JUNE 2010

Pursuing Retirement Success

New tools for a new era

Executive Summary

This paper assesses the challenges facing today's retirement savers and the tools available to help them navigate a changing investment landscape. Topics include:

- The increase in the number of households at risk of not having enough income in retirement
- The threat of systemic shocks and market volatility
- The shift from saving, toward a goal of income replacement
- A new understanding of downside hedging and absolute return strategies
- Some possible reforms for DC plans and IRAs

"Americans weaned on post-war affluence have come to expect an extended period of leisure at the end of their work life." — The Center for Retirement Research, October 2009

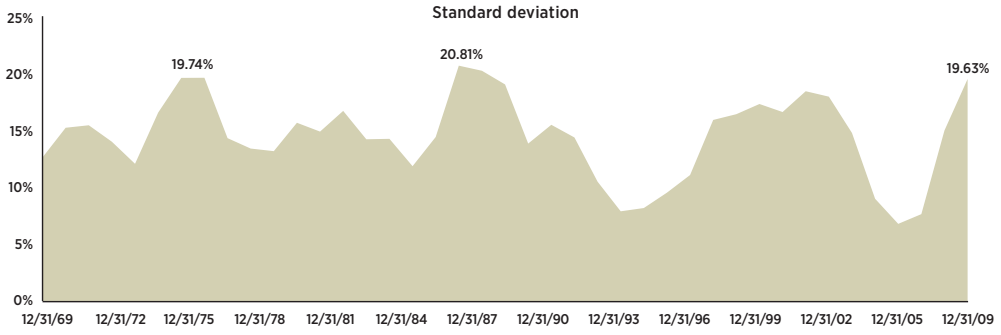
For baby boomers, this succinct observation touches a painful nerve. Instead of simply kicking back and reaping the rewards of the longest sustained bull markets in stocks, bonds, and real estate in decades, many boomers must now perform a hard reality check on their retirement expectations in the post-crash world.

It is not an easy adjustment for a generation that came of age during the 25-year period that has been dubbed the "Great Moderation" — a uniquely benign economic environment blessed with subdued business cycles, low inflation, and low interest rates.[1]

Between 1982 and mid 2007, the S&P 500 gained more than 1,000%, home prices almost tripled, and the yield on the 10-year Treasury note dropped to 5% from 14%.[2] Equity volatility (as measured by standard deviation) never really went away — it was, in fact, modestly higher during the Great Moderation than during the post-war years that preceded it (14.0% standard deviation vs. 13.4%). But volatility around a strong upward trend is hardly threatening and was often viewed as an occasion for "buying on dips."

Now that the unsettling whiplash kind of volatility has returned with a vengeance, spiking to levels hit only twice in the past 40 years (Exhibit 1), it is fair to say that the complacency of the prior era is gone. A recent Putnam survey found that many Americans fear they will not have sufficient income for retirement and are unsure of how to close the gap.

Exhibit 1: Equity volatility has been this high only twice in the past 40 years



Source: Putnam research based on Ibbotson Associates data. Standard deviation measures how widely a set of values varies from the mean. It is a historical measure of the variability of return earned by an investment portfolio over a 3-year period. Past performance is not a guarantee of future results.

1 Expression coined by Harvard economist James Stock.

2 Robert J. Shiller, *Irrational Exuberance*, 2nd. Edition, Princeton University Press, 2005, 2009.

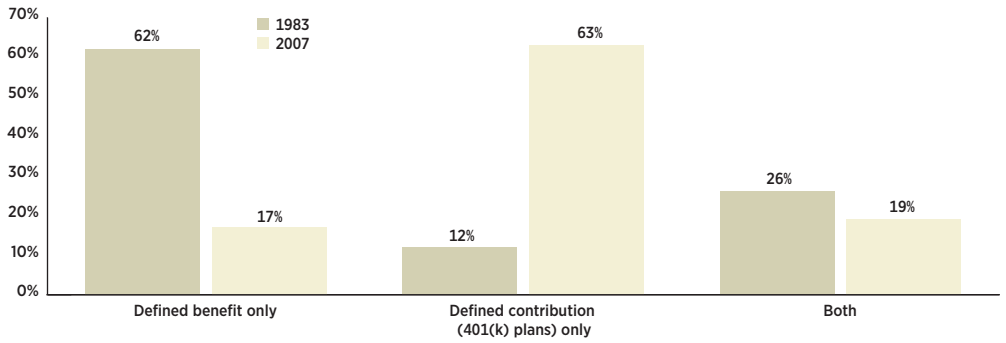
We believe that two steps are vital to helping investors renew their progress toward retirement success:

1. Defining the goal in terms of working income that needs to be replaced during retirement, and
2. Helping investors pursue that goal with improved tools to help protect against market volatility, systemic shocks, and inflation.

Surviving a "perfect storm"

In key respects, 2008 was a perfect storm for America's retirement system, as the confluence of two generational trends. The Great Moderation coincided with what we might call the Great Pension Realignment. Millions of workers were shifted from defined benefit (DB) to defined contribution (DC) plans, including the first wave of baby boomers who are now at or near retirement age (Exhibit 2).

Exhibit 2: Percent of workers covered by DB and DC plans



Source: Center for Retirement Research based on Federal Reserve System data. Data shown is the most recent available.

Recent history has underscored the advantages and shortcomings in both DB and DC approaches. Employees covered by a DB plan can look forward to a guaranteed lifetime annuity; all they have to worry about is staying employed. However, DB plans have proven unsustainable over the long term for many plan sponsors in an era of global competition and shrinking margins. Thus, as growing numbers of DB plans have been frozen or terminated, they have receded in importance for the American retirement system.

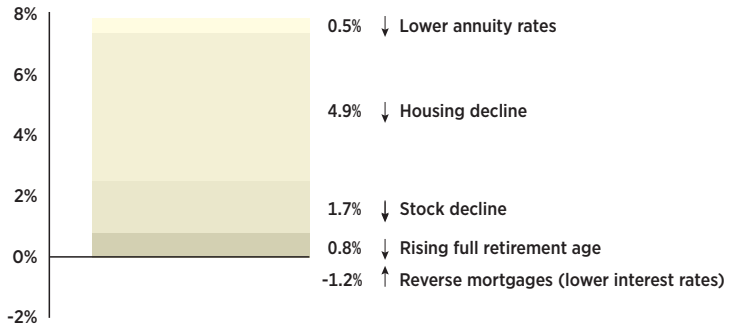
In contrast, DC plans are more affordable for sponsors and increasingly prevalent, and provide workers with a tax-advantaged platform for investing that is (frequently) combined with employer contributions. However, the traditional DC plan requires the participant to supply all the initiative and expertise, from the initial decision to contribute to the finer points of asset allocation and risk/reward trade-off. With hindsight, it is clear that this total, open-ended transference of responsibility and investment risk to participants is far from optimal. The crash can be viewed as an exclamation point to that observation.

We believe that the retirement system must evolve to bridge the gulf between the DB and DC approaches. Some of the security inherent in DB plans can and should be developed for individual retirement investors, both inside and outside of DC platforms. Before examining some promising ways to accomplish that, we first briefly take stock of the damage to the retirement landscape, as a graphic reminder of the urgency of the task before us.

How the crash eroded retirement preparedness

From 2007 to early 2009, U.S. households experienced a $7 trillion decline in their equity holdings and a $3 trillion loss in the value of their homes, according to the Center for Retirement Research (CRR). The CRR recently broke down these aggregate figures and used them to update its "National Retirement Risk Index" (NRRI), which measures the number of households that are deemed at risk of having insufficient income to maintain their pre-retirement standard of living.[3] Since the index was introduced in 2004, its findings have consistently been a source of concern — some 43% of households were at risk then (Exhibit 3). The crash has helped push that number up to 51%.

Exhibit 3: Increase in households "at risk" from 2007 to 2009 by contributing component



Source: Center for Retirement Research, as of Q1 2009.

The CRR cites several factors behind this trend:

- The length of retirement is increasing with longer life expectancies, while the age for receiving full Social Security benefits is being pushed back to 67 from 65.
- More workers are vulnerable to market exposure and investment mistakes as part of DC plans, as discussed above. The median 401(k)/IRA balance for participants approaching retirement was found to be just $78,000. "In theory," the study notes, "401(k) plans could provide adequate retirement income, but many individuals make mistakes at nearly every step along the way."
- Most of the working-age population saves virtually nothing outside of their employer-sponsored pension plan.
- Fixed-income and annuity yields have fallen, so accumulated assets are generating smaller income streams. However, there is a partial offset to this with the availability of lower interest rates for reverse mortgages, which makes it less costly to borrow against home equity.

Exhibit 3 summarizes the eight percentage point worsening in the NRRI by source. It is worth noting that while more than twice as much equity market value was wiped out than housing equity, the latter affects many more households and is responsible for 4.9 percentage points of the negative change.

3 Alicia H. Munnell, Anthony Webb, Francesca Golub-Sass, *The National Retirement Risk Index: After the Crash*, Center for Retirement Research, October 2009.

The CRR's findings are not the only indicators that dimension the retirement preparedness problem. In 2003, the Employee Benefit Research Institute (EBRI) projected a $400 billion aggregate shortfall in retiree income during the decade of 2020. While EBRI has not updated that statistic, it is hard to believe that it has not gotten worse, given the CRR's findings. A 2007 study by the AARP notes that 75 million Americans — roughly half of the workforce — have no access to any form of workplace savings at all.[4]

Quantifying crash damage

The crash exposed another aspect of retirement vulnerability: the risk that relatively damaging market returns will occur at the onset of a retirement withdrawal period. This is known as "sequence of returns" risk. This risk threatens early depletion of a portfolio when the constant-dollar, systematic withdrawals that are vital for many retirees coincide with down markets early in retirement.

To illustrate, consider two hypothetical investors, A and B, both with an initial $100,000 balance subject to withdrawals of $7,000 per year over the length of their retirements (Exhibit 4). To study the effect of losses on withdrawals over time, we return to the last great bear market of 1973/74 and use actual stock market returns over the succeeding 10 years. Investor A retires at the beginning of 1973, and begins taking withdrawals that year. His portfolio — like Investor B's — earns the same returns as the S&P 500 during the next 10 years, an average of 6.72% a year. Investor B's portfolio earns the exact same returns, but in the reverse order. The market losses that Investor A experiences at the beginning of this 10-year period, Investor B experiences at the end.

Investor A's early losses, combined with steady withdrawals, led to a substantially smaller portfolio after 10 years. In effect, the constant $7,000 annual withdrawals represent bigger percentage drawdowns than they would have, had the portfolio gained in value. The subsequent positive market moves produce smaller absolute gains on the diminished portfolio. Investor A's portfolio never fully recovers from the effects of an early crash. Investor B, meanwhile, who has withdrawn that same $7,000 every year, has increased the size of his nest egg by more than 15%.

Many of the early baby boomer retirement portfolios are now in the distribution phase, with the rest of that demographic tidal wave not far behind. They are at risk for, and/or have already experienced, the adverse effects of a bad sequence — aka "a crash."

4 AARP, June 2008.

Exhibit 4: How "sequences of returns" risk can deplete savings prematurely

	Investor A			Investor B	
Year	Market returns	Portfolio value	Year	Market returns	Portfolio value
Initial portfolio		$100,000			$100,000
1973	-14.69%	78,310	1982	21.55%	114,550
1974	-26.47	50,581	1981	-4.92	101,914
1975	37.23	62,413	1980	32.50	128,036
1976	23.93	70,348	1979	18.61	144,864
1977	-7.16	58,311	1978	6.57	147,381
1978	6.57	55,142	1977	-7.16	129,829
1979	18.61	58,404	1976	23.93	153,897
1980	32.50	70,386	1975	37.23	204,193
1981	-4.92	59,923	1974	-26.47	143,143
1982	21.55	**65,836**	1973	-14.69	115,115
Cumulative effect of market returns and withdrawals:	**–34.16%**			**+15.12%**	

The example is for illustrative purpose only and does not reflect average annualized returns or the performance of any Putnam fund, which will fluctuate. Performance is based on the S&P 500 Index, an unmanaged index of common stock performance, and is not indicative of future results. You cannot invest directly in an index.

Source: Putnam research.

Portfolio crash protection

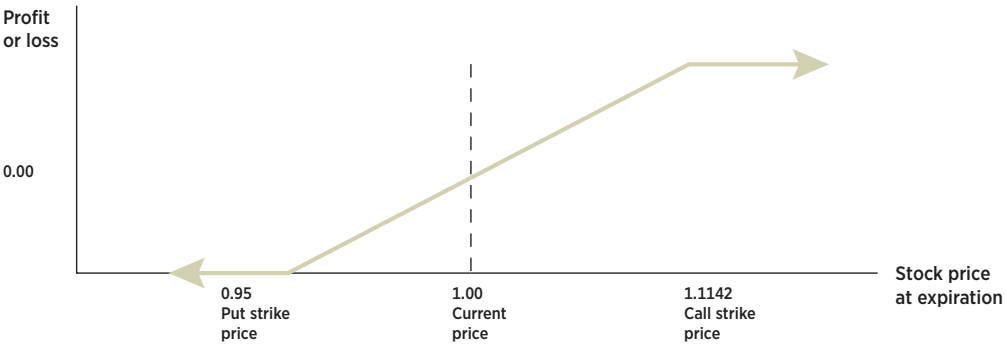
One of the valuable insights of the DB world is reflected in its name. Once the *benefit* being sought is clearly defined, we can work backward to identify the steps that give us the highest likelihood of achieving it and the threats that might undermine it. DB plans, for example, typically express their benefit as a percentage of final pay to be distributed annually in annuity form.

If we define retirement success as replacing $7,000 worth of pre-retirement annual income, how do we best protect $100,000 in a portfolio (Exhibit 4) from shocks like the one we have just lived through? (A classic answer, of course, is to annuitize it. This approach has advantages and drawbacks that we will discuss later.)

Jeffrey Carney, CFA, Head of Global Marketing, Products, and Retirement at Putnam, and Van Harlow, Ph.D., CFA, outline how a straightforward downside hedging (DH) strategy utilizing options can mitigate downside risk, while helping to preserve some or all of the upside potential.[5] The results can be seen in the options payoff diagram of Exhibit 5, which illustrates a "costless collar." The strategy seeks to limit downside risk to a 5% loss through the purchase of a put option, which is financed by selling a call option that caps the potential gain of the portfolio at 11.4%. The authors also describe a similar strategy that just involves buying a put to cushion potential losses. In this example, because no call is sold to offset the put premium, that expense reduces portfolio return. However, it has the advantage of allowing the investor to retain all of the upside potential from market gains.

5 Jeffrey R. Carney, CFA, and Van Harlow, Ph.D., CFA, *Improving the Outlook for a Successful Retirement, Putnam Investments*, April 2010.

Exhibit 5: A "costless collar" seeks to provide downside protection by limiting upside potential



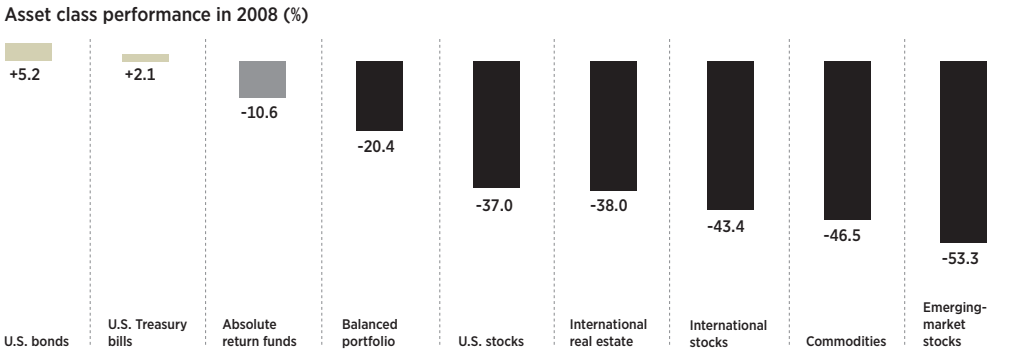
The illustration above is hypothetical and does not represent any Putnam fund or product.

Carney and Harlow's approach is a good example of our retirement success theme. First, the goal is structured in terms of maintaining a $7,000 per year payout over 20 years. Second, the investor is offered new tools to help pursue that goal that go beyond accumulating and allocating assets.

Imagine a retirement investor being asked: "Would you sacrifice some of the upside potential of your portfolio in return for a higher probability that you might meet your retirement goal?" It's fair to say that most workers never knew they could choose such a potentially appealing trade-off. As a practical matter, they haven't had the choice. While options have been in common use for decades, they have largely been tools of sophisticated investors and traders.

Absolute return (AR) funds represent another promising avenue for retirement investors concerned with systemic shocks. AR funds typically use derivatives and other strategies designed to reduce their exposure to overall market moves. The trade-off in this approach is similar to that of DH: Protection against downside shocks is pursued by conceding some of the potential to participate in the market's gains. During 2008, AR funds demonstrated the merit of this approach, as 17 AR funds tracked by Morningstar fell a little over 10%, versus a decline of 37% for the S&P 500 (Exhibit 6), and as a category they were outperformed only by Treasury bonds and bills. As retirement age looms closer on the horizon, and an investor's portfolio becomes increasingly vulnerable to sequence risks and systemic shocks, AR funds may merit a careful look.

Exhibit 6: Absolute return strategies helped curb losses through 2008's market crash



Past performance is not indicative of future results. Indexes are unmanaged and used as a broad measure of market performance. It is not possible to invest directly in an index. U.S. bonds: Barclays Capital Aggregate Bond Index; Treasury bills: BofA ML 3-month T-Bill Index; absolute return funds: the average returns of 17 absolute return mutual funds as identified by Morningstar; balanced portfolio: portfolio composed of 60% stocks, 30% bonds, 10% cash; U.S. stocks: S&P 500 Index; international real estate: MSCI REIT Index; international stocks: MSCI EAFE Index; commodities: Goldman Sachs Commodity Index; emerging-market stocks: MSCI Emerging Market Index.

Quantifying retirement preparedness

Carney and Harlow also introduced a metric, retirement present value (RPV), to analyze how DH strategies are likely to fare compared with traditional long-only portfolios. RPV is comparable to the analytical approach that guides DB plan sponsors, who are chiefly concerned with the funded status of their plans, i.e., whether the present value of their assets is greater than the present value of their liabilities. Actuaries play a key role in that determination, because they compute the projected payouts (the liabilities) based on the life expectancies of the sponsor's workforce.

The two authors demonstrate how the RPV can perform the same function for individuals as a measure of the likelihood of retirement success. Adopting the same conventions of net present value calculations, cash flows (savings) into the portfolio are positive, and withdrawals are negative. Cash flows are also weighted to reflect mortality tables, so payouts that are scheduled for later are reduced in the calculations. If the two present value numbers sum to zero, then the portfolio is projected to just achieve the goal of providing the replacement income over the desired period. A positive number indicates funds are likely to remain as a bequest, while a negative number is a caution sign that the investor is likely to outlive his or her income.

Carney and Harlow used RPV to compare hypothetical outcomes of retirement portfolios both with the DH strategies and without. Results are detailed and encompass many different scenarios, reflecting historical time periods and Monte Carlo simulation. The results show that DH strategies have much promise in protecting retirement income. For example, looking at every available rolling 30-year period for the S&P 500 since 1946, the DH strategies did not have any negative RPV results, i.e., no sequence produced a scenario in which the investor would have outlived his or her income. In comparison, the unhedged strategies went into negative RPV territory more than 12% of the time. [6]

RPV may be a valuable tool for helping investors and financial advisors judge the effectiveness of a plan — not just in terms of portfolio growth, but in RPV's potential for helping achieve the desired income goal over the course of retirement.

6 Jeffrey R. Carney, CFA, and Van Harlow, Ph.D., CFA, *Improving the Outlook for a Successful Retirement,* Putnam Investments, April 2010.

Home equity crash protection

Earlier, we noted that the biggest threat to retirement preparedness for most Americans isn't equity market exposure, but the decline in home values. Going forward, home prices will no longer be viewed as immune to systemic shocks, especially in light of the devastating declines in sections of California, Nevada, and Florida. Is there the possibility of protection for homeowners that is analogous to the put options in DH strategies?

Yale economics professor Robert Shiller argues that home equity insurance contracts could be written on the market values of houses of a metropolitan area, thereby protecting against declines that blight entire local markets.[7] Structuring the insurance this way, he notes, would guard against the "moral hazard" of a homeowner neglecting the house simply to collect the insurance payments. Such insurance has the potential to keep homeowners out of "negative equity" circumstances that we hear so much about these days and to preclude panic selling that spreads the misery.

Other potential macroeconomic benefits are easy to envision. Shiller notes that labor mobility could be increased, to the extent that insurance helps unemployed homeowners sell their homes to seek work in other regions. For retirees, it is easy to extend Shiller's speculation by noting that a floor under their home prices could facilitate reverse mortgages. Further, if people have confidence in their main asset — their home — then they are likely to spend more and/or allocate more to the capital markets (the "wealth effect").

Portfolio inflation protection

Thus far, we have focused on tools for enhancing retirement preparedness that cope with historically rare, if recent, systemic shocks. Unfortunately, portfolios must still be protected as well against that historical retirement wealth thief, inflation. We have just come through a period of massive global fiscal and monetary stimulus with rates near historic lows. Governments around the world are now contemplating withdrawal of that stimulus, as they weigh threats to their own creditworthiness. It's a tough call, because a move too soon in that direction could imperil the recovery, while waiting too long could kindle inflation once private demand picks up.

Here we briefly touch on the pros and cons of some common inflation hedges:

- **Treasury Inflation-Protected Securities (TIPS)** — The principal and coupon payments of these U.S.-backed obligations automatically increase with upward moves in the CPI, and we believe they can be an excellent component for most retirement portfolios. Keep in mind, however, that they are not completely immune to losses in market value due to rising rates. This could happen, for example, if the market's inflationary expectations push up nominal bond rates higher than the actual CPI, i.e., the real rate increases.
- **Commodities** — If TIPS are at the conservative end of the inflation-protection spectrum, commodities are at the other. Passive commodities portfolios historically have been extremely volatile, with poor risk-adjusted returns as a stand-alone investment. However, they can be valuable as part of a diversified portfolio during inflationary periods, when demand outpaces supply.
- **Absolute return strategies** — As an alternative to TIPS, Putnam Absolute Return 100 Fund may serve investors who seek to reduce inflation risk. The fund's objective is to seek positive returns 1% above the level of inflation, as measured by Treasury bills, over three years and with less volatility than more traditional funds.

7 Robert J. Shiller, *The Subprime Solution,* pp. 161–164, Princeton University Press, 2008.

- **Real estate** — Real estate investment trusts (REITs) own commercial properties, which typically can raise rents (or room rates for hotels) as inflation rises. However, a successful REIT depends on careful selection of management, which needs to assess a multitude of factors, from highly localized real estate conditions to global trends.
- **Emerging markets** — The growth potential of equities has long been the prime reason for including them as a core allocation in portfolios seeking to outpace inflation — even in distribution-phase retirement accounts, given that they may have to last 30 years. Emerging markets are cited because the fundamental story for them can no longer be denied, with countries such as China, Brazil, and India having far faster growth rates than the developed economies. But as always, they are a volatile sector — they fell harder and rose further during and after the crash.

Enhancing retirement plans for a new era

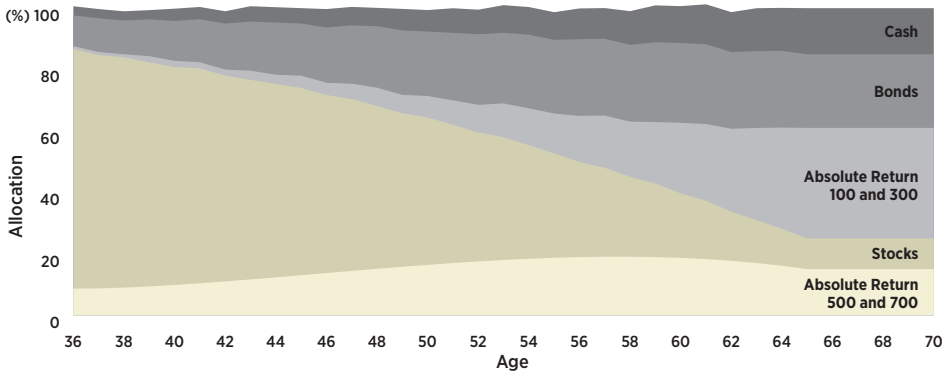
The tools we have discussed for improving retirement preparedness can have maximum impact only if they are accompanied by broad reform to 401(k) plans and IRAs. Here are some of the reforms that we see as the most vital:

- **Extending coverage to all** — The 75 million Americans referenced earlier without access to any form of workplace savings need to be brought into the system through some form of universal IRA or simplified version of the 401(k). This would give all Americans — especially the least advantaged — a real, growing stake in our free enterprise system, and help improve their prospects for retirement success.
- **Embedding lifetime income options** — Lifetime income security, which has been the bedrock of the DB world, needs to be an option for DC plan participants. Of course, individual retirees have long had the ability to annuitize lump-sum payments. However, many find the current trade-off unattractive — gaining the guarantee means giving up too much yield. By shifting the annuity from the retail context to the corporate DC platform, economies of scale can work in favor of the participants, as they do in DB plans, where sponsors typically are able to offer better yields. Just as important, guidance and advice from the DC plan can help participants integrate lifetime income options into their retirement plans.
- **Creating a national insurance charter** — We favor the creation of a federal agency funded by the industry, like the FDIC, to backstop the "qualified lifetime income options" discussed above. The agency would administer a national insurance pool, also industry funded, and would vet lifetime income solutions to help ensure that they are fiscally sound and have the potential to deliver on their promises.
- **Mandating PPA auto-pilot features** — The 2006 Pension Protection Act endorsed features such as automatic enrollment, savings escalation, lifecycle funds as defaults, and built-in investment advice, while providing legal safe harbors for sponsors who adopted them. While the PPA has proved to be a great policy success, with many plans adopting these features, we believe that mandating them for all sponsors would be a major step forward for retirement preparedness.

Variable annuities are long-term investment vehicles intended for retirement planning. Annuities have insurance related charges and tax considerations and are offered by contract only. All guarantees are based on the claims-paying ability of the issuing company.

- **Enhancing lifecycle funds** — Curbing the volatility of lifecycle funds in their mature stage is a natural outcome of the disappointing performance many had during the crash. As discussed earlier, AR funds represent a promising approach for limiting volatility and providing positive returns in difficult markets. For that reason, Putnam has introduced AR funds as part of its "RetirementReady®" suite of lifecycle funds (Exhibit 7). We envision AR funds comprising about 60% of the lifecycle portfolio in its mature stage. We also believe that equity investments should comprise a smaller allocation in mature-stage lifecycle funds.

Exhibit 7: RetirementReady glide path featuring Absolute Return Funds



Source: Strategic Insight Simfund, February 2009.

Conclusion

At Putnam, we believe America's retirement system cannot function optimally until investors — especially those with so much at risk, at or near the start of retirement — are confident that they can be protected from the kind of environment we endured in 2008/2009.

The tools we have outlined, like dynamic hedging, retirement present value, absolute return funds, and lifetime guarantee options, are by no means the last words for addressing the challenge. This is a golden opportunity for the financial industry's innovators to apply their skills where they will be greatly appreciated.

There is no way to predict whether we will look back 25 years from now and declare it to be the "Great Moderation, Part II" or something entirely different. Either way, Americans deserve a retirement system capable of helping to provide a secure and comfortable retirement for all of its citizens.

The views and opinions expressed are those of the authors, are subject to change with market conditions, and are not meant as investment advice.

Consider these risks before investing: Asset allocation decisions may not always be correct and may adversely affect fund performance. The use of leverage through derivatives may magnify this risk. Leverage and derivatives carry other risks that may result in losses, including the effects of unexpected market shifts and/or the potential illiquidity of certain derivatives. International investments carry risks of volatile currencies, economies, and governments, and emerging-market securities can be illiquid. Bonds are affected by changes in interest rates, credit conditions, and inflation. As interest rates rise, prices of bonds fall. Long-term bonds are more sensitive to interest-rate risk than short-term bonds, while lower-rated bonds may offer higher yields in return for more risk. Unlike bonds, bond funds have ongoing fees and expenses. Stocks of small and/or midsize companies increase the risk of greater price fluctuations. REITs involve the risks of real estate investing, including declining property values. Commodities involve the risks of changes in market, political, regulatory, and natural conditions. Additional risks are listed in the funds' prospectus.

Money market funds are not insured or guaranteed by the Federal Deposit Insurance Corporation (FDIC) or any other governmental agency. Although the fund seeks to preserve the value of your investment at $1.00 per share, it is possible to lose money by investing in this fund.

Each RetirementReady Fund has a different target date indicating when the fund's investors expect to retire and begin withdrawing assets from their account, typically at retirement. The dates range from 2010 to 2050 in five-year intervals, with the exception of the Maturity Fund, which is designed for investors at or near retirement.

The funds are generally weighted more heavily toward more aggressive, higher-risk investments when the target date of the fund is far off, and more conservative, lower-risk investments when the target date of the fund is near. This means that both the risk of your investment and your potential return are reduced as the target date of the particular fund approaches, although there can be no assurance that any one fund will have less risk or more reward than any other fund.

The principal value of the funds is not guaranteed at any time, including the target date.

Investors should carefully consider the investment objectives, risks, charges, and expenses of a fund before investing. For a prospectus, or a summary prospectus if available, containing this and other information for any Putnam fund or product, call your financial representative or call Putnam at 1-800-225-1581. Please read the prospectus carefully before investing.

Putnam Investments
One Post Office Square
Boston, MA 02109

putnam.com

Putnam Retail Management

259183 6/10