

Points of View

AII examines the opinions of practitioners in different areas of investment. This month's interview:

Rex A. Sinquefield

Rex Sinquefield is a co-author of *Stocks, Bonds, Bills and Inflation*, a study of rates of return over 56 years and a projection of returns into the twenty-first century. He is executive vice-president of Dimensional Fund Advisors, 310 S. Michigan Avenue, Chicago, IL 60603. The firm manages investment portfolios consisting of small stocks listed on the New York Stock Exchange.

AII: Would you tell me a little about Dimensional Fund Advisors? What do you do and how do you do it?

REX: We are technically classified as investment advisors. That means that we will advise investors or manage portfolios for investors. At this time, the only product that we offer is a small company strategy which is provided through two commingled vehicles: an open-end no-load mutual fund intended primarily for institutions, but is offered on a limited basis to individuals, and a common trust fund which is trustee at a large Chicago bank. Both of these vehicles have the same objective which is to invest in a broad cross-section of small companies to capture or deliver what we call the small company effect. We hold about 300 small companies in each fund — the 300 smallest on the New York Stock Exchange.

AII: How are you defining small companies?

REX: We define them as anything in the lower 20% of all stocks traded on the NYSE in terms of aggregate market value. It's a relative cut-off. As of June, that cut-off is about \$60 million which is the market value of the largest firms in the lower one-fifth. There are about 300 companies with a market value below that on the NYSE.

AII: What is the small stock effect?

REX: When I use the phrase the small company, or small stock effect, I'm referring to a discovery by Rolf Banz which he discussed in his doctoral dissertation. It is the tendency of small stocks to outperform large stocks, say, as represented by the Standard & Poor's 500 Stock Index. This is true even on a risk-adjusted basis. The risk-adjusted *excess rate of return* (over and above risk compensation) from small stocks has been approximately .4% per month or 5% per year over the past 50 years.

AII: Can you give me some indication of what the return from small stocks relative to the return from the market has been?

REX: Take the period 1932-1981, for example. The S & P has had a compound annual rate of return of 10.7%. The small stock effect universe has returned a 16.8% compound annual rate of return over the same period. So we see that there has been about a six percentage point spread above the S & P 500. Remember that the S & P has provided a real rate of return of 6% per year over this period. Thus, the small stock universe has provided a *real rate of return* (the rate above inflation) of approximately 12% or 13% per year. This is an enormous real rate of return. This is true of five-year sub-periods as well. And yet, the small stock universe does not exhibit the high levels of risk that one would expect. In fact, the level of risk is not that much greater than the S & P 500 universe.

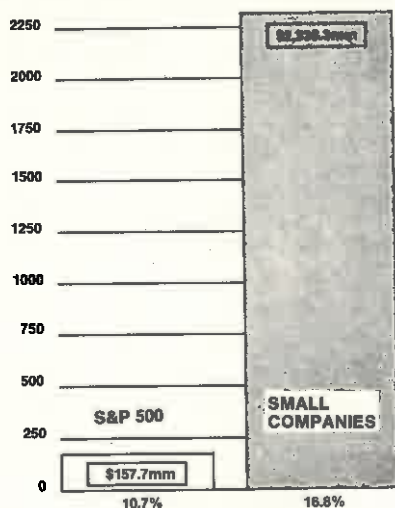
AII: In terms of the Sharpe-Litner Capital Asset Pricing Model, isn't the .4% per month called the excess rate of return — the rate of return over and above the payment for risk taking?

REX: Yes. That is the rate of return that the beta fails to pick up. So obviously, Sharpe-Litner is working okay for 80% of the stocks — for the largest ones — since the return that is left over after risk adjustment is not statistically different from zero. However, this is not true for the smaller companies. Current research indicates that the same is true for the smaller companies listed on the American Exchange as well as the NYSE.

AII: The extra five or six percent return can mean a lot over a long time-frame in terms of terminal wealth.

REX: The effect of compounding over long time periods is quite dramatic. If we had invested one dollar in the S & P 500 at the end of 1931, that dollar would have grown to \$154 by the end of 1981. That same dollar invested in the small company universe would have grown to about \$2,300 over the same period. What we find is a growth-relative of fifteen to one favoring small companies over the S & P over the fifty-year period.

50 Years 1932-1981



5 Year Annualized Rates of Return

	S&P 500	SMALL COMPANIES
1977-81	8.1	28.8
1972-76	4.9	6.8
1967-71	8.4	12.5
1962-66	5.7	12.1
1957-61	12.8	15.9
1952-56	20.2	14.2
1947-51	16.7	12.1
1942-46	17.9	45.1
1937-41	-7.5	-13.6
1932-36	22.5	45.8

AAII: What are the possible explanations for the small company effect? Is the market inefficient for this universe?

REX: Does one conclude that the market is inefficient or does one say that the capital asset pricing model and beta as a measure of risk fails to capture something about small companies? It could be something else that is determining this excess rate of return. It's possible that the market is grossly inefficient and that beta does capture all of it. My guess is that it isn't true.

AAII: But aren't many inefficiencies beginning to be found in the market? For example, evidence seems to suggest that Value Line can find undervalued assets. Those stocks ranked number one by Value Line seem to out-perform equivalent risk, randomly selected portfolios.

REX: The Value Line thing. I'm not totally convinced that the thing still works. I would have to see current data. I debated a Value Line

statistician a couple of years ago at the University of Chicago and my main criticism was that if this thing is as good as the Value Line data suggest, then why don't the Value Line mutual funds exhibit superior performance — which they have not. The other point that I made at the time — and I didn't yet know about the small stock effect — was that Value Line might be capturing something or picking up some variable which is not captured by the capital asset pricing model (beta). I think there is a bias toward small companies in the Value Line number one ranked list. This could account for the superior performance of the Value Line number ones. But I'm not sure.

Another study showed that low P/E stocks tended to out-perform high P/E stocks. However, when the results were adjusted for the small firm effect, the whole P/E effect disappeared. The small stock effect has yet to be explained. However, we found that, on average, these small companies have about 30% of their shares closely held. That's a high degree of closely held ownership. If you move up to the next twenty percent in size on the NYSE, you don't see that. It could be that there is something about closely held ownership which is perceived by the market as a big negative. Possibly, the public shareholders see themselves in a position of getting ripped-off by the inside shareholders who are managers. If these people do make decisions in their own self-interest, how do public shareholders protect them-

selves?

AAII: Will the small company effect disappear? Now that the public is becoming aware that there is such a thing as the small company effect, according to efficient market theory, there should be rapid price adjustment over time and thus the small company effect should disappear.

REX: That's if it's due to a market inefficiency. In other words, if it's appropriate that it be there, then we wouldn't expect it to go away. Suppose it's because of the closely held phenomenon. Then it wouldn't go away.

AAII: Your portfolio management strategy, then, is applied to only the 300 smallest stocks on the New York Stock Exchange?

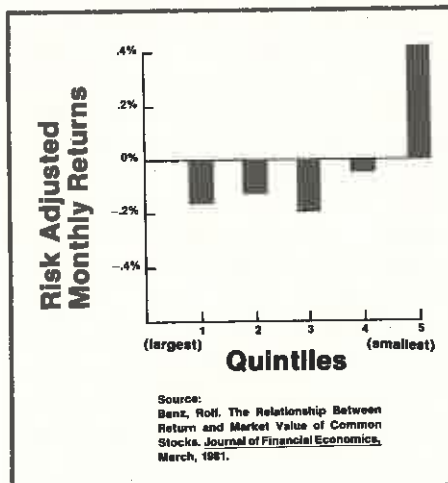
REX: At this time, that's true. We don't want to own more than five percent of any company and so as we approach two or three percent, we will move to the American Exchange and will stay with the same size company as on the NYSE. There are about four or five hundred of those on the Amex.

AAII: Do you ever exclude companies from the small 300 stock list on the basis of individual perceptions or do you merely buy all of the small stocks on the NYSE?

REX: We will do a little bit of weeding out. If a company is in dire financial straits, we will exclude it from the portfolio. Also, if we can't get reliable information from company management, we will exclude it from the portfolio. Of course, we exclude things like REIT's, closed-end investment companies and companies in bankruptcy.

AAII: Then you don't just look at the 300 smallest stocks. You extensively interview corporate management, etc. You still do research.

REX: In the research that we do (I call it interactive research in the sense that for trading purposes we are constantly interacting with company management), we want to be sure that we can buy these stocks without disrupting their prices. Anytime that a large block becomes available for sale, if we are interested in that block, all of it or some of it, we want to be sure that



we're not picked-off by a seller who has better information than we do.

AAII: A number of years ago, one researcher referred to the market as a series of three tiers. He defined the tiers in terms of the ability for institutional stock ownership. He stated that those stocks in the third tier were so small that institutions cannot participate in stock ownership. Was he actually describing the small stock effect?

REX: Yes, that's probably true.

AAII: Isn't there a problem for money managers that are trying to capitalize on the small company effect? Aren't you limited to the percentage of funds that you can invest in any single firm?

REX: I think that's why this really hasn't been available. For us to make the small firm effect available, it means that we have to diversify across a broad number of firms — many hundreds of firms — to make sure that we are delivering the small firm effect. When you diversify across such a large number of firms, then a couple of things result. One is, to be able to trade them in a way that we don't push their prices very hard. As long as we are careful, we can afford to not buy them today. We can back off. Another thing is that the types of research that we have to do are different. We don't have to do earnings evaluation research, because that's not going to be the basis on which portfolio selection decisions are made. Furthermore, small companies can make your research go obsolete very quickly. They can change their stripes before the ink is dry on a research report. Small companies are very agile. They can move. Outside fears can move them very quickly — positively or negatively. Whereas for a large company, Standard Oil of Indiana, for example, you do your research and that report is good for a year. Also, if you look at Exxon, the report on Standard Oil probably tells you a lot about Exxon. For small companies, that is just not the case at all. One small company is almost completely different from another small company even though they are in the same industry. So, the kind of

research that we do is not of the earnings evaluation type. One, you can't do it and second, you don't need it to capture the small company effect.

We do much of our trading on the basis of our research. We visit and call on each of the companies that we follow to find out what's peculiar about buying their stock. We want to know when large blocks are available. We want to know when they are buying back their own stock. We gather data about their trading, what their daily volume is — that kind of thing. When someone calls us and says there are about thirty or forty thousand shares available, we try to find out why these shares are available. For AT&T, thirty thousand shares aren't much, but for the small firm such a block is significant. So holding a lot of small companies enables us to deliver the small stock effect for our investors.

If you go back and look at the conventional way institutional investors have operated, you will see why they can't deliver the small company effect. You will find that these investors do a lot of intensive research on each company. They want to hold about twenty companies in their portfolios and the good ones are all they want. If they manage \$100 million, which is a small investment management firm, and if you divide twenty stocks into \$100 million, these funds are going to hold anywhere between two and one-half and six million dollars in each security. The medium-sized company that we buy is \$35 million in market value. So the large management firm will hold between ten to fifteen percent of each company. To acquire ten percent of each firm is very difficult. It takes a long, long time to do it or they will drive the price right through the roof. To get out of such a position would be impossible, if they changed their minds. They really can't operate in the small company market at all. So they move up a notch and they really operate in the larger company market. They concentrate on those companies whose market values are \$135 million or

more. Most fund managers who say that they go after small stocks do not do so at all, because they can't. T. Rowe Price and the Horizon Fund are two firms which have a policy of going after small companies — companies valued at \$200 million or less, yet these are medium-sized companies on the New York Stock Exchange.

AAII: If other institutions can't take advantage of the small stock effect, how can you?

REX: Because we are prepared to give up the dipping and darting. We don't profess to find the winners, but we can deliver the small stock effect by buying a substantial proportion of the universe. For us, the big challenge is not in finding the undervalued security or in avoiding the overvalued security. It's not clear to us that we can do that or, in fact, that anyone can or has done that. So the real challenge is in cutting trading costs. It is a thin, illiquid market where prices are sensitive and are moved easily. If we were to say to a broker, buy 10,000 shares of XYZ, we would move the price upward by five to ten percentage points — easily.

AAII: To turn things around a little, do you have any advice to the individual investor who might want to take advantage of the small company effect? Can the individual investor, say, take advantage of the small company effect by throwing ten or fifteen darts at the bottom 300 companies on the NYSE?

REX: The problem with the individual investing in say ten to fifteen small companies is that with this small number I'm not sure that the variance (or risk) could be eliminated. Small stock returns possess a larger variance than the overall population and I'm not sure that even a 100 stock portfolio will eliminate all of the diversifiable risk for these type firms.

AAII: Let me see if I understand this correctly. Suppose the individual investor was to invest in so-called small stocks. Because of their nature, the investor is taking more risk than in the S & P 500 stocks but, by building a portfolio of small stocks and T-Bills, the in-

vestor can construct a portfolio with a risk level equal to the S & P 500. However, this equivalent risk portfolio would be expected to earn a greater return than the S & P 500. Is that the small company effect?

REX: Yes. You would have a higher expected rate of return from your small stock and T-Bill portfolio than from the S & P. But remember that the investor must obtain proper diversification within the small company universe.

AAII: In terms of an appropriate strategy for an individual investor, if the small stock effect means excess rates of return, should investors place all of their funds in a portfolio of small stocks?

REX: It would seem that, based upon what I have said, investors should place all of their investment funds in a small stock portfolio. However, the investor should consider a portfolio consisting of the shares of both small and large companies since there is a low level of correlation between the returns from the stocks of large and small companies. If you were to look at the returns from large mutual funds and the returns from the S & P 500, you would find the correlation of these returns to be on the order of .90 or higher. On the other hand, the small stock universe has a correlation to the S & P (sometimes referred to as R squared) of .60, which is about the lowest we have ever found. So what you have happening is a dampening of risk when you add small stocks to your portfolio. Because of the low correlation of returns of large and small stocks, you would want large stocks in your portfolio as well as small ones.

AAII: So the appropriate strategy to capture the small stock effect might be to place some funds in both small and large stocks?

REX: We have actually asked ourselves the same question. That is, what if we had the strategy of holding the risk of our portfolio at a level of a standard deviation of twenty-one percent, which is the same as the level of risk in the S & P? Then we asked what is the optimum mix of T-Bills, S & P stocks and small stocks? It turns out that

the optimum portfolio is one which consists of 35% T-Bills, 52% small stocks and 13% S & P stocks.

AAII: Let's change the subject for a moment. Many investors and analysts are familiar with your work, *Stocks, Bonds, Bills and Inflation*, which you co-authored with Roger Ibbotson. In this study, you traced the fifty-year history of returns from these financial instruments (from 1926-76). You have continuously updated this study and your latest work is being published by the Financial Analysts Research Foundation this month. Generally, your study indicated that the greater the risk in an investment, the greater has been the return. However, over the past fifty years, corporate bonds have returned more on average than long-term U. S. Government bonds but with less standard deviation or risk. Does this mean that corporate bond investors have been getting something for nothing?

REX: The real problem lies in risk measurement. What this data says is that, over time, investors have been rewarded for risk-taking in holding long-term corporate bonds, but that the total risk has not been picked up in the standard deviation. The risk that they want to get paid for is default risk. If we ever went through a period where there was a heavy shellacking of corporate bonds, where a lot of them went into default, we would see the standard deviation measuring the appropriate risk. We all know that default risk is out there, even though we haven't seen massive corporate bond defaults in the recent past. The experience has, in fact, been quite good in the last fifty years.

AAII: Even so, if I were a bond investor, it would seem to me that it pays to be in long-term corporates rather than in long-term Governments.

REX: I think that if you could get adequate diversification, it probably does. For investors who are terribly risk averse, however, they belong in Governments. One could also ask the question whether they should be buying Governments rel-

ative to T-Bills? There has been no excess return from long-term Governments relative to short-term T-Bills. So it looks as if we can challenge the holdings of long-term Governments from two directions. One, long-term corporates seem to do much better and Treasury Bills, which have much less risk, seem to do just as well as long-term Governments.

AAII: In *Stocks, Bonds, Bills and Inflation* you suggest that the term structure of interest rates can best be explained by the expectations plus liquidity preference hypothesis which states that interest rates are a function of the investor's expectations regarding future rates of inflation plus a premium added to compensate for loss of liquidity. (A detailed explanation of the term structure of interest rates appears in this month's *Investor Workshop* column.) But you state that the liquidity premium is very small. Why?

REX: The measure of the historical liquidity premium between long-term Governments and T-Bills is zero. We don't believe that this rate is the proper estimate of it. Furthermore, we can determine precisely what the market wanted in terms of a liquidity premium. Even though they didn't get it, what investors wanted was about 1.3% per year in extra yield over a thirty-day Treasury Bill. Evidence suggests that investors capture most of that premium, certainly within two years, and probably within one year. Thus, investors who want to invest in long-term Government bonds should actually invest in T-Bills and roll them over year after year. In that way, they get all of the yield of a long-term Government and all of the safety of principal of a T-Bill.

AAII: Your study also shows that T-Bills have basically tracked inflation over the last fifty years. Does this mean that investors are willing to accept a zero rate of real return from so-called risk-free investments?

REX: Over the last fifty years, this has been so. But over the last twenty years, the real rate of return

has been something like one percent per year. My guess is, that in the future, investors will receive about a one percent real rate of return from buying riskless assets like thirty-day Treasury Bills.

AAII: Numerous investors have told me that they prefer to hold bonds over common stocks. They point to double digit bond yields and real rates of return which currently are about six percent. This is a real rate of return which is equal to the historical real rate of return on common stocks. Can bond yields consistently be greater than the returns from common stocks?

REX: The difficulty lies in how the market estimates the real rate of return. The approach that I would take is to say that real rates for the next year are going to be approximately sixty percent of what they have been over the past year. So the real rate over the next twelve months should be about three percent. If you subtract that rate from the current level of interest rates, you get ten percent, which is the market's estimate of the rate of inflation over the next year.

I don't think that the marketplace believes for one moment that inflation is going to be the five or six percent that has been experienced so far this year. The marketplace is saying that inflation is going to be high and remain high and that's why rates are high. Historically, that's the only reason that interest rates have become high and stayed high — investor high inflation expectations. If one rejects this hypothesis, that means that real rates are expected to be six percent. They have never been that high in our history. I find no reason to suddenly say that we are in a situation where the real rates are four or five standard deviations above where they have been historically. Someone will have to explain to me why this is a one-in-a-thousand episode that is taking place right now.

AAII: If we go back to the 1977-79 experience, real rates on T-Bills were negative and people were underestimating the rate of inflation. Could it be that investors are now overestimating the rate of

inflation and are building in these artificially high real rates of return?

REX: The yield curve is not always right in forecasting inflation. However, it has, on the average, been more correct than any single forecaster over time. The issue is, who is going to be wrong less? So it could be that the market is overestimating the future rate of inflation.

AAII: How do you explain a humpback yield curve where short-term yields are much higher than long-term bond yields? Do you think that this is due to the actions of the Federal Reserve? From the supply side of the equation, can the government cause interest rates to be artificially high?

REX: I'm not an expert on monetary economics but my unexpert opinion is, no, they can't. When we have funny-shaped yield curves, it's really because of what the marketplace is expecting about inflation rates. If we have an inverse yield curve, it's because the marketplace generally expects inflation to be very high in the short-run and then level off. In fact, over some of the recent years, this is what we found. In some months, the inflation rate was eighteen percent, but over the year it was closer to ten or eleven percent. So the answer is that I think these interest rates are embodied in the marketplace. They are not so much a function of Federal Reserve actions.

AAII: Your study reports a correlation of historical rates of return from common stocks and inflation of near zero. Does this mean that common stocks are not as good a hedge against inflation as people traditionally thought they were?

REX: Well, they are not a hedge against inflation if one defines "hedge" properly. The strict use of the term hedge means that period-by-period one is kept even. The only hedge that I know that comes close to doing the job, period-after-period, is the thirty-day T-Bill. That is virtually a perfect hedge. It keeps one even with inflation almost on a month-by-month basis. It won't, however, provide any kind of off-set to inflation or a

rate of return above inflation. Over longer periods of time, we find that the asset that has the greatest degree of risk provides a rate of return far in excess of the inflation rate. So one can view common stocks as long-term preservers of, and in fact, increasers of purchasing power. Yet, they are not hedges period-to-period. The distinction is what will keep investors ahead of inflation in the long-run. It looks like common stocks across the board will do that kind of a job over the long-run. However, for investors who need to stay even with inflation month-by-month, the last place they should be is in common stocks. They should be in thirty-day T-Bills.

AAII: You keep saying "over the long-run." Should investors be looking toward the long-run? If so, what is the long-run?

REX: That's a question of taste — a question of preferences for risk versus return. There is no scientific answer to what individuals should do. They should do whatever they feel comfortable with. The most I, as an empiricist, can do is to paint a very clear picture of what risk and return look like over the long, medium and short-run, so that investors know exactly what the odds of such a strategy are. Investing is similar to gambling on the spin of a roulette wheel. Fortunately, all of the expected returns from bonds, bills and stocks are positive, whereas, in a casino game of chance all of the expected returns are negative. There is no unique long-run. In general, a very young person should take a very long view. Someone setting up an IRA or Keogh Plan and under the age of fifty now, should certainly invest some funds in long-term instruments — common stocks. Unless a young investor is unusually risk averse, investment of IRA money in bank CD's or money markets would be an unwise investment since these returns track inflation and will not result in an increase in purchasing power.

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