CHAPTER 2

Teaching Financial Literacy: What the Retail Investor Needs to Know

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Who—Zvi Bodie is the Norman and Adele Barron Professor of Finance and Economics at Boston University School of Management. He holds a PhD from the Massachusetts Institute of Technology and has served on the finance faculty at the Harvard Business School and at the MIT Sloan School of Management. His textbook *Investments*, coauthored by Alex Kane and Alan Marcus, has been translated into ten languages and is the market leader at business schools around the world. It is also used in the certification programs of the Chartered Financial Analyst (CFA) Institute, the Society of Actuaries, and several other professional associations. With Michael J. Clowes, Bodie wrote *Worry-Free Investing: A Safe Approach to Achieving Your Lifetime Financial Goals* (2003), which is geared toward the general public. In September 2007, the Retirement Income Industry Association honored Bodie with the award for Lifetime Achievement in Applied Retirement Research.

New Thinking—Bodie is critical of how popular financial education websites present the basics of investing to beginners. He suggests ways to improve that content. In this chapter, he focuses on some fundamental questions:

- ❑ What is the difference between saving and investing?
- ❑ Which investments are safest in the long run?
- ❑ Should everyone hold a diversified investment portfolio?
- ❑ What is the correct way to take account of inflation?

Introduction

As this chapter is being edited, in December 2007, many Americans, especially the "boomers," are very worried about how to pay for the college education of their children, their own retirement, and many other rising costs they will face in the future as government spending on entitlement programs declines. What sort of financial education, or, to be more specific, *investment* education, ought financial professionals provide to their retail-client customers—not to the institutions, but to the individuals who are the end users—to help them cope with their life-cycle needs? Those needs have never been greater than now, as pension plans change from defined benefit (DB) to defined contribution (DC), and employees have to make their own saving and investment decisions.[1]

Unfortunately, the financial advice and explanations you find on the Internet when you google "How should I invest for retirement?" is promotional rather than educational. It is written to induce people to buy certain products—usually equity funds—rather than to help them frame their decisions in a rational way. Even the investor education provided by government agencies such as the Securities and Exchange Commission, which a consumer might think is impartial, presents many of the same misleading marketing pitches as the industry sources do, rather than advice based on sound economic reasoning. I would like to extend an invitation to all my readers from universities and professional associations to join me in a challenging but extremely worthwhile endeavor. I believe we have a mission: to design, produce, and disseminate objective, genuinely trustworthy financial education based on the fundamental principles of economics. In this brief chapter, I try to demonstrate what I have in mind.

Inertia, Misinformation and Slogans: How the Retail Investor Came to Be So Unprepared

In the early days of 401(k) plans, most people, when asked to choose among investment options, stuck with the default option. Unfortunately, the default option was usually a money market fund, and the choice turned out to be a bad one. The default option *should* have been an inflation-indexed DB plan. When it became apparent that so many people, through inertia, were "choosing" the default option, there was general agreement that, if people were more educated, they would learn to diversify out of money market funds. That thinking is what

gave birth to the kind of slogans (in italics) that are causing problems today:

"*You can't afford not to take risk.*" This simply flies in the face of common sense. The fact is that the less you can afford to lose, the less you can afford to take risk.

"*Investing in safe assets is not safe for the long run, because you need the growth of equities to keep up with inflation.*" What people didn't realize about this particular slogan, which was reinforced by the Ibbotson charts about the long-term performance of stocks, was that it took for granted that people who already had defined-benefit plans—and *also* had 401(k)s—would invest their 401(k) money in mutual funds. That made perfect sense when the defined benefit was the base and the mutual fund investments only an add-on; with the safe allocation in their defined-benefit plan, people could afford to take on some risk in an incremental allocation. What we're looking at now, however, is a completely different situation, because now in most cases the 401(k) plan is *replacing* the defined-benefit plan—and if some politicians have their way, the 401(k) will replace even Social Security.

"*Our economy has been growing for the last two hundred years—a diversified portfolio of stocks gives the investor a way to participate in that growth.*" Perhaps, for 90 percent of the people who are targeted by this kind of investment advice, the correct solution is to hold whatever it is that the mutual fund companies are trying to sell. I'm not arguing that there's no risk premium on equities. I am simply saying that equities are not safe, no matter how long your time horizon is.

Marketing Versus Education: Getting Real About Financial Risk

One of the problems with the way such investing slogans are accepted is the result of the way they are presented. There is a difference between marketing and education. Providers have a responsibility to indicate which is which.

Some people hear that they get a premium for taking a risk, and, without understanding the whole picture, they want to go for the premium. Some of them can afford to risk a certain portion of their assets, but there is another 10 percent who cannot afford to take any risk at all, who should not under any circumstances be investing in equities. Some people with low incomes are in jobs that have a very high correlation with the stock market; these people are *already* overexposed to equities. Should they be putting their retirement money into equities as well? What's more, many in this same group of people, who cannot afford any risk whatsoever, are using their 401(k) plans for severance, or unemployment, insurance, instead of using them for retirement.

In the category, not of slogans, but of misinformation is an unsafe investment approach that was outlined in a book put out by a leading discount broker on the subject of retirement planning. The heuristic for the average investor—and maybe it was a good one—was that the percentage of a portfolio that should be in equities was 100 minus your age. That would mean that, if you were fifty, you would have exactly half your portfolio in equities. The book, however, was proposing that the equities proportion stay at 50 percent even at ages sixty, seventy, and beyond.

The problem is that, although the principle of diversification works across securities and asset classes, it does *not* work over time. Even a highly diversified portfolio of stocks does not become safe in the long run. Yet here is the kind of thing customers are told on a typical website: Invest in stocks, either individually or in mutual funds, for long-term growth. While in any given year stocks can be more volatile than other investments, over time, they have typically outperformed all other types of investments while staying ahead of inflation. Stocks should be the core of a long-term investing strategy.

If stocks are so great for the long run, then why don't the same firms offering this advice offer a performance guarantee to pay at least what a customer contributes to a diversified equity portfolio adjusted for inflation? After all, the firm managing the fund is in a much better position to evaluate and manage the risk than the customer is. If the firm believes what it is saying, it ought to offer a free guarantee for its product. That's what other industries do. Of course, option-pricing theory shows that such a guarantee is far from free. A European-style put option that guarantees against a shortfall relative to the U.S. Treasury rate costs more the longer its time horizon. Its price *increases* with the square root of T, where T is the time horizon.[2] So, even though the probability of a shortfall falls as the time horizon gets longer, the cost of insuring against a shortfall increases. That is the simplest argument I can use to explain to people why they need to be concerned about the downside risk of equities in the long run. After all, we all pay to insure against events that have a very low probability of occurring because of their severity. What could be more severe than reaching retirement age and being broke?

Teaching the Basic Concepts of Financial Literacy

Now that we've established what misinformation retail investors are exposed to, let's talk about how to fix the problem: How do we teach the basic concepts of financial literacy?

Finance is an applied branch of the science of economics, in the same way that medicine is an applied branch of the science of biology. In teaching the basics of finance, we should remain true to the basic concepts and principles of economics, not contradict them, as do many of the popular investment-education websites. Among the most basic concepts of economics that play a role in financial decision-making are saving, investing, matching, and diversifying. Here is what students are taught in a course on the principles of economics:

Saving

Saving is income minus consumption. Saving can be used either to reduce debt or to increase assets.[3]

Investing

Investing focuses on the types of assets that people put their savings into. The spectrum of asset choices goes from short run to long run and from safe to risky. A basic tenet in economics states that saving equals investment. Therefore, anyone who is a saver is also, by definition, an investor.

Matching

Matching is the safest investment strategy for achieving a specific goal. To eliminate the risk of falling short of an investment goal at a specific future date, the investor needs to match the maturity of his investment to the date of his goal, with target-dated, inflation-protected investments, such as Series I savings bonds or Treasury inflation-protected securities (TIPS).

Diversifying

Diversifying means reducing your exposure to risk by not "putting all your eggs in one basket." Instead of investing in the stock of a single company, investors need to allocate diversified investment funds among the stocks of different companies in different industries. Because some of the gains will cancel some of the losses, the risk of the portfolio of stocks will be lower than the risk of an investment of equal size in a single stock.

Principles of Rational Financial Decision-Making

As with other applied sciences, like medicine or engineering, best practices in finance evolve as knowledge advances—but some core principles of rational financial decision-making remain constant. These principles should be taught in a way that is completely consistent with the basic concepts and definitions of economics—as simply as possible, but not more simply.

In addition, the misleading financial advertising of "popular literature" needs to be exposed for what it is by the regulatory authorities charged with consumer protection.

I think the following qualify as basic principles of rational financial decision-making:

Principle 1

Financial choices should be framed in terms of objectives and constraints. Rational choice is about maximizing your welfare subject to resource constraints. To make a rational retirement plan, people should save in their working years to provide roughly the same standard of living *after* retirement as before.

Principle 2

Take account of inflation in a consistent way. Among the most basic ideas in economics is the distinction between nominal and real—that is, inflation adjusted—units of account. For example, in measuring the level of aggregate economic activity in a given year, economists distinguish between *nominal* gross domestic product (GDP), measured in prices actually charged for goods and services in that year, and *real* GDP, measured in prices of a common base year. This distinction between nominal and real also applies to interest rates and to projected benefits in retirement planning. Adjust for inflation in all calculations. This means using real—constant-dollar—forecasts of cash flows and real rates of return rather than nominal ones. It is common for people to mistakenly compute projected retirement income based on an observed market rate of interest *without* subtracting the expected rate of inflation. When they add the resulting income figure to projected Social Security benefits, they get an unrealistically high projected retirement income. The higher the expected rate of inflation, the worse this upward bias becomes. Real rates of interest can be low or even negative.[4]

Principle 3

A security's price is generally a good estimate of its fair market value.[5] Prices of publicly traded securities reflect assessments of informed investors. It takes only two competing bidders who are well informed for prices to reflect available information accurately. If a deal looks too good to be true, it probably is not as good as it looks. Sometimes an asset seems like a bargain to you only because you are unaware of some risk that better-informed investors know about.

Principle 4

Seek advice only from a trustworthy source, and make sure you understand the scientific evidence for that advice. Many professional advisers are paid

commissions by financial firms, which thus creates an incentive for them to steer you toward products that might not be in your best interest. [If you're not sure which advisers you can trust, check an organization of fee-only financial planners, such as the National Association of Personal Financial Advisors (NAPFA). When you're comparing and evaluating investment managers, beware of "survivorship bias." Investment companies that have existed for a long time will appear to have funds with superior performance, because the funds that performed badly no longer exist. A firm's track record can be misleading if no adjustment is made for the funds that did not survive.

Financial Literacy FAQs

QUESTION: *Can you trust the advice you get from your employer? If you are an employee, you are inclined to trust your employer's benefits department as a source of financial advice when you are trying to choose the default option in retirement and health plans. Is your trust justified?*

ANSWER: Maybe. You need to ask some questions: Are your employer's interests aligned with your own? Employers must obey the law, but do the "safe harbor" rules set by regulators correspond to your needs and preferences? Get answers to these questions from the benefits department itself. If you are told to seek advice from a professional financial planner, be sure that the planner's advice is not self-serving.

QUESTION: *So whom can you trust?*

ANSWER: Your best protection is knowledge of the basics. Ask your adviser what she thinks of safe financial products that are free of sales commissions, such as I Bonds and other investments at TreasuryDirect. If the adviser is either unaware of them or tries to talk you out of them, seek advice elsewhere. Look at the list at the end of this chapter of helpful websites that offer impartial advice and assistance.

QUESTION: *If people restrict themselves only to "safe investing" and don't take a certain amount of risk, isn't it likely that a lot*

of them will never reach their investment goals by the time they reach sixty-five?

ANSWER: That's right; they won't. In the past, with the establishment of Social Security and private DB pensions, a certain cohort of people was able to retire at sixty-five. That won't be true in the future. Even those retiring this year cannot collect their full Social Security until they are almost sixty-six. People born in 1970 won't be able to collect full Social Security until they reach sixty-seven. The date is continually being pushed back. With a life expectancy of eighty-five or so, we are being unrealistic if we expect the system will provide enough income for everyone to retire at age sixty-five. It just won't work, and information that says it *will* work can't be trusted.

Helpful Websites

For basic information:

www.napfa.org—National Association of Personal Financial Advisers

For fee-free services:

www.annualcreditreport.com—Free personal credit report

www.TreasuryDirect.gov—Commission-free investment in Treasuries, including TIPS and I Bonds

www.choosetosave.org/ballpark—A ballpark estimate of how much to save for retirement

For information on targeted tuition plans:

www.collegesavings.com/program.html

www.independent529plan.org

The following sites are government or regulatory agencies that get their "educational material" from biased industry sources. Exercise caution in using them:

www.sec.gov—SEC (Securities and Exchange Commission)

www.nasaa.org—NASAA (North America Securities Administrators Association)

www.finra.org/index.htm—FINRA (Financial Industry Regulatory Authority)

Chapter Notes

1. In a DB plan, the sponsor of the plan assumes the risk of a shortfall at retirement, but, in a DC plan, the individual participants bear that risk themselves.

2. See Zvi Bodie, "On the Risk of Stocks in the Long Run," *Financial Analysts Journal* 51 (May/June 1995): 18–22.

3. It's not always clear whether a particular outlay should be considered as consumption or as saving. For example, if you spend money on acquiring more education to increase your earning power in the future, you ought to consider it saving, but education expense is usually treated as consumption.

4. College Savings Bank CDs, for example, offer a guaranteed interest rate that is negative measured in units of tuition. See www.collegesavings.com/program.html.

5. The law of one price is that, in a competitive market, identical goods must sell for the same price after adjusting for transaction costs and shipping costs. This law is enforced by the force of arbitrage: that is, traders buying at the low price and simultaneously selling at the higher price and thereby eliminating price discrepancies that are larger than the transaction costs.