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Investment Insights

Creating, transforming and sharing knowledge

It's 11 p.m.—do you know where
your employees' assets are?

PERFORMANCE THROUGH INNOVATION

BARCLAYS GLOBAL INVESTORS



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It's 11 p.m.—do you know where your employees' assets are?

Defined-contribution (DC) plan assets are managed in ways that would cause fits if practiced in traditional institutional investment settings such as defined-benefit pension funds, foundations, and endowments. On average, DC plan managers incur higher costs and embrace a level of risk that would simply be viewed as unacceptable by institutions managing their own money. This represents a problem, since, with their growing popularity, DC plans are on their way to becoming the foundation of the retirement security system in the United States.

Not long ago, Waring, Harbert, and Siegel observed in “Mind the Gap,” *Investment Insights* (April 2000) that DC-plan participants were earning uninspiring returns.¹ We exhorted readers to “mind the gap” of some 2% per year—an amount that adds up to big money over time—between DC9-plan rates of return and those achieved by defined-benefit pension plans and other professionally-managed institutional investment vehicles. As a solution to the problem of low returns, we proposed that DC sponsors emphasize to participants the strategic investing advantages of pre-mixed asset allocation funds. By building and encouraging the use of such funds, we (the community of plan sponsors and their investment managers) do the heavy lifting for participants, presenting to them a spectrum of well-engineered, low-cost, risk-controlled portfolios that are optimized at the asset class level. Each choice in this spectrum is a complete investment strategy in a single fund. For investors who want to build their own asset mix, we suggested providing index funds

and asset-class funds constructed as a low-cost blend of index and risk-controlled active strategies. These approaches, if adopted, would enable DC-plan investing to benefit from the “best practices” of the institutional investment world.

Now, we have a different bee in our bonnet—risk. We have been observing extraordinary risk-taking by DC plan participants. This risk-taking involves inappropriate and potentially disastrous amounts of both *policy*, (or *market*), *risk* and *active risk*. (Policy risk is the risk that comes from being exposed to markets, or, more technically, to market benchmarks.² Active risk is deviation from these benchmarks, due to active management.) Undoubtedly, many DC plan participants have felt the consequences of these risks in the wake of the severe drop in the stock market since we wrote “Mind the Gap.”

Also, as we pointed out in “Mind the Gap,” participants often pay unconscionably high management fees and other investment-

related costs. However, they receive little or no benefit from paying these costs. That participants are getting all three of the critical variables wrong—policy risk, active risk, and costs—is the observation that this article will principally address.

By and large, this is not the participants' fault. They never asked to be treated as investment experts and are doing as well as they can under the circumstances. This situation is largely a consequence of plan sponsors and their investment managers presenting employees with plan designs that do little to discourage risk-taking and that in some ways actively promote it. Like parents who have handed the car keys to their child only to be left wondering what their children are doing, employers and plan sponsors must now ask themselves: It's 11 p.m.—do you know where your employees' assets are?

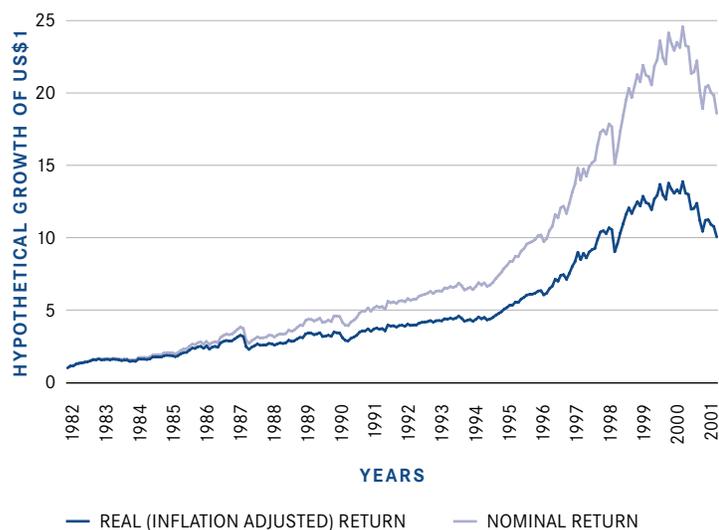
The solution we propose—similar to the one we discussed in “Mind the Gap”—centers on pre-mixed asset allocation funds. Participant education has been competently and earnestly tried, and it has largely failed.³ The vast majority of participants simply do not have the time and energy, and in some cases the skill, to build and manage an investment portfolio. We professionals should just do it for them. By providing a plan design that focuses on pre-mixed funds as the premier investment choice—complete investment strategies in a single fund—we can help participants control policy risk, active risk, and costs.

I. The risk of markets

At the risk of stating the obvious, the return on US stocks in the period since the 1982 bear-market low has been truly remarkable. As Exhibit 1 shows, a dollar invested in July 1982 in a hypothetical S&P 500 index fund that reinvests dividends and pays no transaction costs or taxes would have grown by March 2000 to \$24.15, a compound annual rate of return of 19.8%.

With the wind at the equity investor's back for so long, investors understandably became careless about risks and costs. In steadily rising markets, policy risk—if not active risk—is persistently rewarded. Investors

Exhibit 1
Cumulative total return on S&P 500



Total returns include reinvestment of dividends. Past performance is no guarantee of future results. One cannot invest directly in an index.

Source: Ibbotson Associates, Chicago. Used by permission.

forget that markets really are risky. Costs become buried in strong performance. (A dollar invested in a different hypothetical S&P 500 index fund, this one having a 1% expense ratio, would have grown to a still-impressive \$20.82; only an investor with knowledge of the returns on the cost-free benchmark would be disappointed with this result.) In a rising market, it didn't much matter if an investor lagged the market a little.

But in a falling market, risks and costs matter much more. In the wake of the market declines of 2000 and 2001, no one needs to be reminded that markets really are risky—but it is instructive, and sobering, to review the magnitude of the market's fall. From the high point on March 24, 2000 to the September 24, 2001 low, the Wilshire 5000 index, representing the whole US stock market, fell by 39.7%, a drop nearly as large as has been experienced in any of the postwar bear markets. Emerging technology and Internet stocks, which led the way downward, fell a sickening 85%.⁴ Japanese stocks fell 48%, European stocks declined 44%, and emerging market stocks plunged 55%.⁵ That's a lot of risk, even if you're a long-term investor.

And anyone who thinks that we may soon enter a “new” new era, in which the performance of the last two decades repeats itself, is likely to be disappointed. Many highly-regarded market analysts who use earnings or dividend discount models to forecast the long-run rate of return on equities now expect that return to be in the range of 6 to 9%.⁶

Underperformance and costs: A bigger bite in low-returning markets

When markets are expected to return only 6 to 9%, poor performance, fees, and other investor costs are a much greater burden than when markets are booming. A 1% annual expense ratio is a little silly in our index-fund example earlier,⁷ but is not atypical (and may be too low) for the typical actively managed mutual fund used by DC-plan participants. When one applies this 1% cost against a before-cost total return of, say, 8%, it is a real burden—one-eighth of the total return—not the minor annoyance that it is when annual returns approach 20%.

Moreover, for traditional active products, underperformance (negative alpha) can be an order of magnitude larger than fees and costs and is likewise particularly painful when market returns are lukewarm. A tracking error of around 5% or so is representative of the universe of traditional active managers (they range from 4% to more than 9%), so that in one year out of six, the fund underperforms its benchmark by 5% or more (sometimes much more) if tracking error is normally distributed.⁸

Many investors tolerate such underperformance when markets are buoyant; a 25% return in a given year is perceived as a very satisfactory result, even if the benchmark is up 30%. When market performance is anemic, however, DC-plan investors look harshly on underperformance. They hate to actually *lose* money.⁹ When an employee contributes \$100 to a retirement plan and, at the end of

the quarter, has only \$80 or \$90 left, he or she feels terrible. He or she may think twice about the soundness of the entire investment program. If the loss is caused or exacerbated by tracking error rather than by the market as a whole, the participant may understandably blame the sponsor for getting him or her into these lousy investments.¹⁰ The participant may then make the mistake of selling his or her stocks at the very bottom and reallocating the proceeds to cash or fixed-income assets, locking in the loss.

Volatility in low-returning markets

Moreover, even if the expected annual return on equities is a positive number in the 6 to 9% range, that number is just the average of a volatile series. In a world with a long-term equity return expectation of, say, 8%, about half of the years will have returns lower than 8%, and some will have actual losses (for example, the S&P total return in 2000 was -9.2%, and in the first nine months of 2001 it was -20.4%). Thus, volatility is more punishing in low-returning markets than it is in high-returning markets; an equity market with an average return of 8% and volatility, or standard deviation, or 15% has many more periods, and much longer periods, of negative returns (losses) than a market with an average return of 20% and the same volatility. In addition, the *best* years are less rewarding, as are the ones in between. You get steeper declines, longer-lasting declines, milder rallies, and briefer rallies.

This is the worst environment to present plan participants with a plan design that encourages the careless or uninformed taking of risk—especially of active risk. Many DC plans feature only traditional active funds. Other plans provide index funds as one of several options, but fail to give index funds the special place that they deserve in the choice spectrum due to the clean way in which they represent asset classes, as well as because of their low costs. Almost no plans are designed explicitly to help investors achieve optimal diversification across, and within, asset classes with attention paid to risk control and cost control. Later, we discuss some ways this goal can be achieved by bringing the best practices of the institutional investor's world to bear on DC plan design.

II. DC plan participants are taking a lot of risk

In an ironic twist, DC-plan investors responded to the bull markets of the late 1990's by boosting their equity allocations very substantially. For years investment professionals had been counseling them to do so, but it took rising markets to persuade most participants to act. When they finally acted, it was at the wrong time. Because of the flawed plan designs that pervade the marketplace, many participants implement these equity allocations exclusively through active man-

agement (exposing the employee to *active risk* in addition to policy risk). To make matters worse, many sponsors aggressively encourage their employees to load up on company stock (which compounds the employee's *career risk*). Finally, unusual market conditions, such as the technology bubble of 1999–2000, sometimes tempt investors to hold highly concentrated positions in one industry or type of stock, taking huge bets away from the broader market index (*damn fool risk*).

We're kidding about that last one.

Well, maybe we're not...

Differentiating policy risk from active risk

Before going into detail on the sub-optimal behavior of investors with respect to risk, let's refine our earlier definitions of two key terms.

Policy risk

Policy (or market) risk is the fluctuation in asset values to which investors are exposed merely by virtue of their allocation to an asset class, or to a mix of asset classes. For a given asset class, it is the risk that arises from the asset-class *benchmark* (assuming the benchmark has been properly constructed so that it is fully diversified and representative of the asset class' constituent securities).¹¹

Investors *must* take policy risk in order to participate in the expected returns of equities and other risk-bearing asset classes, which (we remind the reader) are still higher than the expected returns of most fixed income investments.

Active risk

Active risk is the risk that a particular actively managed portfolio, holding securities outside the benchmark or in weights different from the benchmark, will also have *returns* different from those of the benchmark.

Stepping back from the design of many DC plans and speaking momentarily about investors in general, *no one has to take active risk*. One can invest in index funds, completely avoiding active risk; and index funds exist for every conceivable asset class. The only reason for an investor to take active risk in a given asset class is because that investor expects to earn an alpha (return in excess of the benchmark) sufficient to justify the active risk taken. Some people hire active managers without doing the homework that is needed to conclude, with reasonable confidence, that the manager will deliver an active return that justifies this risk. They probably shouldn't.

In other words, policy risk and active risk are separable (and generally *should* be separated). Many sponsors provide only active

fund choices—perhaps because that is what they think they need to do to offer access to the principal asset classes. If a complete set of index funds is offered, however, no investor needs to take active risk unless he or she wants to.

Ways in which DC-plan investors act against their own interest

Policy risk: A case study in the madness of crowds

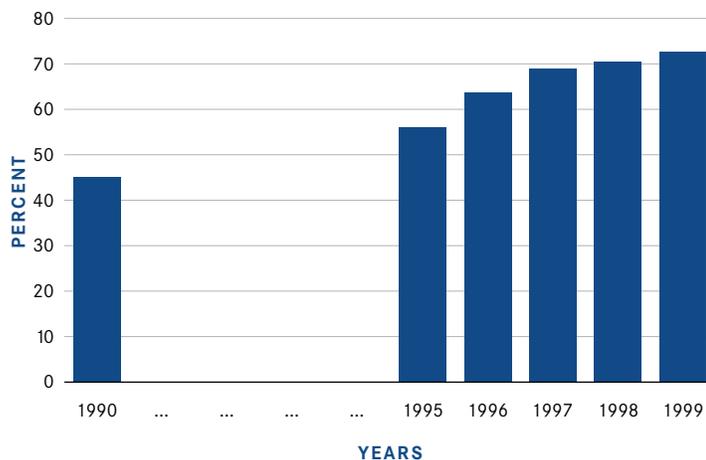
For quite a few years after defined-contribution plans were introduced into the marketplace, sponsors and investment managers struggled to get participants to invest in equities at all. Live speakers, charts, videos, and eventually Web sites were used to demonstrate to participants that stocks had beaten all other major asset classes in the long run, and probably would continue to do so in the future. But all of this earnest effort was to little effect. As recently as 1990, only 45% of total plan assets were in equities.¹²

By 1999, however, following several years of sharply rising markets, this number had risen to 72.2%, as shown in Exhibit 2.¹³ Many DC-plan investors, having resisted the educator's call to allocate a sensible 50 or 60% in equities for portfolios of average aggressiveness, began to feel like fools as they watched some of their peers get rich in high-flying growth stocks (especially Internet and other technology issues) in the late 1990's.

Equities became irresistible and necessary—and the average equity allocation in DC plans zoomed right past the traditional 60% target used by defined-benefit plans and settled in the low seventies.¹⁴ In other words, as any student of human behavior might have forecast, most DC-plan investors ignored the educators and instead waited until *markets themselves* demonstrated, in the middle and late 1990's, that equity investing is, at least sometimes, a winning proposition. But by then the timing was less than ideal. Even after recent declines, expected near- and medium-term returns on equities are,

Exhibit 2

Policy risk in DC plans is rising: Equities as percentage of total capitalization



Source: Profit Sharing/401-K Council of America; Greenwich Associates; Hewitt Associates.

arguably, quite a bit lower than they were before the big bull run of the 1990s. DC-plan investors, having been burned once by *underallocating* to equities before the market boomed, set themselves up to be burned again by overallocating to them as markets neared a top. Today, with the market at a much lower level, there is even some risk of a triple cross if investors respond to the newfound riskiness of markets by cutting their equity allocations back sharply.¹⁵

Students of the emerging field known as behavioral finance are fond of pointing out the many ways in which investors behave irrationally.¹⁶ Evidence has accumulated that investors chase the previous period's highest-returning asset classes, mutual funds, and stocks. Behaving in that way seems to be part of the basic architecture of the human psyche. But seasoned, successful investment professionals know that straining against this tendency is often the best strategy. Investors should resist the temptation to increase allocations to asset classes that have recently rewarded them with high returns, and should instead rebalance to sound, long-term policy allocations. ("Value" or "contrarian" investors take this principle one step further by arguing, somewhat persuasively, that investors should increase the allocation to assets that have *underperformed*.) And DC plan sponsors should, through principles of sound plan design that we outline later, help participants to resist their own worst impulses and, instead, follow principles of sound investing.

Uneven distribution of policy risk across participants

As we've already indicated, 72.2% in equities is quite a high allocation.¹⁷ Defined-benefit pension plans—which are run by seasoned investment professionals who care a great deal about understanding and managing risk—averaged somewhat less until very recently. However, a 72.2% average equity allocation in DC plans would not be too bad if most plan participants had allocations fairly close to the average, with aggressive investors holding a little more in equities and conservative investors holding less.

But that's not the way equity allocations are distributed. According to a 1998 study performed jointly by the Employment Benefit Research Institute (EBRI) and the Investment Company Institute, "28.5% of participants have more than 80% of their account balances invested in equity funds, while about the same percentage hold no equity funds at all."¹⁸

The naive observer might guess that this distribution arises from participants acting in their enlightened self-interest and holding large equity allocations when they are young, and systematically reducing them over time until, in the years just before retirement, little or nothing is held in equities. It doesn't.

Exhibit 3 is an EBRI chart of the distribution of equity allocations in DC plans *after controlling for age*.¹⁹ The left column shows that 27% of participants in their twenties—an age

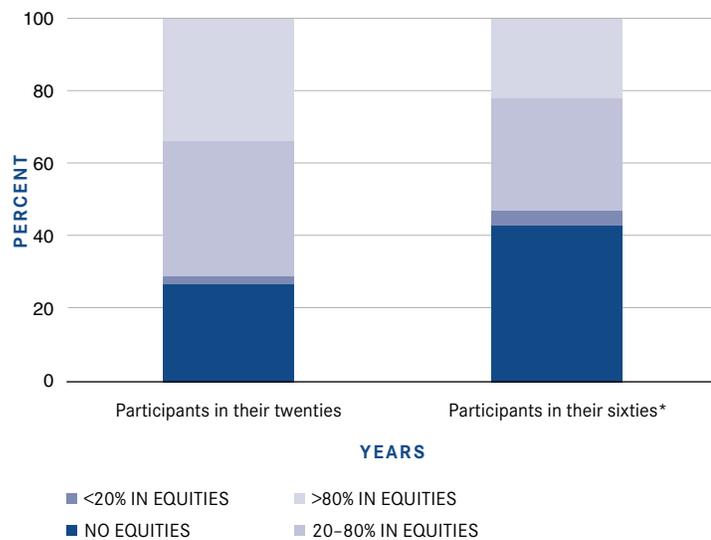
when risk tolerance and equity allocation should be at its highest—had no equity funds at all, and an additional 2% of twenty-something participants had more than zero but less than 20% in equities. About 34% of the young workers had more than 80% in equities, a position that can be defended—but the dispersion of allocations across workers of roughly the same age is remarkable. Among sixty-something pre-retirees (the study excludes actual retirees), shown in the right column of Exhibit 3, the cross-section of allocations was just as strange, with 47% of this age group having less than 20% in equities and 22% of the age group having more than 80% in equities. Talk about risk taking! Too much or too little—neither is good.

Other observers have confirmed this pattern. Alfred Ferlazzo, an employee benefits communication executive, writes,

On a macro basis there has been a movement to equities more in line with the approximately 60 percent ratio of defined benefit plans. However, plan sponsors need to look at individual participants’ asset allocation decisions before declaring success. One large defined contribution plan sponsor has done so and found a disturbing bimodal distribution of asset allocation choices—many plan participants at the zero and 100 percent equity allocation percentages—rather than the cluster around 60 percent that we would like to see.²⁰

Ferlazzo concludes by noting that this particular plan sponsor “has long provided a thoughtful communications and education program.” Obviously it isn’t working. Whether a participant takes too little equity risk or too much, he or she is making a policy risk mistake. And it appears that a near majority of plan participants have one problem or the other.

Exhibit 3
Cross section of equity allocations in DC plans by participant age



*Participants include only active employees, not retirees.
 Source: Employee Benefit Research Institute.

Unrealistic capital market return expectations

Surveys that purport to reveal what rate of return is expected by investors are notoriously unreliable, because of the (usually unintentional) ways in which the framing of questions can mislead the respondent. Nevertheless, we are motivated by the sheer outrageous results of a survey published in a recent issue of *Pensions and Investments* to reprint it in Exhibit 4 below.²¹ (We do not know if the “assets” referred to are equities or total capital, nor do we know the future time period over which the expectation is supposed to apply, but we do know that the expected returns are annual rates.)

If the rates of return shown in Exhibit 4 are representative of what DC-plan participants are actually expecting, and using for the purpose of retirement planning, the participants have some unpleasant surprises coming.

No further comment.

Active risk

In addition to taking policy risk, DC plan participants are misled by limitations in plan design into taking a great deal of active risk, with little or no thought given to whether this risk is expected to have a payoff commensurate with the risk taken.

Components of active risk

Active risk can be thought of broadly as the deviation of actual portfolio returns from asset-class benchmark returns. However, breaking up this risk into its constituent parts—misfit risk and residual risk—can be a useful exercise.

Misfit risk is the difference between the return on the style benchmark that best represents the strategy being used and the return on the benchmark considered relevant by the investor.²²

Residual risk, the other major component of active risk, can then be defined as the difference between the return on the actual

Exhibit 4

Survey results: Rate of return expectations by participant age

Age of DC plan participant	Return expected by plan participant
18-23	26.5%
24-35	29.9%
36-54	20.2%
55-67	18.6%
68+	16%

Source: Scudder, Stevens & Clark

portfolio held and the return on the best-fit style benchmark—in our example, the return difference between the large-cap growth fund and the Russell Top 200 Growth index. Misfit risk plus residual risk equals the total active risk taken by the investor.

How large is active risk compared to total risk?

While some observers naively guess that getting the asset allocation right—that is, managing policy risk—goes 90% or more of the way toward solving the investment problem,²³ the reality is that active risk can be as numerically large as policy risk. To conduct their study of outstanding long-term manager track records, Laurence Siegel, Kenneth Kroner, and Scott Clifford collected return data on a large sample of mutual funds and other investment managers, including low-returning managers, as described in a recent *Journal of Investing* article.²⁴ In 1999, the latest year for which they obtained data, the standard deviation of equity mutual fund returns around that year's mean return was 21.1%. In that same year—one of the better ones for stocks and one of the worst for bonds in recent memory—the difference between the stock and bond asset-class returns was 22.8%.²⁵ This particular year's mutual fund return distribution is not atypical.

Thus, even in a strong “up” year, about one-sixth of the *equity* mutual funds studied had returns *below that of the ill-faring bond mar-*

ket. This was at least partially due to the large spread between value and growth managers' returns in that year—but remember, style risk is one of the most important components of active risk, and DC plan participants rarely take style risk intentionally.

Behavioral sources of active risk

There are a number of different ways in which plan design and investor behavior interact to produce portfolios that take a lot of active risk:

1. Actively managed funds are the only ones offered, so that's what investors buy.
2. Both actively-managed and index funds are offered, but the presentation of plan choices makes no distinction between active and index offerings. As a result, the investor doesn't know that it is appropriate to select an active fund only when he or she fairly expects a given fund to produce an alpha sufficient to justify the active risk taken.
3. Both actively-managed and index funds are offered, and education is provided that makes clear the distinction between active and index offerings. However, investors ignore the education and select actively-managed funds in the pursuit of “brand recognition” and high returns, having failed to think through the requirement that expected alpha be sufficient to justify the active risk taken.²⁶

4. Investors choose a lot of different active managers, which sum up to a closet index fund, but with high fees, high active risk, high transaction costs, and no expectation of earning a return over the benchmark.
5. Investors make sensible initial allocations but never rebalance, so if (for example) stocks perform well relative to other assets, the equity allocation becomes imprudently large over time.
6. Company stock, or other large individual stock positions, are in the portfolio. (See sidebar “Company Stock in the DC Plan—Boon or Bane?”).

There's no natural end to this list of ways that limitations in plan design can make it easy for participants to act against their own interest, so we'll stop. The bottom line is that narrow plan choices, combined with the irrationalities and knowledge deficits that are common to almost all investors, can result in very inferior decisions when it comes to taking active risk. Since investors are going to continue to have human frailties, the best one can do is to fix the plan-design part so that investors are guided toward holding an appropriate asset-class mix with cost-effective and risk-controlled implementation.

III. Portfolios embed a lot of investor costs

The surest way to increase one's return is to lower one's costs, which are the only investment variable that an investor *really* controls. Unlike risk-taking, which has an upside, investor costs affect the net return to the participant in only one direction...they cost money. The argument that you get what you pay for and that better active management justifies high fund expense ratios is dubious at best. In the long run, most active managers are beaten by their benchmarks, which could have been invested in for almost nothing.²⁷

The conventional DC-plan structure pays no attention to fund costs. Such plans have traditionally been designed around fund choice, with the result that many sponsors, and through them many participants, are lured into the recent best performers. These are almost always actively managed funds (because active funds have returns dispersed widely in both directions around the market return, although the average active fund underperforms the market after costs). As a consequence, they are also high-cost funds, and more often than not their fine performance becomes mediocre or terrible in a short period of time.

Company Stock in the DC Plan—Boon or Bane?

Company stock is a very large component of many DC plans, making up about as large a fraction of total plan assets as diversified equities (by diversified equities we mean indexed and actively-managed equity funds combined). A 1999 Hewitt Associates survey indicates that company stock constituted 35% of total plan assets. Since almost half of all plans do not have company stock as an option at all, the company-stock proportion must be correspondingly larger in plans that do have this option. (See Hewitt Associates, “Trends and Experiences in 401(k) Plans, 1999” [1999], page 29; as of 1999, 52% of the 469 plans that responded to Hewitt’s survey had company stock as an investment option.) The Hewitt survey confirms this conjecture, reporting that company stock constitutes 41% of assets in plans that include it. On the eve of the 50th anniversary of Harry Markowitz’ discovery of the mathematical method for constructing optimally diversified portfolios, then, the largest component of many participants’ retirement assets is as undiversified as it is theoretically possible to get.

There are several reasons why company stock is such a large component of many DC plans:

- Employer matching contributions are invested exclusively in company stock in 28% of plans that have company stock as an option. In some plans, employees can quickly switch to diversified equities, but this is the exception rather than the rule. Typically, diversification options are quite restrictive.
- There is often a differential (higher) employer match rate for employee contributions that are invested in company stock. Again, to get the higher match, the plan typically permits the employee to diversify the company-stock position only slowly or not at all.
- Company stock may be offered to the employee at a discount to market value.
- Education and/or other factors persuade participants that the company stock is attractively priced, that the company has good growth prospects, or that good corporate soldiers invest in their employer.

A cynic would say that employers are just trying to minimize their cost of capital or control sympathetic voting blocks when they tout company stock to DC-plan participants. However, sometimes company stock is a good investment, measured ex post; in companies that have prospered, company stock holdings in the DC plan, along with employee stock ownership plans (ESOP’s), have frequently made employees of otherwise modest incomes truly rich.

Single stock risk. But the ability of employees to bet on their company’s success comes at a high price. The lack of diversification in a single-stock position, obviously, exposes the participant to a level of risk (if the amount invested in company stock is substantial) that is completely unacceptable. Moreover, while holding a large weight in one stock is risky, holding one’s own employer’s stock is much riskier because of the correlation of that stock with the employee’s career risk. Even thriving companies hit rough patches and are forced to downsize their staffs. Declines in job security are often accompanied by declines in the employer’s stock price.

The role of company stock in an investment strategy.

While a grant of company stock to an employee is much better than no grant at all—which, in some cases, is the realistic alternative—we should not pretend that a large position in company stock is consistent with the principles of investment strategy that we’ve been expounding. Employees should be able to, and should be encouraged to, diversify against the risk that their company will do poorly, by investing in broad market indices and/or risk-controlled active funds. And to those sponsors who say they are using company stock as an incentive to align employer and employee interests: we suggest that these interests are aligned well enough by the at-will employment contract. Employees should bet on their company’s stock only if they really want to.

To be sure, policy with respect to the use of company stock in a DC plan, including matching rates and other details, is not always, or even typically, within the power of the sponsor staff to change. However, such policy does come from somewhere within the sponsoring company—and it is responsible for whatever good or harm the policy causes.

When fund administration and record keeping are bundled into the expense ratio, there is also a conflict of interest between the employer and employee (see sidebar, “A Conflict of Interest”). In brief, high-cost funds are very profitable for the investment manager, who may then divert some of these profits to subsidize the sponsor’s administrative and record keeping expenses. This amounts to a diversion of funds from the employee (out of whose pocket the high fund costs are paid) into the corporate treasury, appearing to violate the sole benefit rule.

A strategy-first approach, which we detail below, draws the participant’s attention to setting an appropriate asset-class mix, and only then to “staffing” the asset-class choices with funds. Low-cost funds, including both index and risk-controlled active funds, are emphasized, with high-cost funds available for “legacy” or political reasons but not encouraged. Using this method, sponsors can save their employees *up to 1%, and often more, of their total DC-plan assets per year* compared to traditional, high-cost active management.²⁸

A Conflict of Interest.

DC plan sponsors that are using a so-called bundled provider (one that combines, or “bundles,” fund administration and record keeping costs together with fund management costs) face a very real friction if they are to follow our advice emphasizing low-cost, “core” investment products. Bundled providers make a lot of money on their active funds, and use these profits to subsidize the sponsor’s fund administration costs, making these latter costs look small. The conflict of interest comes from the fact that the fund administration cost savings goes to the employer, but the cost subsidy is paid out of the employee’s pocket.

If the bundled provider doesn’t sell enough of its active funds, say because the sponsor is encouraging the use of indexed and other low-cost funds (or lifecycle funds built out of these components), the bundled provider won’t make as much money. The provider would likely put pressure on the sponsor, threatening to increase administration fees, and exaggerating the benefits of actively managed funds. So the sponsor needs to have courage in the correctness of the investment approach it is supporting. The corporate treasurer’s office, as well as the human resources department, may be called upon to help the company avoid falling into this conflict-of-interest trap.

IV. Building blocks of a solution

To construct a DC plan design that helps participants to control policy risk, active risk, and costs, we need some basic intellectual building blocks in addition to the basic principles of strategic asset allocation:

- The concept of active management as a zero sum game;
- Some degree of market efficiency; and
- The two-condition test for taking active risk.

Many readers will be at least somewhat familiar with the first two concepts. Regular readers of *Investment Insights* may also recognize the two-condition test; it is discussed below.²⁹

Active management is a zero-sum game

As the Nobel Prize-winning economist William Sharpe and others have pointed out, market participants can't all beat "the market" because, in aggregate, they *are* the market.³⁰ Thus, when one active manager "wins" (beats the market capitalization-weighted index that one typically uses to represent overall market returns), he or she does so at the expense of other active managers. If one follows this basically incontestable logic to its conclusion, then

the returns of all active managers in excess of the market index must sum to zero (before subtracting management fees and other investor costs). Such a condition is a classic example of a *zero-sum game*.³¹

Of course, if active management is a zero-sum game before fees and costs, then it is a negative-sum game after these items are taken into account.

Note that the zero-sum character of active management does not rely on the market being "efficient." (An efficient market is one in which prices already reflect true value, so that no one can beat the market on a risk-adjusted basis other than by pure chance.) The sum total of all participants in a market can't possibly beat that market even if it is highly inefficient and mispriced assets are easy to identify. It's just elementary math.

Where the zero-sum concept leads us, in terms of devising a DC plan structure that helps participants achieve their goals, is to an initial preference for index funds and for active funds that the sponsor (having done the required analysis) really believes are winners, and away from randomly chosen active management (especially traditional, high-cost active management). For reasons we will get to in a moment, we do not necessarily suggest constructing the whole portfolio out of index funds, but that wouldn't be a bad start. At least costs would be low.³²

Some degree of market efficiency

Many aspects of efficient market theory are compelling. At the very least, the market is efficient enough that most active managers have a hard time beating it with any consistency. Nevertheless, there can also be no doubt that markets are far from being completely efficient.

Efficient-market theorists argue that market prices already reflect the intrinsic value of securities, so that one can't earn excess returns after adjusting for risk—or that, at a minimum, prices are close enough to true value to make active management fruitless on an after-cost basis in the long run. However, a quick look at the best long-term active management track records—the 5000-to-1 gain experienced by investors in George Soros' Quantum Fund between 1969 and 1999 comes to mind—should persuade most observers that investment skill actually exists.³³ Moreover, extraordinary track records such as Soros' occur much more often than would be expected purely by chance.

Markets are inefficient for many reasons. The “riskless” and “costless” arbitrages required to bring prices into line with true value are often so risky and costly that no one attempts them. (Long-Term Capital Management was an example of a firm that did attempt these arbitrages; most of the customers were burned so badly that they are unlikely to try such a strategy again.) Information about companies, or interest rates and other variables that influence markets, is confusing and difficult for even the most

expert analysts to process, so that even the best-informed market participants disagree substantially on fair value of securities. The sheer volume of trading, as well as the volatility of prices, is testimony to market players being unable to agree on much.

Thus, DC-plan participants who simply cast aside all active management miss out on real opportunities. Active management is a legitimate economic activity, and has benefited millions of investors. Someone has to price the securities. It's a costly and strenuous activity, and rewards should logically exist in the marketplace for undertaking it. Even if active management is a losing proposition on average, it is fair and almost unavoidable to conclude, from both the available data and the economic logic of the situation, that some truly superior active managers exist.

The trick, however, is in identifying the superior managers *ex ante*. Few investors have the skill to do so. Even trained professionals, working in the offices of defined-benefit plan sponsors, endowments, and foundations, often assemble flotillas of active managers who underperform.³⁴

As a result, DC plan participants shouldn't be made to rely on active management—especially considering that the participants had no voice in selecting the list of active managers, and (what is worse) that the sponsor typically cannot say that the active managers they are offering were chosen solely for their likelihood of producing alpha. The funds could have been chosen merely

because they are managed by the company hired to do the recordkeeping, and not for their characteristics as investments; such a set of funds can't possibly be expected to generate alpha after fees and costs. Our respect for the efficiency of markets is sufficient to at least require that the first cut at all asset-class allocations be an index fund representing that asset class. Only when that condition has been met can and should a sponsor offer active choices, and those choices must be carefully and skillfully made.

The two-condition test for taking active risk

The zero-sum game principle and the assumption of some market efficiency lead to a situation where *two conditions* must be met before an investor should take active risk. Both conditions are woven into the prior discussion, but we can express them explicitly as a "test." Specifically, an investor should take active risk in a given asset class—that is, make bets away from the market benchmark by hiring active managers or picking individual securities—only if:

1. The investor believes that active managers exist who can win, beyond the random variations attributable to chance (there exist "good" active managers),

and, simultaneously,

2. The investor believes he or she has the skill to determine *which* managers or strategies can beat their passive benchmarks (if they do exist, you still have to be able to pick 'em).³⁵

Are you sure your participants meet these two conditions every time they invest actively, or that you as the sponsor have adequately proxied for them in skillfully developing the manager lineup? Some will answer yes to one or both questions. Others should consider using index funds.

Where these two conditions are met, active management has a legitimate role in a well-designed plan. The trick is to avoid tempting participants into using only, or primarily, active management because of narrow plan design and the natural human inclination to bet on recent past winners.

V. The solution: a plan design based on real investment theory and strategy

There is a world—a parallel universe—where asset allocation and strategy are, by unanimous agreement, the centerpiece of investment decision making. After the risk level is chosen and the set of asset-class opportunities identified, a mean-variance optimizer or other tool is used, along with informed judgment, to specify a sound asset class mix. The asset class mix thus chosen is then implemented through fund choice that emphasizes active-risk control and cost control. Index funds typically, though not always, form the core of the implementation effort. Active funds are carefully evaluated to ascertain whether their "expected alpha" is enough to justify the active risk taken.³⁶ The result is usually a blend of active and passive portfolios, rebalanced to the desired asset-class

mix at regular intervals; and the asset-class mix itself is revisited to reflect changing market conditions and investor preferences at least once every couple of years.

This world is called the “defined-benefit pension plan.” It’s not fictitious, and it often exists *at the very same companies* as the DC plans we’ve been harpooning.

Before we pat ourselves on the back too hard (somebody might get hurt), it might be helpful to admit that the real world of defined-benefit plans is not as perfect as we’ve described. Mistakes are made, and the herd instinct and other human shortcomings occasionally get in the way of optimal behavior. But the design of most defined-benefit pension plans, and of their cousins, endowed institutions (universities, foundations, and the like) is generally very sound, and returns have been robust while risk has been moderate.

Thus, DC plan design can benefit from the best practices of the defined-benefit world. Good investment strategy is good investment strategy, no matter what the setting in which it is practiced.

DC plan participants, however, are not about to become as expert at investing money as the chief investment officers of DB plans. DC participants are typically experts in their own field of endeavor, in which they’ve been extensively trained and have years of experience. Likewise, it takes years of education

and experience to “grow” an investment management professional. We, who know how to invest money while controlling risks and costs, owe the participants a little help. Here are a few suggestions, in order from least to most ambitious:

Index funds

The easy answer is simply to offer participants asset-class exposure through index funds, and to feature these choices in the plan design. All the basic asset classes that are necessary to a good strategic asset allocation are readily available in index form, and can be included in the list. Index funds deliver the asset-class return at very low cost and essentially zero tracking error. (Remember that asset-class allocation is the most important investment decision, and that the only variable investors control directly is costs.) Index funds also make the mapping of asset-class choices into fund choices very easy. If both index and traditional active funds are offered for a given asset class, educational programs can identify the index fund as the primary choice for investors simply wanting exposure to that asset class.

Asset-class blends

But, as we indicated earlier, active management isn’t useless and the sponsor should not deprive participants of it—as long as the sponsor responsibly communicates to participants what the risks and costs of active management are. There is a discipline for optimally blending indexed and active

investing, widely followed by institutional investors, that can be directly ported to the DC world, providing a thoughtful way of blending active and passive elements one asset class at a time. The elements of the discipline are as follows:

1. For a given asset class, start by planning to use three types of managers—index funds, enhanced index funds (risk-controlled active funds), and traditional active funds. The first two form the low risk “core” of the portfolio. Start by determining the size of this core—it probably should be at least half the portfolio.
2. Proceed from the assumption that the “sweet spot” in active management, in terms of information ratio, is in the enhanced index or risk-controlled active category; a fringe benefit is that risk-controlled active managers tend to have low costs. (The information ratio, in this setting, is defined as the *expected* return, in excess of the asset-class benchmark return, divided by the amount of active risk taken.) So put at least half the core into a well-chosen enhanced index fund or risk-controlled active fund, and half into a standard index fund.
3. The last step is to divide the remainder among well-chosen traditional active managers. The size allocated to each active manager is largely a function of its predicted information ratio, so give more to the better managers than to the

marginal ones. Remember, that if an investor doesn’t meet the two conditions discussed above, he should hold no active managers. So the selection of any traditional active managers or even risk-controlled active managers is dependent on a positive self-assessment of manager selection skill. If you can confidently and skillfully pick them, do so; if you can’t, increase the core.

In a *Journal of Portfolio Management* article, Barton Waring, Duane Whitney, John Pirone, and Charles Castille dressed this concept in the clothes of formal financial mathematics, making it a one-step process, where one estimates the correlations of the expected alphas of different funds and optimizes across them.³⁷ The math may be needed to actually calculate the best blend of funds, but it isn’t needed to demonstrate that a blend of indexed and risk-controlled active funds is a good deal for the participant. The recipe just outlined will get the thoughtful sponsor pretty close to the optimal result.

This discipline is the expression of our idea, from earlier, that one should choose active management only to the extent that the expected alpha—*after costs*—is sufficient to justify the active risk taken. Moreover, our approach is inherently conservative, because by blending active portfolios with index funds we admit a certain degree of skepticism about whether an active product will perform as hoped. We keep coming back to those pesky two conditions.

Pre-mixed asset allocation funds

The problem with both the index-fund and asset-class blend solutions is that asset allocation is the most important decision, and we haven't done this work for the participant; we've only helped to improve the fund choices.

To help DC participants as best we can, we have to do the heavy lifting ourselves, by building a spectrum (across different risk levels) of *pre-mixed asset allocation funds*, each of which is a complete, optimally-diversified investment strategy taken from the efficient frontier.³⁸ In such a fund, each asset class is represented either by an index fund or by a low-cost blend of index and risk-controlled active strategies, such as we just outlined.

The investment management industry routinely refers to such funds as “lifecycle” or “lifestyle” funds. However, this rubric is often attached to poorly engineered designs. For example, some lifecycle funds are built out of high-cost traditional active products, with little real engineering. We are recommending, of course, only well-engineered designs that *start with strategy* (asset allocation) and that achieve *active risk control* and cost control, as well as an appropriate asset mix.

In the real world of DC plans, it's generally unacceptable for sponsors to offer only pre-mixed asset allocation funds, optimized asset-class funds, and index funds. Various constituencies still exist for “legacy” funds, company stock, and other potentially sub-optimal choices. Sponsors can't require participants to choose only the well-engineered offerings, so the investment management community (sponsors and managers acting in concert) has to present them to participants in a way that strongly encourages their being selected. A mock-up of an educational diagram for influencing participants to select lifecycle funds is in Exhibit 4 of “Mind the Gap.” Similar materials can be designed to support the selection of asset-class blends and of index funds (which are, in fact, component pieces of the lifecycle funds featured in that exhibit).³⁹

It is only through offering lifecycle funds, and prominently featuring them in the plan design, that the sponsor can expect large portions of its participant base to hold strategy-based, institutional-quality investment portfolios.

Conclusion

Strategy first!

The most important, and least understood, concept in DC-plan investing is the idea that investment strategy (consisting most prominently of asset-class allocation and determination of an appropriate risk level) is the work that needs to be *completely done before fund selection begins*.⁴⁰ This is now—and should continue to be—the central principle of institutional investing.

By putting strategy first, by using “modern” portfolio theory as guiding intellectual framework,⁴¹ and by carefully engineering the products used to implement the strategy-first approach, DC plan sponsors can enable their participants to achieve policy risk control, active risk control, and cost control. Participants can thereby achieve the highest after-cost rate of return at each given level of risk. Helping participants to attain this goal is just like giving them a raise. Doing anything less is a profound disservice to valued employees in a highly competitive market for skilled labor.

The trick is getting employees to buy into this approach. Most participants don’t know what an asset class is, much less how to use the principles of portfolio theory to build a low-cost investment program that maximizes return while controlling various kinds of risks. Instead, they act under the assumption that the sponsor and fund service provider are both well-informed and well-meaning. Let’s make this assumption correct!

So we, the institutional investment community of sponsors and managers, need to take charge. We should build the investment programs for the employees in a suite of pre-mixed, well-designed, and cost-efficient products (lifecycle funds) each representing a particular risk level. And since one can’t force employees to act in a particular way, we must provide a plan design that gives “eye-level positioning” (to use a term borrowed from the supermarket) to strategies we want them to adopt.

An institutional money manager who tries his or her hand at a little carpentry on weekends should not be surprised when a home improvement project doesn’t turn out as planned. Similarly, carpenters, airline pilots, and lawyers should not be surprised when their investment management decisions turn out poorly either. Investments should be managed by people with the training and experience—and time—to do so, so we should just do it for them. At the very least, we should protect employees by providing a structure that enables and encourages them to select low-cost, active-risk-controlled investment mixes, and index funds, at a policy risk level that is appropriate to their needs and station in life.

Having off-loaded the responsibility for investing on the employees, it’s the least that we can do.

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Endnotes

- 1 Barton M. Waring, Lee D. Harbert, and Laurence B. Siegel “Mind the gap! Why DC plans underperform DB plans, and how to fix them.” *Investment Insights* (April 2000).
- 2 In business-school terminology, the risk of being exposed to market benchmarks is called “market risk.” Synonyms for this include systematic, undiversifiable, beta, or policy risk. However, some people make the term “market risk” confusing by using it to refer to all fluctuations in asset values caused by the operation of markets—in other words policy *plus* active risk. We prefer the term “policy risk” because it ties directly to the policy benchmark of an investment program, and because we can define it cleanly without the baggage of inconsistent prior usage.
- 3 The lack of traffic in the Web advice space, as well, reminds us that employees aren’t generally the right people to make investment decisions—they don’t even log onto the advice site when the employer pays the usage fee.
- 4 Thomas Weisel Partners’ Tailwinds 500 Index, which is dominated by these emerging technology and Internet stocks, fell from 332.2 on March 10, 2000 to 49.8 on September 27, 2001. Information about the composition and returns of the Tailwinds 500 was graciously provided by Keith Getsinger at that organization.
- 5 All returns are in U.S. dollars and reflect price change only, not dividends. Returns are from the highest level ever reached to the subsequent low through September 30, 2001; the exact dates of the highs and lows vary from market to market. The MSCI Japan, Europe, and Emerging Market indices were used to represent those markets.
- 6 Clifford S. Asness, whose AQR Capital Management was the largest hedge-fund startup to date, writes with J.A. Friedman, R.J. Krail and J.M. Liew in “Style Timing: Value versus growth,” in *The Journal of Portfolio Management* (Spring 2000), “Using...reasonable assumptions we find [rates of return] in the 6.3% to 7.7% range”. William Gray, the now-retired chief investment officer of the Harris Bank in Chicago, uses an estimate of real earnings growth that is high by his own admission (4.5%) and still comes up with a nominal expected total return on equities of only 8.5% in “Will the true U.S. equity market discount rate please stand up? in *Economics and Portfolio Strategy*, Peter L. Bernstein, Inc., New York, January 15, 2001. In a reply to Gray in a letter in the February 1, 2001 issue of the newsletter, Robert Arnott, the chairman of First Quadrant, asserts that Gray is too optimistic about real earnings growth and projects a nominal total equity return of 6.5% to 7%; earlier, in the “The death of the risk premium,” in the *Journal of Portfolio Management* (Spring 2000), Arnott and Ronald Ryan went into greater detail on this point. Laurence Siegel, in “Are stocks risky? Two lessons” in *The Journal of Portfolio Management* (Spring 1997), updating Roger Ibbotson, Jeffrey Diermeier, and Laurence Siegel’s “The supply of capital market returns” in the *Financial Analysts Journal* (March/April 1984), used a macroeconomic approach to project nominal total equity returns of 8%; updating this estimate to the current time frame, we come up with about the same number (7.7%). A search for thoughtful, quantitatively-informed commentators who are projecting substantially higher long-term equity returns than these using forward-looking rather than historical methods has turned up almost nothing; and a few respected commentators, such as Jeremy Grantham of Grantham, Mayo, van Otterloo, are projecting nominal total equity returns substantially lower than 6%. (In some of the above citations, we have converted real return projections to nominal ones using an assumed inflation rate of 3%.)
- 7 Index funds offered by some local banks and other institutions have all-in fees approaching 1%, and occasionally exceeding that level.
- 8 Tracking error, in this context, is expressed as the annualized standard deviation of the active return (where the active return is the return of the portfolio minus the return of the benchmark). Thus, if active return or tracking error is normally distributed, a tracking error of 5% means that the portfolio underperforms by one standard deviation or more (that is, by 5% or more in one year) about 1/6 of the time; by two standard deviations (that is, by 10% or more) about 1/40 of the time; and so forth.
- 9 In our experience, many participants are more upset by losing money they have contributed than to the giving back of previous gains—although theory says they should be indifferent between the two types of losses. Idealized economic agents don’t think about their cost basis, but real human beings do.
- 10 The quantitative purist may argue that policy and active risk (or absolute and relative performance) are “orthogonal” (unrelated). The argument runs as follows: an alpha of -5%, incurred in a given year, reduces terminal wealth by 5%, whether the year in which the underperformance occurs is a good or a bad one for the benchmark. Strictly speaking, this is correct. However, common sense and experience in dealing with plan participants suggests that investors are more disturbed by poor relative performance when absolute performance is also poor.
- 11 Although there are exceptions, a benchmark is generally considered to be well-constructed if an index fund can be managed so that it delivers, to close tolerance, the return on the benchmark. Most well-constructed benchmarks are market-capitalization weighted. For discussions of what characteristics make for a good benchmark, see Eric T. Clothier, Andrew R. Olma, and Barton Waring’s article, “Broad-capitalization indices of the U.S. equity market,” in *Investment Insights* (August 1999), and Steven Schoenfeld, Peter Handley, and Binu George’s “International equity benchmarks for U.S. investors: Assessing the alternatives, contemplating the tradeoffs” in *Investment Insights* (December 2000).

- 12 The source of this information is Mike Smith of Hewitt Investment Group, Atlanta, citing data provided by the Profit Sharing/401-K Council of America web site, <http://www.psc.org>.
- The equity-to-total-assets ratio, by the way, is not the best possible measure of policy risk, or even a fully adequate one. Investment policy is a matter of balancing the risks, expected returns, and correlations of multiple asset classes and carefully selecting the weight of each—not just determining the amount in equities and the amount in “all other.” Given the poor state of the data we have to work with however, the equity-to-total-assets ratio is the best indicator we have of an investor’s overall aggressiveness.
- 13 Necessity requires that we mix data from different sources to construct Exhibit 2. The 1990 datum is described in footnote 13. The 1995-1999 data, which were provided by Mike Smith of Hewitt Investment Group, Atlanta, are originally from Greenwich Associates and Hewitt Associates. The Greenwich data include allocations to balanced and lifestyle funds and we assume that 50% of these are in equities; in addition, we assume that all of the tiny (1%) allocation to brokerage-window accounts is in equities. The Hewitt data include a total-equities number, which we use directly.
- 14 Of course, at the same time, the traditional 60-40 defined benefit pension plan mix was also being revised to 70-30 or even 75-25. Both were influenced by markets that only went up.
- 15 There is some evidence that the triple cross is taking place. The sharp market decline of 2000-2001 has caused the average equity allocation in DC plans to dip to a level just below 60%. While we might regard a reduction in equity exposure to the 60% range as salutary, this decline represents large losses that may scare investors back to allocating too little to equities. If this occurs, it will probably have been at the wrong time once again.
- 16 The findings of behavioral finance scholars strongly support the idea that investors are often irrational, as well as poorly-informed, causing them to act against their own interest in a thousand often predictable ways. For an introduction to the field, see Hersh Shefrin’s *Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing* (Boston: Harvard Business School Press, 1999). See also the works of Werner DeBondt, Daniel Kahneman, Amos Twersky, Meir Statman, Richard Thaler, and Shlomo Benartzi (a good bibliography is in Shefrin).
- 17 Especially considering that this average is dollar-weighted (it is total plan equities divided by total plan assets of all kinds) and is therefore skewed by older investors with large account balances. Those older investors, usually described as conservative, must be quite a swinging bunch.
- 18 Jack VanDerhei, Sarah Holden, and Carol Quick. “401(k) plan asset allocation, account balances, and loan activity in 1998.” *Issue Brief*, Employee Benefit Research Institute, Washington, D.C. (February 2000), page 13.
- 19 Dallas L. Salisbury, Slide entitled “Percentage of account balances in equity funds in 1998 by age,” from speech entitled “401(k) plan asset allocation, account balances, loan activity, and contributions behavior,” Employee Benefit Research Institute, Washington, D.C.
- 20 Alfred R. Ferlazzo, “Changes underway in defined contribution plans.” In Dallas L. Salisbury, ed., *Retirement Prospects in a Defined Contribution World*. Employee Benefit Research Institute, Washington, D.C., 1997, p., 114. Alfred Ferlazzo is president of Investcom, Inc., Ridgefield, CT.
- 21 *Pensions and Investments*, October 30, 2000, page 66. The source of the survey information is Scudder Investments.
- 22 Misfit risk is sometimes called style risk. To our thinking, the term “style risk” is best used to represent the whole of the risk caused by a portfolio having style exposures different from those of the broad asset class; misfit risk is the part of style risk that is “owned” by the manager rather than by the sponsor, due to the manager’s “true” (best-fit) style benchmark being different from what the sponsor intended or thought he or she was getting.
- 23 At least that is what poorly informed interpreters of Brinson et al. (1986, 1991) would have us believe. However, the famed Brinson studies, which attribute some 90% of return variation in pension plans to the return variation of the policy mix, do *not* say that policy and active risk influence fund returns in a proportion of 90 to 10. A full explanation of the “Brinson puzzle” is in Ronald Surz, Dale Stevens, and Mark Wimer in “The importance of investment policy” in *The Journal of Investing* (Winter 1999), pp. 80-85; and Roger G. Ibbotson and Paul D. Kaplan in “Does asset allocation explain 40, 90, or 100 percent of performance?” in the *Financial Analysts Journal* (January/February 2000), pp. 26-33.
- 24 See Laurence B. Siegel, Kenneth F. Kroner, and Scott W. Clifford article “The greatest return stories ever told” in *The Journal of Investing* (Summer 2001). This analysis does not appear in the published article, but was conducted using background information provided by the authors.
- 25 The 22.8% number represents the difference between the S&P 500 total return and the Ibbotson intermediate-term Treasury bond total return for 1999.
- 26 Few plans meet the conditions of both offering index funds and drawing participants’ attention to their special place in the choice spectrum. We hear anecdotally that in the rare cases that plans have these characteristics, participants still often behave as described.

- 27 The argument that active management is, on average, worth the cost is negated by what William F. Sharpe called the “arithmetic of active management,” in the *Financial Analysts Journal* (January/February 1991); that is, the fact that active returns in excess of the market return are a zero-sum game so that one active manager’s excess return comes at the expense of the others’. Thus, while specific examples may appear to demonstrate that active management is worth its cost, this cannot be true when one aggregates over all active managers in a given asset class.
- 28 To bolster this argument, we could cite almost any of the many studies on long-term manager performance, so we’ll just cite one of our own. Siegel, Kroner, and Clifford (2001) studied 495 managers who survived (and for which return data could be collected after the fact) over the entire period from January 1980 to March 2000. Of these, only 158 beat their benchmark. (By “their” benchmark we mean the benchmark that Siegel et al. retrospectively assigned to each manager based on that manager’s apparent asset-class mandate; we suspect that if the comparison were to the actual benchmarks against which the funds had been managed, the results would be similar.) The funds that went out of business or that were merged into other funds probably did even worse.
- 29 All other things, including before-cost investment returns, being equal—and this is a fair assumption if one accepts, as we generally do, the premises of Sharpe’s 1991 article.
- 30 Barton M. Waring, Duane Whitney, John Pirone, and Charles Castille. “Optimizing manager structure and budgeting manager risk.” *The Journal of Portfolio Management*, (Spring 2000).
- 31 Sharpe (1991).
- 32 And, if done right, the investor stills gets the benefits of strategy-first investing (that is, of asset allocation).
- 33 Siegel, Kroner and Clifford (2001).
- 34 The findings of Brinson et al. (1986, 1991) and of Ibbotson and Kaplan (2000), who studied sponsor performance, strongly support our contention that sponsor-level aggregations of managers underperform on average.
- 35 As mentioned earlier, the two-condition test is introduced and discussed in Waring, Whitney, Pirone, and Castille.
- 36 “Expected alpha” is an easily misunderstood concept, since capital-market theory defines alpha as the *unexpected* component of return. However, if the two conditions introduced in Waring, Whitney, Pirone, and Castille and mentioned earlier in this article are met—that is, if a given manager is identified as having skill—then the manager’s expected alpha is nonzero and is given by equation (4.4) in Ronald N. Kahn, “Seven quantitative insights into active management,” *Investment Insights* (December 1999), page 8. This equation assumes that all manager skill can be exploited (through short selling, leverage, etc.), so a deduction needs to be made if the portfolio is long-only or has other restrictions, reducing the impact of the manager’s skill on the portfolio return. Furthermore, fees and costs need to be deducted to arrive at the return available to the investor.
- 37 See Waring, Whitney, Pirone, and Castille.
- 38 We described this structure in greater detail in Waring, Harbert, and Siegel.
- 39 The right (“build-your-own”) column of Exhibit 4 of Waring, Harbert, and Siegel features these choices.
- 40 “Determination of an appropriate risk level” is shorthand for a more formal process: One first estimates the efficient frontier of possible asset-class combinations (given the opportunity set of available asset classes), then selects the point on the frontier representing the level of risk appropriate to a given investor.
- 41 Modern portfolio theory, the basics of which date to 1952, might better be called “classical” portfolio theory. We defer to common usage and retain the “modern” designation. Shortening the phrase to just “portfolio theory” is another sensible option.

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