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INSIGHTS

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RETIREMENT READINESS AND BEHAVIORAL FINANCE

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More than 10,000 Baby Boomers will be reaching retirement age every year from now through 2030. Inadequate savings, high cost and poorly designed retirement plans as well as investor behavioral mistakes combine to level most of them woefully unprepared for retirement. The paper suggests a number of possible solutions to improve our country's retirement readiness.

More than 10,000 Baby Boomers are reaching the age of 65 each day — a pattern that will continue until the year 2030.[1] But many of them are woefully unprepared for retirement. Even the most optimistic studies that have estimated measurements of retirement readiness have found that at least 40 percent of Americans are unprepared for retirement.[2]

Far too many Americans have savings that are inadequate to sustain their standard of living after retirement. According to Fidelity Investments, the largest provider of 401(k) plans, the average 401(k) balance was only $80,600 in 2013.[3] Less than 2 percent of 401(k) balances were as much as $1 million as the date of retirement approached. At Vanguard, which manages $2.3 trillion of assets, the average 401(k) balance was $86,212, but the median account size was only $17,843.[4] The most recent Federal Reserve Survey of Consumer Finances (2010) presents a similar picture United States Federal Reserve Board of Governors (2010). The survey finds that only half of the Americans have any kind of retirement plan. And in the bottom wealth quartile only 11 percent of Americans have a savings/retirement plan. The average value of the retirement plans of Americans aged 60–74 was only $308,000.[5] Any government and corporate defined benefit plans that still exist are dramatically underfunded. Even Social Security, the key element for most people's retirement planning, is underfunded and, at best, will provide only a portion of the income needed by retirees. It is hard to escape the conclusion that the current U.S. retirement system is less than adequate.

It all Starts with Saving

Adequate savings are critical to retiring with dignity. But far too many young people fail to start a

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disciplined savings program, believing that they have plenty of time to build a retirement nest egg later in life. It does not matter what you earn on your investments if you have nothing to invest. Savings is the essential element for providing retirement security.

Behavioral finance suggests a number of explanations for inadequate savings. Saving implies deprivation. Spending implies pleasure. So-called "retail therapy" improves one's disposition. There is also an element of "fantastical thinking." Many young people refuse to consider the possibility that they will ever get old. Procrastination is another common behavioral trait. "I know I should save but I can do that later." Individuals tend to overvalue the utility of present consumption at the expense of what could be a vastly larger amount of future consumption.

The importance of getting an early start is illustrated in Table 1. It is assumed that the individual puts $1,000 per year in a savings program such as a tax-advantaged 401(k) plan or an individual retirement account (IRA) and earns two alternative interest rates per year on the investments. The table shows that even very modest savings per year in one's early 20s can grow to a sizeable nest egg later in life. If one saves $2,000 per year, double the numbers in the table. For a $5,000 per year saver, multiply the numbers by 5.

Table 1 Value of $1,000 per year if invested at alternative interest rate.

Rates years	6%	8%
10	$13,181	$14,487
20	36,786	45,762
30	79,058	113,280
40	154,760	259,057
50	290,330	573,770

How Big a Retirement Nest Egg Can You Accumulate?

In my beginning finance class I have long used the following exercise to illustrate the power of compounding and the necessity of an early start to savings. An earnings rate of 7 percent on money saved is assumed. The magnitude of the final numbers has never failed to amaze my students.

A Quiz

William and James are twin brothers who are now 65 years old. Forty-five years ago, when the twins were 20, William started a retirement account, putting $10,000 in the stock market at the beginning of each year. After 20 years of contributions, totaling $200,000, he stopped making new investments but left the accumulated contributions in his account. The fund earned 7 percent per year, tax free. The 7 percent estimate is below the long-run realized return on common stocks in the United States. The second brother, James, started his own retirement account at age 40 (just after William quit) and continued depositing $10,000 per year for the next 25 years for a total investment of $250,000. When both brothers reached the age of 65, which one had the bigger nest egg?

- William's account was worth almost $2.4 million
- James' account was worth just over $675,000

The moral is clear. Despite having invested less money than James, William's stake was 3½ times greater because he started earlier.

Behavioral financial economists have made useful recommendations for overcoming the natural biases that lead to inadequate saving. One proven idea is to have all companies put their 401(k) plans on automatic enrollment. There is a vast difference between telling a new employee that a 401(k) plan is available if you sign up—or alternatively

telling new employees that they are automatically signed up but can opt out if they desire. The participation rate is far greater in the automatic presentation of the plan. And there is no doubt that the surest way to benefit savings over spending is to never let the employee have access to the funds in the first place.

If the employer does not offer a 401(k) plan, the same result can be accomplished with an Automatic Individual Retirement Account. The Obama administration has proposed that employers who do not offer a 401(k) plan should automatically enroll employees in an IRA.[6] The best way to increase savings is to get saving behavior on automatic pilot.

Some employees will opt out because they can barely make ends meet on their present salaries. For them, Benartzi and Thaler (2001) have suggested a "Save More Tomorrow" plan.[7] In the plan the employee agrees to save some percentage of any future raises in salary. In the first company that adopted this plan (and provided adequate counseling) the savings are more than tripled in three years.[8]

As useful as automatic enrollment may be, the plans are still voluntary in that they all give the individual the option to opt out. As the retirement savings problem grows larger, the call for forced savings grows louder. Academics such as Alicia Munnell, Director of the Center for Retirement Research at Boston College, and financial executives such as Laurence Fink, the CEO of BlackRock, with over $4 trillion under management, have called for some form of mandatory retirement savings plan (see Interview by Nick Summers and Fink, Laurence (2013)). Such plans have been instituted abroad, the most notable being Australia's Superannuation System. The required contributions to the plan are scheduled to increase to 12 percent of income per year. The system has been enormously successful in essentially eliminating Australia's retirement income crisis. Beginning such a system in the United States could involve contributions of 2–3 percent per year. As in the Australian system, the rate could be increased over time as experience with the plan becomes accepted. I believe we missed an excellent opportunity to institute such a plan when former President George W. Bush recommended "privatizing" a portion of Social Security benefits. Had he recommended his plan as an "add-on" rather than a substitute, I believe the chances of passing such a measure would have been vastly improved.

Such an add-on to the current Social Security system would be the most certain method to increase savings. While the money could be collected by the government, the investment of the funds could (and should) be left to the private sector. Some suggestions as to how such a fund might be invested are included in the concluding section of this paper.

The Tyranny of Costs

The miracle of compounding can be vitiated if the costs of setting up a retirement savings plan are high. Even if everyone made adequate provisions for savings over their lifetime, sufficient funds for a comfortable retirement might still be unachievable if the costs of the investment plan overwhelm the benefits of compounding discussed above. A 1 percent per year cost for investment expenses might seem like a small amount. But such an expense amounts to over 14 percent of an investment return of 7 percent per year. Moreover, these costs compound over time. For an investor making periodic savings contributions each year for 45 years, the difference in the final net accumulation is over 25 percent when 1 percent per year (out of a 7 percent gross return) is taken out in expenses. And if two percentage points of

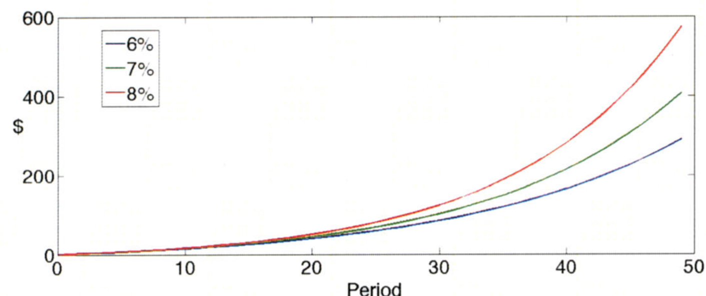

Figure 1 Growth of investment of $1 per period under alternative rates of return.

expenses are subtracted each year the final accumulation is reduced by almost 45 percent. Bogle (2013) calls this the "tyranny of cost compounding." Figure 1 shows the drag on accumulations from a 1 and 2 percent expense charge that reduces the net return earned by the investor to 6 and 5 percent, respectively.

What are the typical costs charged by the purveyors of investment services? Three kinds of costs are borne by the investor in a 401(k) retirement plan. First, there are the explicit investment management expenses charged by the companies that run the mutual stock and bond funds that are included in the menu of choices offered to 401(k) investors. Second, there are administrative costs charged for the overall management of the plan that fall under the rubric "plan-level expenses." Finally, there are unmeasured costs such as the costs borne by the investor from the purchases and sales of securities within the mutual funds in the plan. Such "turnover costs" are not included in the expense data reported by the funds.

For those plans that use actively-managed mutual funds we can measure the annual expenses either in total or as a difference between what they charge and what would be available from a simple index fund that bought and held all the securities comprising the index in proportions equal to the capitalization weights of each issue relative to the total market value of the index. Since broad-based index funds (and similar Exchange Traded Funds) are currently available at close to zero cost, both measures are essentially similar. Since both bond and stock index funds tend to outperform actively-managed funds, differences in fees represent an avoidable extra cost of 401(k) plans.[9] Depending upon the time period involved and the samples used in the analyses, it appears that direct expenses may be as much as one percentage point of avoidable expenses. Table 2 presents some different estimates of the excess direct costs of actively-managed versus index funds that are offered as choices to 401(k) participants.

In addition to the excess direct expenses incurred by the funds themselves, there are plan-level expenses charged by the plan administrators. According to Ayres and Curtis (2013) such overall plan costs were 42 basis points giving an

Table 2 Estimates of excess direct expense ratios of actively-managed mutual funds (in basis points—i.e., hundredths of one percent).

	Excess direct expenses	
French	(2008)	67
Ayres & Curtis	(2013)	71
Malkiel	(2013)	91
Bogle	(2013)	112

"all-in-fee" of 113 basis points (42 plan-level plus 71 basis point direct fees).[10]

Finally, there are the unmeasured costs that result from the portfolio turnover of actively managed funds. These costs include brokerage commissions, bid–ask spreads, and market impact costs. Such costs are not included in the published expense ratios of mutual funds. Bogle (2013) has estimated that these costs could be as much as 50 basis points. However, the inferior returns of actively-managed compared with passive index funds should include all the additional expenses that are not borne by passive index funds.

Investor behavioral mistakes

Investors themselves may be their worst enemies. One of the costliest mistakes they tend to make is to try to time the market. They tend to be the most enthusiastic investors when everyone around them is optimistic. On the other hand, they are most likely to stop their contributions to 401(k) plans and to IRAs just at the time when pessimism is rampant. Or they may switch their allocations away from equities during times of financial crisis and when some of the best investment opportunities exist.

The following chart shows the flow of money into equity mutual funds by all investors including 401(k) and IRA participants. It shows a remarkable tendency for individuals to let their emotions dictate their investment choices. Behavioral considerations lead investors to make tragic errors. We can see from the graph that money poured into equity mutual funds in late 1999 and the first quarter of 2000, just at the height of the Internet (dot.com) bubble in equity prices. This was the period when Internet stocks would double every few weeks and when a company that added ".com" to its name could be assured of a rising stock price.

Local bars and pubs would switch their TV sets from the usual focus on athletic events to financial channels such as CNBC. The stock market was the main topic of conversation at dinners and cocktail parties. People would "dine out" with stories of their major investment successes, and enthusiasm spread like an epidemic, as has been suggested by Shiller (2000). Price increases would generate further price increases, and the major companies associated with the Internet and the New Economy sold at triple digit multiples of their earnings per share. And the moneys pouring into equity mutual funds were almost exclusively going into

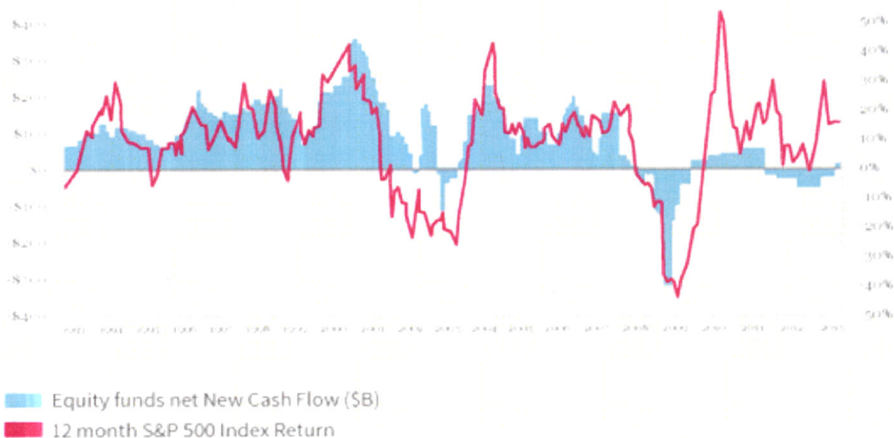

Figure 2 Flows to equity funds related to united states stock price performance.

"high tech" investment funds, while staid "value" funds tended to languish.

When the market made its lows in the third quarter of 2002 (after a sharp decline in stock prices) investors pulled large amounts of money out of equity funds. But those sums paled in comparison with the third quarter of 2008, at the height of the financial crisis, when investors pulled unprecedented amounts of money out of equity mutual funds. Investors then became so disenchanted with the equity markets after the crisis that they did not reenter the equity mutual fund market, despite the sharp rally in stock prices from the 2008 lows.

What we see is a persistent tendency for investors to do the wrong thing. And even in 2013, with an economic recovery and a strong stock market rally proceeding, many investors, burned during the financial crisis, refused to invest in equity mutual funds. One obviously needs to be careful about reliance on anecdotal evidence, but several financial advisors report to me a widespread feeling that equities are an unsuitable investment for 401(k)s and IRAs—statements that are consistent with the aggregate data on fund flows.

There have been several studies purporting to measure what bad timing decisions cost individual investors (whether they are retirement fund investors or investing outside their retirement plans). The stock market as a whole has delivered an average rate of return of about 9½ percent over long periods of time. But that return only measures what a buy-and-hold investor would earn by putting money in at the start of the period and keeping her money invested through thick and thin. In fact, according to a study by Dichev (2007), the returns actually earned by the average investor are at least two percentage points—almost one-fourth—lower because the money tends to come in at or near the top and out at or near the bottom. Other studies, such as by Dalbar Corporation (2013), suggest that the "behavior gap" is considerably larger. The Dalbar analysis probably overstates the gap, but there is no doubt that emotions affecting market timing can lead to costly mistakes.

Bad timing decisions are hardly the only errors made by 401(k) and IRA investors. Some investors in 401(k) plans will tend to pick high-cost funds out of the menu of choices of equity funds, incorrectly believing that high-cost funds are of higher quality (even though the opposite is true). Other investors, when faced with N choices in their 401(k) plans, may use what Benartzi and Thaler (2001) call the "$1/N$ rule." They might allocate equal amounts to all the choices in the investment menu even though such a choice will invariably yield a sub-optimal portfolio including one that will overweight high-cost funds. Ayres and Curtis (2013) found that two-thirds of the funds offered in 401(k) plans would deserve zero weight in an optimal portfolio allocation. But almost all plans had at least one such fund in the menu of choices offered.

Finally, we should note that some investors in 401(k) plans tend to choose allocations that are inconsistent with their age. It is generally accepted that younger investors should hold allocations that are overweighted with equities rather than fixed-income securities. Younger investors have time to ride out the ups and downs of the stock market, and accumulators of retirement funds will benefit from dollar-cost averaging of their purchases of volatile equities. Moreover, younger workers are more able to suffer less harm from stock market reverses since their main asset is the future stream of earnings from their employment. Older participants, who will be decumulating assets and who no longer have earnings from employment, will need a more stable mix of asset classes. One hopeful development is the increasing use of target-date funds, where the

asset allocation changes automatically as the plan participant approaches retirement.[11]

Problems Emanating from the Design of the 401(k) Plan

Many problems are caused by the design of the 401(k) plan. Some of these were referenced above. Some plans are very high cost both in the mutual funds that are offered to plan participants and in the overall management fee for the plan. Some plans do not even offer low-cost equity and bond index funds as an option to participants.

In addition, many plans offer too wide a menu of fund choices. This makes decision making quite difficult and, as indicated earlier, may encourage participants to overdiversify and even put a proportion $1/N$ into each of the N choices offered. These N choices are also likely to include the very high-cost funds that are unlikely to be included in an optimal mix of investments.

Many plans also include an option to include a substantial amount of company stock. While company stock will have the advantage of being a low-cost option, a substantial holding of company stock will tend to make the total retirement investment portfolio insufficiently diversified. And not only is the investment portfolio too risky, but the personal risk for the employee is exacerbated. A business reversal for the employer can ruin both the investment portfolio and the employment prospects for the employee. The risk was all too real for the Enron employees who were encouraged to put their 401(k)s in Enron stock. When the company went bankrupt, employees lost not only their accumulated retirement funds but their jobs as well.

There are numerous other problems with the design of many 401(k) plans. Age appropriate default options are not always included. Younger workers should be given a default option heavily weighted with equities, which includes diversified low-cost index funds. Options should be included that would automatically make the investment portfolio safer over time, as occurs in target-date funds. And at retirement, a low-cost annuity option might be included.[12]

Retirement specialists such as Bodie and Mandell have suggested that investors make insufficient use of annuities during retirement, since annuities can provide assurance that the retiree will not outlive the stream of retirement income available. For example, Mandell (2013) has written:

> "Virtually every economist who studies retirement issues feels that annuities are generally the best way to close a lifetime income gap. In fact, economists are very surprised that relatively few retirees choose to invest at least some of their savings in a life annuity. They even have a name for this strange behavior, which they call the 'annuity puzzle'."

One of the greatest defects of retirement plan design is that participants are given more freedom than is good for them. To be sure, the freedom to withdraw moneys for bona fide emergencies is considered to be a great advantage that encourages saving. And to the extent that borrowing is used to purchase a home, the individual's savings are not reduced. But all too often the ability to withdraw moneys late in life is widely abused. Moreover, so is the plan provision that allows participants to borrow from their 401(k) plans. The expenditures made can seem very attractive (or even necessary) as the retirement fund gets decimated, but such freedom and the behavioral tendency to overvalue present at the expense of future consumption has all too often ruined even the best allocated retirement fund.[13] Finally, participants are able to "cash out" their retirement plans when they change jobs. Over half of 401(k) participants who change jobs cash out at least a portion of their plan and use the proceeds for purposes unrelated to retirement savings.

A very good example of the problem is offered by the excerpt taken from an op-ed piece written by Joe Nocera, an excellent financial columnist for the *New York Times*. Here we have an example of a very sophisticated investor who has reached the age of 60 with his retirement fund in a shambles. Unfortunately, the story Nocera recounts can be repeated thousands of times. Thus, even for many people who have participated in tax-advantaged retirement plans, the retirement system has failed, and describing the current situation as a "retirement crisis" is not an exaggeration.

My Faith-Based Retirement
By Joe Nocera[14]

"My 60th birthday is less than a week and a half away.... The only thing I haven't dealt with on my to-do checklist is, retirement planning... [But] I can't retire. My 401(k) plan, which was supposed to take care of my retirement, is in tatters. Like millions of other aging baby boomers, I first began putting money into a tax-deferred retirement account a few years after they were legislated into existence in the late 1970s. The great bull market, which began in 1982, was just gearing up."

"As a young journalist, I couldn't afford to invest a lot of money, but my account grew as the market rose, and the bull market gave me an inflated sense of my investing skills. After all, we were in the middle of the tech bubble by then.

"The bull market ended with the bursting of the bubble in 2000. My tech-laden portfolio was cut in half. A half-dozen years later, I got divorced, cutting my 401(k) in half again. A few years after that, I bought a house that needed some costly renovations. Since my retirement account was now hopelessly inadequate for actual retirement, I reasoned that I might as well get some use out of the money while I could. So I threw another chunk of my 401(k) at the renovation. That's where I stand today...." (Nocera, April 27, 2012)

Some Possible Improvements

As the legendary comic-strip character Pogo used to say, "We have met the enemy and he is us." The lack of self-discipline and the other behavioral foibles make it unlikely that better individual decision making will fully solve the retirement crisis. As the United States has gravitated from Defined Benefit Pension Plans (that removed the risk of poor retirement planning from individuals) to Defined Contribution Plans, we may have put burdens on individuals to make decisions they are incapable of doing well. I believe we need some element of coercion on individuals to make them increase their savings for retirement. I also believe we need to go even further to increase the number of automatic features that affect enrollment and that tend to limit the decisions that individual plan participants are able to make.

All 401(k) plans should be subject to the requirement that a basic plan with the following features be offered as a default option for plan participants:

- There should be automatic enrollment involving a significant percentage of the participant's income from employment. Moreover, plans should implement automatic increases in deferral rates.
- The plan should be low cost. It should include a diversified set of broad-based internationally diversified, index funds, and it should carry administrative fees no higher than those charged by the lowest cost "mutual" fund company or insurance company. Non-profit companies established for the purpose of providing such an alternative would be very helpful in ensuring that suitable default options are available.
- The default portfolio should be automatically rebalanced at least yearly. Moreover, the portfolio composition should become safer (less volatile) over time as the participant reaches retirement age. This change in portfolio allocation should be consistent with the target-maturity portfolios currently offered by mutual fund companies. While participants would be

allowed to opt out of the default portfolio and choose another alternative, they should be strongly encouraged to leave the plan on the automatic trajectory of the default portfolio.

- Borrowing against the portfolio should be severely constrained and withdrawals should generally be limited to true catastrophic emergencies. Flexibility should be as constrained as possible with the possible exception that partial withdrawals to facilitate investment in another asset that could be used to enhance retirement security would be allowed. For example, use of a portion of a 401(k) balance to purchase a home would be considered a reasonable withdrawal.
- Upon retirement at least some portion of the accumulated retirement fund should default to a fixed or variable low-cost annuity. Plans that offer only lump-sum withdrawals upon retirement are likely to leave some participants with a significant risk of outliving their savings.

Few 401(k) plans offer annuities as a spend-down option during retirement. The Department of Labor and the General Accounting Office (2013) have recommended that we reexamine the current regulatory barriers that may prevent 401(k) plan sponsors from offering annuities. Such barriers do not exist in other countries that do offer annuities and other spend-down alternatives and thus can provide useful lessons for the United States.

Of course, 401(k) plans will involve opt-out provisions and even with the constraints suggested above, they may be inadequate to ameliorate what I have suggested is inadequate retirement readiness in the United States. Hence, I think some form of coerced savings may also be necessary to adequately address the retirement problem. The simplest and most comprehensive way to accomplish this is to add a mandatory savings plan to the existing Social Security program. While the money would be collected by the Federal Government, the administration and investment of the funds should be accomplished by the private sector. The Superannuation Plan in Australia could serve as one model.

Table 3 Key aspects of DC plans by country.

Country	DC Assets as a % GDP (2011)
A. Mandatory plans	
Australia	91.6%
Chile	61.3
Singapore	62.9
Switzerland	110.3
B. Voluntary Plan	
United States	20.9

Source: General Accounting Office (2013).

The General Accounting Office (2013) has documented dramatic country differences in the amount of savings available to support retirement. Table 3 compares four countries with mandatory savings plans with the United States. The proportion of defined contribution assets to Gross Domestic Product is substantially higher where mandatory plans exist.

The design of the plan could closely follow the desiderata suggested for 401(k) plans outlined above. The difference would be that it would not be possible to opt out of the plan and no flexibility would be allowed to tap into the plan for either borrowing or withdrawal. At the beginning, the extra amount withdrawn from paychecks could be as low as 2 percent. But as the Australian example indicates, as experience and success with the plan accumulates, the percentage could be increased over time. If one wanted to exempt very low earners, because many individuals living in or near poverty cannot afford to save, the plan could be initiated only when salary levels rose above a certain amount. Such a plan could eventually provide a permanent solution to the problem of retirement readiness in the United States, as it has in other

countries that have adopted mandatory savings plans.

Notes

[1] See Cohn and Taylor (2010).

[2] The most optimistic studies of retirement preparedness find that over 40 percent of Americans are inadequately prepared for retirement. Munnel *et al.* (2006) found that 43 percent of Americans are unprepared for retirement. See Utkus (2009) for a summary of studies on retirement readiness as well as ACLI, ABC, and ICI (2013).

[3] See Hicken (2013).

[4] See Utkus and Young (2013).

[5] Federal Reserve SCF (2010).

[6] See Gladych (2013).

[7] See Benartzi and Thaler (2001).

[8] See Thaler and Benartzi (2004).

[9] See for example Jensen (1968), Carhart (1997), French (2008), and Malkiel (2013).

[10] In contrast, the Investment Company Institute, the mutual-fund industry trade group, estimated all-in costs at 93 basis points, a lower but still a substantial reduction from investor returns.

[11] See Utkus and Young (2013) who report that 84 percent of plan sponsors offered target-date funds at year-end 2012 compared with 45 percent in 2007. Fifty-one percent of all participants use target date funds and 54 percent of those participants have their entire account invested in a single target-date fund. During the middle of the first decade of the 2000s, the age-based equity allocations of Vanguard participants were hump shaped: i.e., younger workers under the age of 25 adopted a more conservative equity allocation than those in the 25–64 age group. By 2012, however, younger participants had larger equity allocations than older workers. These data show the importance of the availability of target-date funds (as well as the importance of making investment advice available to participants).

[12] It can be argued, however, that workers in the bottom half of the wage distribution already have significant annuity wealth in the form of Social Security. They may not need additional annuity assets. This suggests, however, that workers in reasonably good health should maximize the value of their Social Security inflation-adjusted annuity by deferring the receipt of benefits until age 70, drawing down their 401(k) assets if necessary in the interim.

[13] To be sure, participants would be better off borrowing against their 401(k) plans than assuming very high cost credit card debt. But, if we are to improve the nation's retirement readiness, the answer is to discourage dissaving by overspending one's credit card.

[14] Nocera (2012).

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