INSTITUTIONAL IMPERATIVE

Vol. I, Issue 8, March 15, 2011 • 170 High Street, Northvale, NJ 07647 • (201) 951-3509 • www.institutionalimperative.com

Age-based portfolios ignore valuation. Opportunity exists for enterprising advisors.

There is currently more than $130 billion in 529 college savings plans, most of it in age-based portfolios that allocate an investor's assets according to the age of the plan's beneficiary. For a very young child and especially for one just born, most plans recommend an aggressive allocation, with much of the assets in socks and only a small amount in cash and investment-grade bonds. The theory behind this scheme is that stocks, though more aggressive, are likely to have higher returns than bonds or cash over time. More risk should deliver more reward, especially the more time an investor has (i.e., the younger the beneficiary is) to let the supposed truth of this basic assertion emerge.

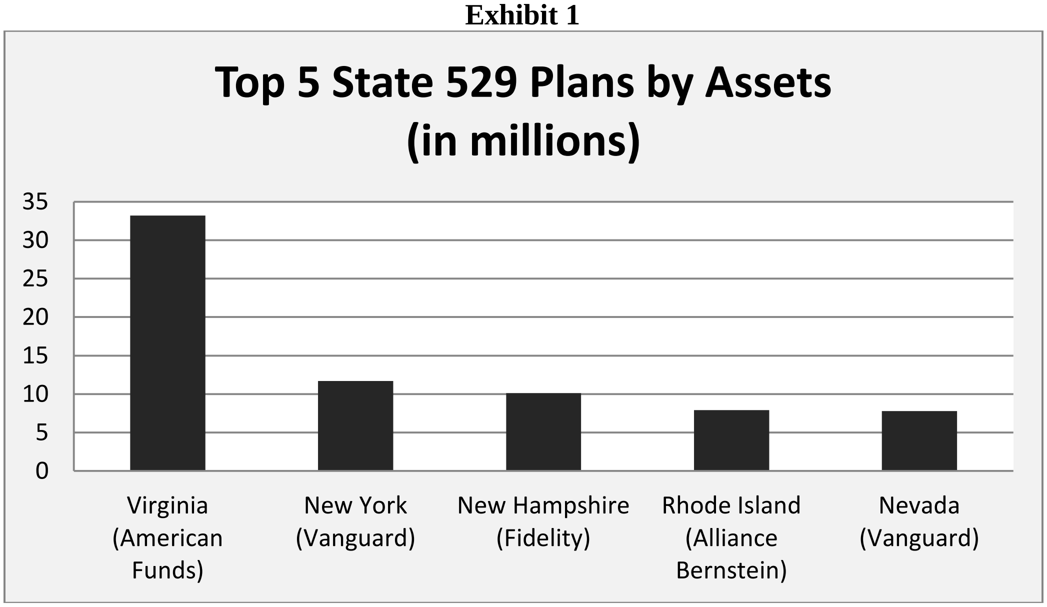
In this piece, we'll show that this seemingly sensible approach is misguided. We'll look at the returns of the most aggressive portfolios in the largest 529 plans for the past five years, and argue that age-based asset allocation, influenced by modern portfolio theory, is inadequate to the task of matching an investment to a future liability, and that an approach informed more by asset-class valuation can do better.

Although our work focuses on college savings plans, it has obvious implications for target-date retirement funds, as well. In fact, our work questions the entire intellectual apparatus behind retirement planning influenced by modern portfolio theory, whether an investor or advisor uses a target-date fund or not. In constructing static-allocation portfolios—or even portfolios that "wind down," or move from stocks to bonds and cash over time—modern portfolio theory emphasizes the investor's time frame at the expense of asset-class valuation.

A Close Look at the Top Five

The five largest 529 plans have nearly $71 million in assets (more than half the total in all such plans, according to a recent *Wall Street Journal* piece), as Exhibit 1 shows.

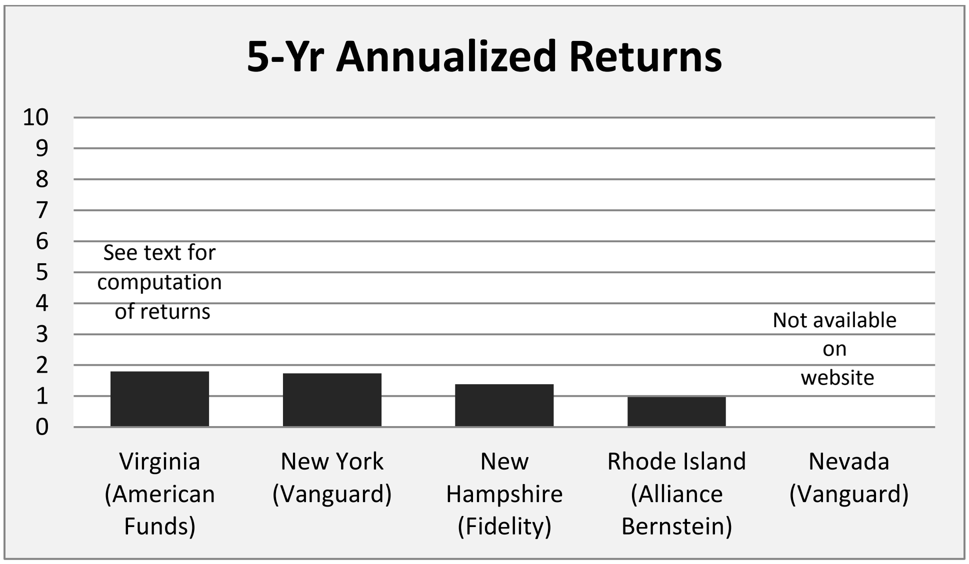
Exhibit 1



We examined the 5-year returns of the most aggressive age-based allocations of these plans. The first important (and disturbing) thing to note is that returns were difficult to ascertain for individual investors. American Funds, for example, has no returns on its website for its three basic plans (growth, balanced, and preservation). We also couldn't find five-year returns for the Nevada plan's aggressive allocation, though the web site does have a since-inception return.

To approximate the return of the American Funds growth portfolio we took the current component funds of the aggressive allocation and calculated the five-year annualized returns for the funds within the allocation. We calculated returns for the American Funds through March 6, while we used February 29, 2012 for the other plans. Finally, we averaged the returns of Fidelity's two 2024 target date funds – one with actively managed Fidelity Funds and another with Fidelity Index Funds -- to understand Fidelity's returns. (The index option beat the actively managed option, incidentally.)

Exhibit 2



Maybe we shouldn't be surprised that the plans' web sites don't show these plans' returns, because the returns are poor. None of the five biggest 529 plans' aggressive or growth options reached even a 2% annualized return for the trailing five-year period. The reason for the performance is no mystery: stocks have done poorly for the past five years. The S&P 500 Index, for example, has returned 1.4% for the five-year period through March 6, 2012, while the MSCI EAFE Index is down nearly 6% for the same period.

Ignore Valuation, Incur Disaster

Could the purveyors of these plans have foreseen the severe market correction of 2008 and early 2009? We wouldn't have expected institutional investors managing college savings mutual funds to have envisioned the banking and credit crisis in vivid color. And we wouldn't have expected them to have bought credit default swaps on pools of subprime mortgages, as some of the finest hedge funds did.

However, a glance at basic metrics such as dividend yield and the cyclically adjusted P/E ratio of the S&P 500 Index might reasonably have given investors reason for caution, encouraging them to veer from standard age-based portfolios. For example, the S&P 500 Index entered 2008 with a cyclically adjusted P/E of around 25, according to data compiled by Robert Shiller. If institutional investors had taken this as a warning sign indicating subpar returns for the next decade, they would have underweighted domestic stocks in even their longest-term age-based college savings portfolios, saving themselves and their investors painful losses. After all, the longest duration such a portfolio should have is 21 years, and the cyclically adjusted P/E or "Shiller P/E" has an impressive record of predicting the next 10-years' worth of returns.

Ordinary institutional investors or 529 plan managers could and should have known that stocks were poised for at least 10 years' worth of subpar returns at the beginning of 2008. In fact, when the Shiller P/E advances beyond 20, the next 10 years' average annualized returns tend to be around 2%-4%, well below the roughly 6% that the market has averaged over more than a century. (Shiller's numbers are inflation-adjusted.)

Incurring Disaster by Ignoring Dividend Yield and Duration

In addition to avoiding basic valuation metrics like the cyclically adjusted P/E ratio, 529 plan managers ignore dividend yield and a related issue that John Hussman calls equity duration. Duration is, of course, a common concept in the world of fixed income, with Macaulay Duration indicating when an investor will get his or her principal back from a fixed-income instrument (at least slightly before maturity for any bond with a coupon) and "modified duration" indicating how interest-rate-sensitive a fixed-income instrument will be. Hussman reckons that equity-modified duration is the price/dividend ratio. So if the market is paying a 2% yield, the duration of the market is 50 years—much more time than a 529 plan manager and his investors have to recover their investment.

Even if we assume some growth for stocks—growth that would shorten their duration—it seems that buying the index with its dividend yield at 2% or less necessarily means setting yourself up for poor longer-term returns. Although dividend yield on stocks is not a perfect proxy for interest payments on bonds, investors should be aware of the fact that nearly half of the stock market's long-term returns have come from dividend yield, and that buying the index when its yield is paltry will likely crimp long-term returns.

Investors in 529 plans could have been better served by managers taking valuation and duration seriously enough to underweight stocks when the Shiller P/E was high and the dividend yield of the index was low, and vice versa. In general, 529 plans had the same exposure to equities when stocks were trading at 25 times cyclically adjusted earnings in early 2008 as they did when it was trading at 13 times cyclically adjusted earnings in early 2009. Certainly rebalancing (shifting assets into stocks at lower prices in late 2008 and early 2009) was a boon to target-date funds. But maintaining age-based prearranged allocations didn't prevent the severe loss in the first place. We think investors should rebalance as asset class valuation dictates instead of maintaining a prearranged asset allocation.

If any 529 plan manager had the courage to underweight equity exposure when the Shiller P/E was 25 and the dividend yield of the index was less than 2%, he would have looked foolish, but only until the market decline. During the decline he would have saved his investors a lot of money, and produced significantly superior returns than the competition, over the longer run. Having excess cash to invest in early 2009, when the Shiller P/E declined and the dividend yield of the index spiked, would have been a blessing.

The Opportunity for Ambitious Financial Advisors

Most aggressive options in 529 plans have at least 50% of their assets in domestic stocks, which have a duration of around 50 years. That means the entire portfolio has a minimum duration of around 25 years. That's simply too long for a liability of no more than 21 years. Given the current condition of professional investing in 529 plans—in particular, the ascendancy of age-based prearranged allocations and "wind-downs," which make the allocations more conservative, more bond-heavy, as college matriculation approaches—there is a tremendous opportunity for a good valuation-based financial advisor to help clients save and invest for college. Such an advisor will have to have a modicum of courage and a modicum of trust from his clients.

What follows is the basic mathematics he will require.

We'll use Harvard University, widely considered to be America's best (though not quite its most expensive) university for our examples. Recent total costs (tuition, room, and board) for undergraduates at Harvard reached nearly $49,000 per year. If we assume an increase of college costs of 3% on average for the next 17 years, the cost of a year at Harvard for someone born today should be around $81,000. In other words, newborns who matriculate at Harvard in 17 years will have a total liability of around $340,000 for their undergraduate education. (College costs have actually outpaced inflation in recent decades, but it's difficult to know if that will continue.)

To avoid distribution calculations, let's say a Harvard student will need $340,000 in 17 years. If we assume a 7% nominal annualized rate of return for the next 17 years—a typically achievable return for a portfolio at least half-invested in stocks for a roughly two-decade period—the newborn's parents will have to save more than $11,200 per year to meet the $340,000 Harvard liability.

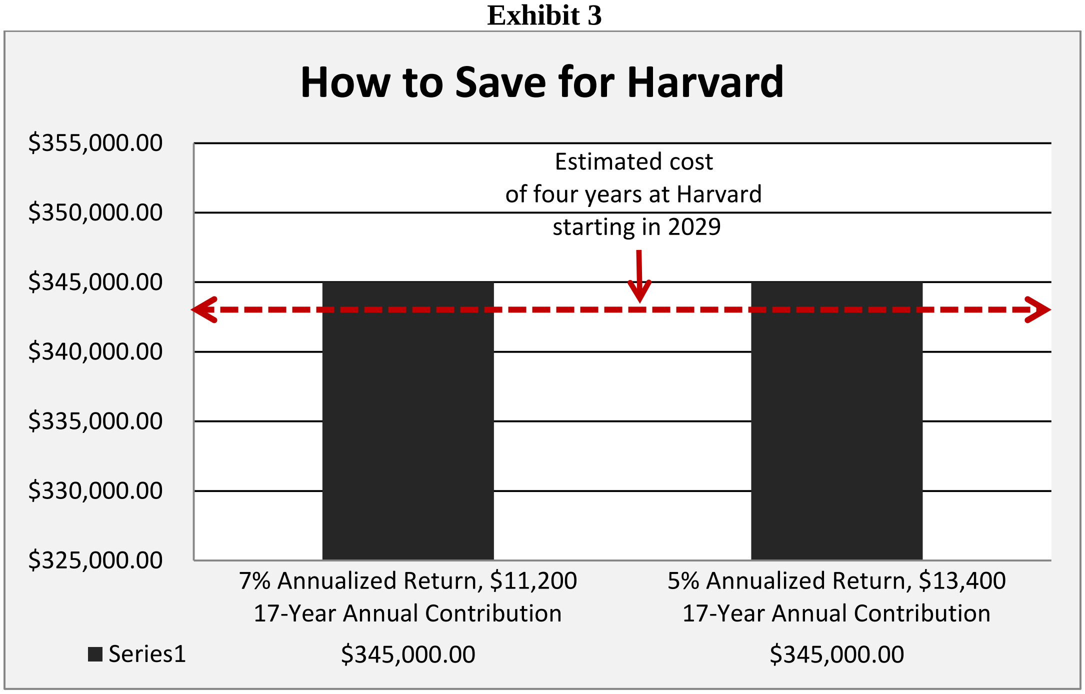
Liability Matching Gone Wild

The problem is that it's not clear how one will achieve a 7% annualized return for the next two decades. The 10-year U.S. Treasury is yielding less than 2%, and high-quality corporate bonds aren't yielding much more, so it's obviously impossible to use investment-grade bonds to achieve the return required. The Shiller P/E of the S&P 500 Index is now around 23, so a 7% nominal (4% real) return from stocks alone is conceivable, but not a certainty. And a 7% nominal return from stocks is considerably below the 9% or 10% historical average.

But because of the near certainty that, with yields generally at 30-year low, bonds will deliver subpar returns, at least relative to their history, standard 529 plans are loading up on stocks in order to try to achieve higher returns. For example, the American Funds aggressive portfolio is nearly 100% in stocks. Indeed, all of the major 529 plans have heavy exposure to stocks in their longest-dated funds. Professional investors in general are crossing their fingers and hoping that being ultra-aggressive will pay off, because using conservative bonds simply and clearly won't generate the returns needed to outstrip inflation and cover future tuition bills even at institutions more moderately priced than Harvard. Professional investors also know that a 20-year career in finance will pay them well enough to keep them from making any waves now, regardless of what happens to investors in the end. It's the institutional imperative at work.

If, over the coming years, stocks miss their mark by generating, say, 5% nominal annualized returns, 529 plans and target-date funds will miss their mark too. That means investors must save considerably more—$13,400 per year, instead of $11,200 per year—to pay for Harvard, as Exhibit 3 shows.

Exhibit 3



Besides cutting it close by assuming a 7% nominal annualized return from stocks, the truth is that the portfolio won't be invested in stocks for the entire 17-year or 21-year period. At some point, the aggressive allocations will have to reduce their stock exposure regardless of valuation. Even if stocks become screamingly cheap on a Shiller P/E basis, the Shiller P/E is good at predicting the next 10 years' worth of returns, but not the next, say, 3 years of returns. Even a very low Shiller P/E requires time to deliver its expected above-average returns, and a college saver (or even a retiree) may not have the required time. When matriculation is close, prudence will demand a hefty allocation to bonds, regardless of asset-class valuation.

So the first thing a responsible advisor can do is set realistic expectations for clients. It will be very hard to achieve a 7% nominal annualized return, with even a very aggressive portfolio, over the next decade. The decade after that is less certain, but assuming a large economic boom to cover for the next lean decade is arguably not operating with a good margin of safety. Additionally, the duration calculation for equities makes us conclude that one is speculating by being so aggressively invested for a 17- to 21-year liability.

This may seem like the responsible advisor can only deliver bad news. It's true that a responsible advisor must deliver bad news, but it's not quite the whole truth. The second thing a responsible advisor can do is hold a significant amount of a client's long-term college savings in very short-duration securities when stock prices are high. If, say, one-third of the portfolio is in 50-year duration investments and the other two-thirds is in one-year or two-year duration investments, that combination puts the whole portfolio under 20 years, and gives it an important margin of safety. It's true that it demands more savings from the client, but it reduces the risk of not meeting the liability.

Additionally, when stock prices plunge, the advisor can move the low-duration investments into higher-duration investments when the duration of the latter drops. In other words, when stocks drop dramatically, the advisor can move cash or short-term bonds into the stock market with gusto. Moreover, if the duration of the whole portfolio is held to 20 years or less, when stocks drop dramatically, their expected returns increase, and invested money can be safely moved into them—provided there is still seven or more years until the student's matriculation, which is generally enough time for an investment made at a low starting Shiller P/E to at least begin to realize a superior return. Therefore, the client can safely reduce his contribution for that year. Taking valuation seriously means delivering bad news when valuations demand it, but it also means delivering some good news when valuations allow for that.

Conclusion

With dividend yields and interest rates at historical lows and with the Shiller P/E around 30% above its historical average, we are very likely in an era of low returns. Advisors have the responsibility to communicate that in no uncertain terms to their clients, and encourage them to save more to meet their liabilities, whether college savings or retirement. But enterprising advisors who are not content with the typical institutional way of meeting long-term liabilities may also choose to pay attention to simple valuation and duration metrics to manipulate accounts among asset classes. Enterprising advisors who take valuation seriously can help their clients meet their goals with the requisite margin of safety and, at the same time, potentially somewhat less onerous savings burdens. This latter point is true, however, only if stocks reach a low valuation far enough away (at least seven, and preferably 10, years) from the liability.

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