard deviations are about the same. The point here is that the additional return in large value strategy doesn't come at the cost of higher variance [risk]. It doesn't mean that it doesn't come at the cost of additional risk. It's just that the risk isn't in the form of higher variance.

I'm afraid you need to explain that.

It goes back to the old model that the market portfolio is the only source of risk. Portfolios that were more variable relative to the market were deemed to have higher expected returns; those that were less variable were deemed to have lower expected returns. The working assumption is that variability is the only source of risk. When you have a world with multiple risk factors, it need not be the case that variability is the only source of risk. In fact, it need not be the case that variability is a risk factor at all.

If I follow you, Rex, you're saying that variability, or volatility, in a stock is a source of risk, but not the only source of risk. Another kind of risk you take when you buy

stocks is the size risk, because small stocks are riskier than large stocks. You also take style risk, because if you buy a value-type stock, you are adding value risk to the portfolio. Can you give me an example of assets that have different returns but the same risk, measured in terms of variability, or volatility?

Sure. Long-term corporate bonds have higher returns than long-term treasury bonds both ex post and ex ante.

That's hardly surprising. Corporate bonds are considered riskier than US government obligations, so you should get paid more for them.

Yeah, but they have the identical standard deviations, and that's over 70 years. Or pick any sub-period and it's the same.

Is the reason they have the same standard deviation that they react to one common external factor—changes in interest rates? The risk is clearly different, since the risk in corporate bonds is higher than in US government-issued treasuries.

Right. But that doesn't show up as additional variance. Yet it's definitely a risk.

Okay. Then, how do I measure these other risks?

A simple way to do it is to look at a portfolio's overall price-to-book ratio, or book-to-market ratio. In general, stocks that have high book-to-market ratios are these value-type companies, and growth companies are those that have low book-to-market ratios. The only industry that seems to be an exception to this are the highly regulated utilities. They look like they are value stocks, but they really aren't. They have below market rates of return. This is the story in the large-cap arena.

The same kind of story holds in the small-cap arena. Small value stocks have much higher rates of return than small growth stocks, and higher returns than the overall small stock universe. And in this size universe, the standard deviations are basically the same.

But here again, the standard deviation of the small value strategy is lower than the standard deviation of the small growth strategy [figure 2]. So, simplistically, that suggests that small value is less risky, but still provides higher returns.

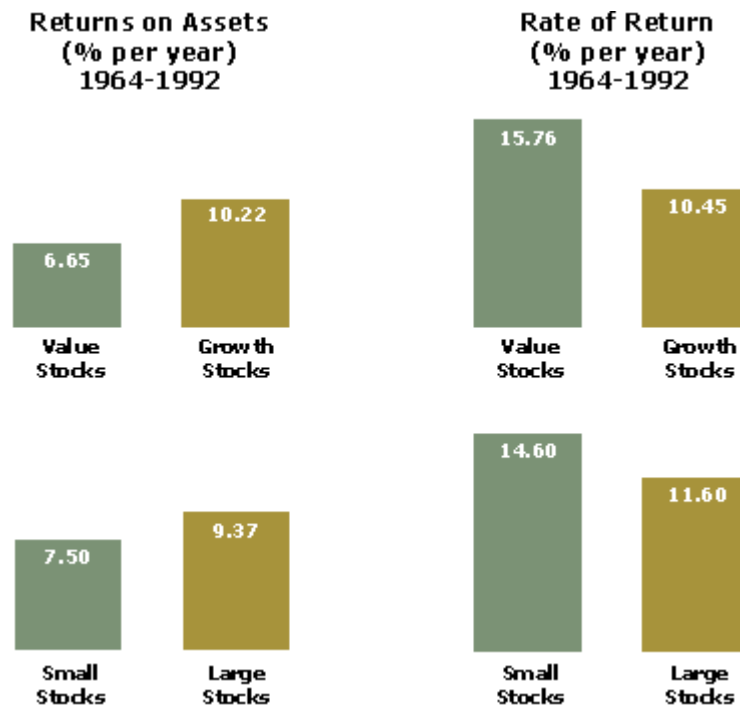
I wouldn't make much of that. The difference is not significant. Now these numbers, the standard deviation of the S&P 500, at 15.6, and the standard deviation of the CRSP 6-10 [Small-Cap] index, at 24.2, are indeed significant. We also see the well-known size effect. Small value has much higher returns than large value, small market higher than big market, and small growth higher than large growth. Incidentally, what makes us confident that this is a risk story, and a story that is going to continue, is that when we go to an independent arena, the international markets, we find portfolios that are formed the same way as they are in the US and have the same kinds of premium relative to the overall market.

Could you demonstrate the value versus growth thesis?

Figure 3

Earnings Performance of Companies (Returns on Assets) vs. their Stock Market Performance

Company Earnings vs. Stock Market Returns



Message:

- ▶ Small cap stocks and value stocks have lower relative earnings than large cap stocks and growth stocks. Their lower earnings cause them to have higher costs of capital and, therefore, higher expected returns.

Courtesy of Dimensional Fund Advisors Inc. and Fama & French.

Look at this graph. This shows the return on assets [1964-1992] for value and growth stocks. You can see that the return on assets for value stocks was pretty low compared to the return on assets for growth stocks. But for the same set of firms, the return on their stocks was very high for value stocks, and comparatively much lower for growth stocks. That's the essence of the story.

That's quite convincing.

That's why it's a cost of capital story, relating to earnings success or distress. What Fama and French did was tie all this together and say that there is a rational market explanation for all these differences. That's why it has gotten so much attention.

Now may be a good time to explain the three-factor model.

"The three-factor model" is the term we use in contrast with the "one-factor model." The one factor model is, of course, the famous capital asset pricing model [CAPM] developed by Bill Sharpe, Jan Mossin, and John Lintner. This is the concept for which Bill Sharpe shared the Nobel Prize in 1990 with Merton Miller and Harry Markowitz. In fact, Sharpe's work was a

direct offspring of Harry Markowitz's. Sharpe produced this very simple model that asked, under certain assumptions, how are securities priced in the marketplace? So it was called CAPM, the capital asset pricing model.

What Sharpe basically said was that, the return on a security or a portfolio—makes no difference—is directly related to the volatility of that security or portfolio relative to the market. [Remember that the market has a beta of one. So if a stock, for example, has a beta less than one, that stock is less volatile than the market. A number higher than one means that it is more volatile than the market.] To oversimplify, the CAPM model concluded that higher volatility, or beta, constituted higher risk, and that is what an investor expected to be rewarded for. The market is the one factor that drives the return on securities. If a portfolio has the same relative variation/volatility, or beta, as the market, it's going to have the same expected return. If the beta is higher, then the portfolio has got more variation/volatility and it's going to have higher returns.

Unfortunately, the theory didn't work. Over time, it suffered from empirical onslaughts, but it was an absolutely invaluable tool. Academic work in the field would not have advanced without that model. It was developed in 1964. Much of the early efficient market work used that model.

I suppose that leads us to the three-factor model.

The CAPM model said that you would get more than the market return in your portfolio if your beta is greater than one. If your beta is less than one, your expected return was less than the market because you chose to take less than market risk. This was an elegant theory, but in practice it didn't always work. The alpha [a measure of return in excess of market return] was a measure of returns that you got over and above that due to risk-bearing. This is what was used to measure the performance of portfolios. This model was very important academically and professionally, for a long time. But, as I said, it eventually gave way to the three-factor model.

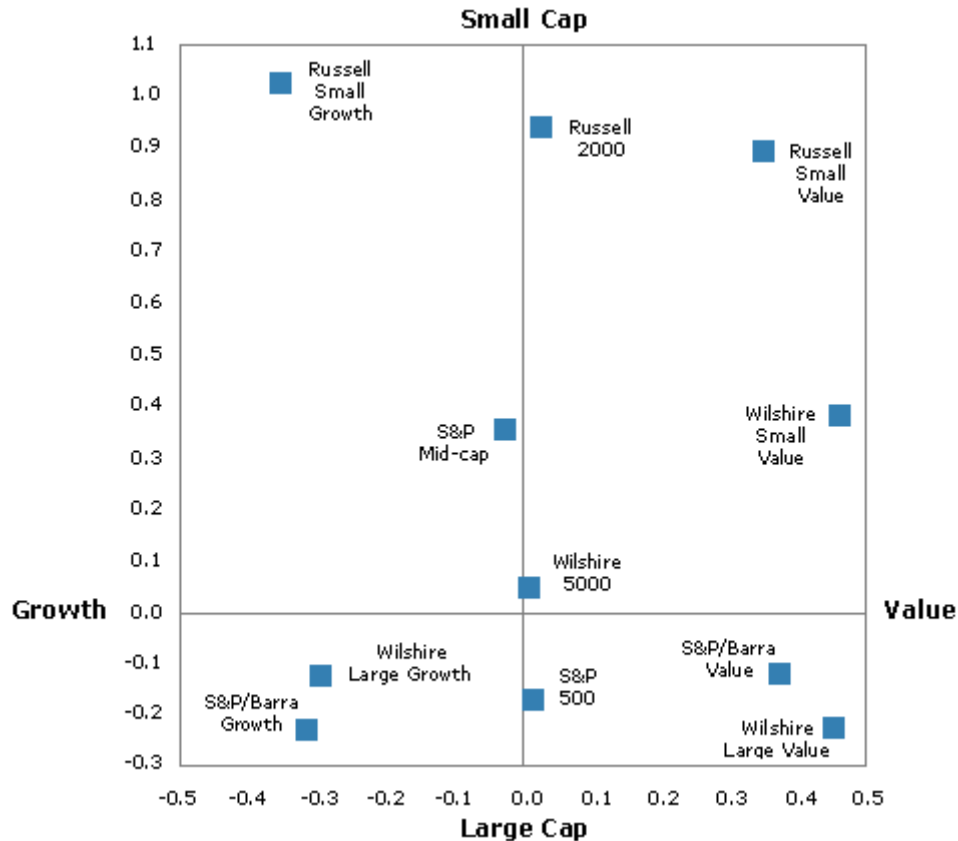
The three-factor model, and the CAPM, which is a one-factor model, have a common factor, the market factor. But the three-factor model has the two additional factors, the size factor and the value factor, hence the three-factor model. As a result, this model allows us to measure the sensitivity of whatever portfolio we're testing to the size factor and the value factor, in addition to the market factor, which was the single factor in the CAPM model. So, if I have a portfolio that is marketlike, I have a beta of one [one representing the market]. When all these factors are present, the betas on nearly all diversified equity portfolios become one. They all have about the same amount of exposure to market risk, which is a new finding. But these diverse portfolios will differ from one another by the exposure to the other risks, value and size, and the three-factor model is the method by which we can evaluate that additional risk.

You say that the value and size risks may be greater, but at the end of the day, that has to be reflected in the market risk, doesn't it?

Figure 4

A Style Map of Popular Indexes

Based on Data for January 1979-December 1995



Courtesy of Dimensional Fund Advisors Inc.

No. The reason that these betas differed from one in the old model was that the value and size factors were excluded. So the risk that they were contributing to the portfolio looked like additional market risk, but the fact is that the real causes of the variation were the size and value dimensions. Do you want to see where various indexes fall on the style map? Look at figure 4. Are the indexes growth, are they value, are they big, are they small? Anything to the left of the vertical dividing line is growth, anything to the right is value. Anything below the horizontal is large and anything above it is small. [The hash marks measure the sensitivity of an index to value/growth along the horizontal axis and to large/small on the vertical axis.]

Now look at the overall market portfolio at the crosshairs. This refers to all ten size groups we use. The S&P 500 is down here [below the crosshairs]. So you see that the S&P 500 is neutral on value and growth [it's right on the vertical line] but is biased away from small companies and toward larger companies, so it's going to have returns slightly lower than the market due to the underweighting of small stocks. But look at some value indexes like the Wilshire Large Value index. It's off to the right, and down a bit, because it's biased toward large companies. But it's much more value-oriented than the S&P 500.

In terms of expected returns, based on years of data, each hashmark that we move to the right or the left is worth about 50 basis points a year in expected return difference. Along the size dimension, each hashmark up or down the chart is worth about 40 basis points. So if you're moving on a 45 degree line up the page, you're pricing up both size-expected return and value-expected return.

In other words by heading toward small-cap value...

You're picking up a lot of expected return, but you're also picking up a lot of extra risk. You're adding size risk. If you have a portfolio comprised of small companies that have high book-to-market ratios [low price-to-book ratios], the chart tells you that you've got a lot of size risk, and a lot of value risk, in addition to one full scoop of market risk. And, because you're taking those three types of risk, you should have above market-expected returns.

So basically, there is no free lunch.

No free lunch at all. That's the essence. There are ways to get higher returns and lower returns but they all come at a price.

I was hoping that the graph you showed me [figure 4] indicated that the market risk was the same for small-caps as for the market, even though small-caps had higher returns than the market. I guess that's not what it said.

It does. If you invest in small-caps, you're taking as much market risk as someone who buys the S&P 500, but you're also adding a lot of size risk.

Let's talk about your firm. Say I'm a potential client. All this sounds interesting in an academic sort of way. But how does this, or you, help me make money?

The thrust of Dimensional Fund Advisors is to take what we believe is the best theoretical and empirical work that the academic world has produced and turn these into products that are useful for our institutional investor and advisors. The various specialized asset class portfolios are meant to be used only by professionals. The reason we don't sell to the general market is because these products should say: "to be used under adult supervision only." We have intentionally made them rather strong, high octane. They're also designed with all the other pieces in mind. So they are designed to fit together. You can combine them in whatever proportions you want, based on how much risk you want to take. That's the general thrust.

We've created about sixteen different asset class portfolios around the world, along the dimensions of size and value. We have domestic large value, domestic small, international large value, international small, etc. Some have regional modules.

Most of our clients are institutional and come to us for particular asset classes rather than to run their whole fund. But some clients do give us all their money. Fee-only advisors typically use us for all of their clients' assets. Were you to ask us how to go about running balanced portfolios, we would say that, if you're going after above market-expected returns, then here's how we would do it. Parenthetically, let me add that, if you're going after market returns, it's very simple. You can hold an equity index fund and a short-term fixed income fund, and that'll do fine. That simple 60/40 portfolio compares rather favorably to all of the balanced funds in existence since 1976. It beats more than half of them. As simple as it is, it really works.

But, suppose somebody says, I want to go for above market returns, how do I do it? Okay, the only way to accomplish this reliably is to take additional risk. Based on the research, we know the avenue to go down to get that risk. They are the value avenue and the size avenue. We're going to do that domestically and internationally. The equity portion of the portfolio

would be split something like this: We would put about 30% of the equities in the international markets, 70% domestically. The domestic would be roughly 40% large-cap and 30% small-cap; the large would be split equally between growth and value; the small would be split the same way [equally between growth and value]. The international arena is similar, except that we would not hold a plain market portfolio, like an EAFE [an index of international stock markets] fund, internationally. There seems to be no benefit to US investors by doing that. Instead, we would split our allocation between value stocks and small stocks internationally as well.

To wrap it up, here we are in a world of thousands of mutual funds, all competing for investor attention, all touting extraordinary records. Go through Forbes, Money, Worth, see page after page of marvelous records—28% per year . . . 32% per year . . . 18% per year. All these geniuses making extravagant claims in an attempt to get our money so that we can enjoy these wonderful results for the next ten years, like those who got rich over the past ten years. Now, I'm sitting here with you, looking out your window at the Pacific Ocean, and you're telling me that it is all bogus. If you really want to make money in the market, you might say, don't try to beat the market, join the market. Is that fair?

I'm saying that you're only going to get paid for risk-bearing. You can expose yourself to various asset classes that vary in their risk, and that's what you're going to get paid for. If markets work, that's all you're going to get paid for. The reason we see all these people advertising these fabulous records is that the only ones who can afford advertising are those who have had fabulous records. You would be a fool to go out and say, "Hire me, I'm the worst manager in the past ten years." Equity returns are inherently variable, so there will inevitably be a wide range of returns, even among highly fabulous numbers. We also know that there are people at the other end of the spectrum, none of whom choose to spend advertising dollars right now. They have nothing to sell.

Having left Rex's posh offices in beautiful Santa Monica, I couldn't help but realize that this interview wasn't exactly easygoing, and for that I apologize. Nevertheless, we are dealing in some really important concepts that we have to try to get a handle on. The notion of risk in the market is important. Bill Sharpe, et al., won a Nobel Prize in economics for their work on the CAPM model, which introduced beta as a measure of volatility, as well as other ways of measuring risk important to the financial world. In the three-factor model, that approach is refined. It says that market risk is just one kind of risk. There are other risks. One is style—that is, value versus growth stocks. The other is the size component—that is, small companies are riskier than large companies.

So what? You might say. Well, isn't it nice to know that in putting together a portfolio you are able to determine with reasonable accuracy the kind of risk you are taking, based on the kind of stocks you are selecting for your portfolio? It does make sense, and it is important to have some knowledge of these principles which are at the cutting edge of our ever-growing knowledge about investment in stocks.

As to Rex's position on market efficiency, his position is as dogmatic as it gets. He believes markets are efficient. Period. He allows little room for individuals who can predictably outperform the market over time, claiming, as he does, that the "outliers" are only identifiable after-the-fact or ex post facto. In other words the battle lines are drawn. As we hear other voices and engage other discussions, we will have an opportunity to judge for ourselves who is

right and wrong on this important subject. Our opinions should and will influence our attitude toward stock market investments from now on.

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