

Our Interview with William F. Sharpe



William F. Sharpe is a Professor of Finance, Emeritus at Stanford University's Graduate School of Business. He was one of the originators of the Capital Asset Pricing Model, developed the Sharpe Ratio for investment performance analysis, the binomial method for the valuation of options, the gradient method for asset allocation optimization, and returns-based style analysis for evaluating the style and performance of investment funds. In 1990 he received the Nobel Prize in Economic Sciences. His most recent book is [Investors and Markets: Portfolio Choices, Asset Prices and Investment Advice \(Princeton Lectures in Finance\)](#). His textbook on [Investments](#) is a staple in MBA finance teaching. He is also a co-founder of Financial Engines, a company that provides financial advice for individuals in employer-sponsored retirement plans.

We had the opportunity to interview Bill Sharpe on October 16, 2007.

One of the concepts presented in your recent book is that active management can succeed if there is reason to believe that a majority of investors are biased in the same manner. What forms of active management are based on finding such biases, and what do you believe are the chances that they will succeed in finding such biases? (assuming success is defined as delivering superior risk-adjusted returns after costs)

There has to be some mistake that investors make in which a preponderance of opinion is wrong in a particular direction. Just having some people wrong is not enough. There must be pieces of information the majority or people are processing the wrong way. For example, the proponents of fundamental indexing assert that investors are overpaying for growth. The majority of investors must therefore for growth stocks overestimate the prospects for growth, and therefore pay too much. I don't know if this is true; I remain skeptical about any system that claims to be able to beat the market in the true sense, by exploiting a mistake that a majority of investors make. Someone can always find holes in the data, but if you publish those results, or talk publicly about them, it becomes less likely that they will occur in future. On the other hand, research shows there are behavioral errors that people make, and then continue to make, and perhaps these are exploitable. Overall, I suspend judgment on the question of whether there is money to be made in active management.

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Your book utilizes very sophisticated simulation models to study investor behavior. What are the practical limits of these models? Can they accurately represent the biases and preferences of investors? How should advisors embrace and utilize simulation-based technologies?

I always prefer closed form algebraic solutions when it is possible to take this approach. But simulation is more convincing as a pedagogical device. I can often get more richness in a simulation than I can in a closed form solution, which makes simulation really useful for both research and pedagogy. With simulation, I can try new inputs, attempt to find consistent results, and then perturb the assumptions to see what happens. But simulation is not a substitute for closed form solutions. The bottom line is that simulation may be indispensable for very complex problems.

A number of studies have asserted that index-hugging active fund managers deliver inferior returns, and that superior managers can be identified – in part – by looking for those that have the flexibility to select investments from the broadest possible universe. Do you agree with this proposition? If so, what implications does this have for the mutual fund industry, with its almost universal adherence to style box categorization?

I agree with the proposition. To find superior managers, you must look for those with some degree of flexibility. But, in doing so, you will undoubtedly find some managers that are inferior. To beat an index you can't be too close to it, but that is not a guarantee that you will succeed. Whether managers should get a broader mandate depends on their knowledge of the markets. If a manager is hired, for example, to manage large cap growth stocks, and that is the manager's realm of expertise, you don't want that manager deviating from this charter. There is a limit to the amount of information a manager can gather and process. Technology helps in this respect, as does 'feet on the ground' (e.g., visiting companies and speaking with management). The implications for the mutual fund industry are straightforward. If you believe that you are superior in evaluating companies with certain characteristics you should concentrate on such companies. If your superiority is great enough to overcome the added costs, investors should consider putting at least some – but by no means all -- of their money in your fund.



There are now many ways to look at risk in a security or a portfolio – beta, tracking error, standard deviation, the Sharpe ratio, and others. As a pioneer in risk and risk management, what is the right way for advisors and investors to look at the riskiness of their portfolios? Can younger investors in the accumulation phase with long time horizons pay less attention to risk, since they are primarily concerned with achieving a target rate of return?

There is no one number that can summarize the whole story. If you do insist on using a single number it must capture aspects of both risk and return. This is the purpose of the Sharpe ratio. It is the ratio of reward to variability; and shows the excess returns over a T-bill rate, divided by the variability. Ideally, however, you should see the whole picture. If you picture the return distribution as a normal bell curve, risk is a measure of the dispersion of the returns, and return is a measure of the center. If it is not a nice smooth bell curve, then you need to know the character of the tails – what is the probability of a really disastrous outcome? This is a terribly important issue, and we spend a lot of resources at Financial Engines analyzing the probability that investors will have sufficient resources for their retirement.

On the second question, ideally you want to draw a picture of the possible outcomes and their associated probabilities. This can be summarized with a mean and a standard deviation. In some cases, these parameters are sufficient, but if there is an ugly tail, it must be studied closely. Young investors should not focus on just a target rate of return, unless they are planning to buy a zero-coupon riskless bond. In general they will take risk and be exposed to a range of returns. Younger investors may be well advised to take more risk, because their human capital (i.e., their future earning power) is worth a lot when they are 25, and their financial capital (i.e., their investment portfolio) is a small portion of their overall balance sheet. As they grow, the human capital becomes a proportionally smaller portion of their balance sheet. Their human capital may be more like a bond than a stock. If so, their financial capital should be weighted more heavily in stocks. But this depends on who you are. If you are a tenured professor at Stanford, human capital is more like a bond. But for a Wall Street trader, human capital may be more like a stock. The decision needs to be personalized. For the average person there should probably be a decrease over time during the working years. Financial advisors can and do deal with this.



How should advisors and investors look at the risk and return offered by alternative investments – specifically hedge funds, but also private equity and venture capital? What are the characteristics of investors for whom these investments are appropriate?

Hedge funds, private equity, and venture capital tend to have non-bell shaped distributions. It is not atypical for a hedge fund to do very nicely most of the time. But there is a nontrivial chance that it will wipe out, and you need to know this probability in advance. Private equity, venture capital, and – to a less extent – hedge funds don't have a nice clean mark to market. They are not continually traded and you can't always get a fair market value. They don't have a great deal of liquidity. There is a place for alternatives for investors who can be patient and don't need a lot of liquidity. But they are still a relatively small part of the market. The idea that 80% of someone's assets should be in alternatives would lead to a great overweight in relation to the role of alternatives in the economy. Many high net worth investors do not need a lot of liquidity, so it makes sense that they should have more alternatives – maybe 20% - but not 80%.

This interview would not be complete without at least one question about fundamental versus cap-weighted indexing. So here are two. First, what is your definition of active management (versus passive management) and does fundamental indexing fit within this definition? Second, will the long term (> 20 year time horizon) risk averse passive investor be better off (on a risk-adjusted basis) in cap weighted or fundamentally weighted index funds?

I define passive management in the classical sense: you take a market and replicate it. Before costs, you earn what someone would earn if they invested proportionately in that market. If you hold 1% of the outstanding shares of each security in a market, you will earn the return on the market before costs. I regard this as indexing. The proponents of fundamental indexing have invented other forms of investment. Active management is trying to beat an index as I have defined it. In this

sense fundamental indexing is active management. I would prefer that fundamental indexing would be called something

else. I am dubious as to whether fundamental indexing can outperform classical indexing, for the long-term investor you describe.

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The media has portrayed the volatility in the markets this summer as stemming from the sub-prime debt market. We have also seen analysis that suggests that the volatility was amplified by leveraged quantitative hedge funds— perhaps unknowingly –following similar models, with risk models which did not accurately reflect the shared nature of their risk, therefore amplifying volatility in the stocks they were holding and were forced to sell. What do you believe was the underlying cause of this volatility, and how long do you expect it to continue?

We know little about what goes on in the hedge fund world. One thing that has been observed with the volatility this summer is that – for some group of hedge funds – all the long positions went one way and the short positions the other way. Perhaps they chose to go long stocks that would be helped in a credit squeeze, or vice versa. A number of funds did really well, and a number did the opposite, so clearly not all funds were pursuing the same strategy. If there is a herd mentality among hedge funds, it is more likely to show up as a dampening effect. Many hedge funds tend to be contrarian, and are likely to be on the other side of other investors on market bets.

The level of transparency is going down with the growth of hedge funds and private equity. Normally transparency has value, but I realize there is a case to be made for the opposing view.

Your current research includes a field now called ‘retirement economics.’ In your book you suggest that ‘constant mix’ strategies imply betting against - rather than investing in - the market. We would like to ask you about target date or life cycle funds, and what types of investors you believe these are appropriate for? Are there new financial products that you would like to see to meet the needs of investors seeking retirement security in DC plans?

The argument against a constant mix strategy is that if, for example, you set a target of 60% equities and 40% bonds, and the prices of equities rise (and the prices of bonds don't), then you have to sell stocks and buy bonds. If everyone had a constant mix strategy they would all try to follow that pattern, and there would be a lack of buyers and sellers on the other side of the trades. Not everyone can follow that strategy, and sell what has risen while buying what has fallen. Thus it involves betting against the market. The same argument also applies to target date and life cycle funds. If the market moves sharply, they will have to sell the relative winner and buy the relative loser.



I believe there is a better way. If you are an average investor, invest in market average proportions, and live with the changes in the markets. If you are affected more by changes in wealth than the average investor you may want to decrease your stock position after stocks outpace bonds, and do some rebalancing, trading with someone who should be rebalancing in the other direction. More generally, you should always look at the market value of securities. Market values reflect a consensus of opinions regarding value. Without a sense of the value of asset classes you are throwing away critical pieces of information. At Financial Engines we look at the values of major asset classes every single month and incorporate this information when we analyze investor portfolios. The result is that we don't advocate a lot of trading. This kind of a coherent system leads to advice and management that is closer to a buy and hold behavior than a constant mix strategy.

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Of course bonds have maturities and calls, new shares are issued by corporations and companies sometimes buy back shares. Over the longer run these actions tend to cause market proportions to come back to something like a 60/40 stock/bond mix. The message is that investors should not be slavishly rebalancing over time. There is a better way, which is to invest taking into account current market values. This will also save a lot in transaction costs

On the subject of retirement economics I believe that we will see substantial changes in the investment industry. Future products are likely to integrate insurance -- both annuities and long-term care insurance – with investments. For example, today investors buy annuities and then buy long term care insurance. But if they remain healthy, they would like more money to spend if markets do well, and if they are sick their financial needs are constrained by what it costs to maintain their health. Products to accommodate these needs do not exist now, but there are no reasons why they can't. There will be a whole raft of new products. Insurance companies will return to combining true insurance with investment, not just offering tax-advantaged mutual funds with only minor insurance features. We are also beginning to see mutual fund companies adding more insurance characteristics to their investment vehicles.

As one of the most eminent scholars in finance, what do you see are the greatest unanswered questions in investment finance today? Where can we expect the next breakthroughs?

If I knew when the next breakthrough would occur, I would try to make it myself. There is an awful lot going on. We are getting much more serious about the problems of individual investors, especially retail and mass affluent investors. In



the old defined-benefit days, such investors would simply work, retire, get a small check during retirement, pass away and leave their spouse to get an even smaller check. But now, in the defined-contribution world, over the course of their lives, workers must analyze and select from a complex array of products, including annuities, retirement accounts, and insurance and they must decide how much to save before retirement and how much to spend after retirement. Many do this without an advisor, because they cannot afford one. There are huge issues associated with the overall tasks of lifetime financial management, and there is a lot of exciting work going on in both industry and academia.

Another area getting a lot of attention is asset pricing – how are asset prices determined and what are the resulting relationships among risks and expected returns, broadly construed. We still don't know as much as we should about asset pricing over longer time horizons.

Finally, bringing to finance the behavioral aspects of cognitive science has been very helpful, not as much in asset pricing, however, as in helping understand how investors make decisions and finding ways to help them do better.

I would expect some big breakthroughs but can't predict what they will be, let alone when they will occur.

If you are comfortable with sharing this information, we would like to know how you invest your own money – in particular, how much of it is indexed and what is your allocation in various asset classes?

I prefer not to discuss this publicly. Let me just say that I have a number of good friends at Vanguard.

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