Boomers Behaving Badly: A Better Solution to the “Money Death” Problem

January 2012
BOOMERS BEHAVING BADLY: 
A BETTER SOLUTION TO THE 
“MONEY DEATH” PROBLEM

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PART 1: Boomers Bust?

Scope of the Problem and a Possible Solution

Many investors approaching retirement age are worried about their prospects – and with good cause. Financial markets have dealt a series of blows to their investment portfolios in the past few years and they are somewhere in the range of worry to panic that at some point in their retirement years, they will run out of assets and hence their ability to generate the desired level of income to supplement what are increasingly inadequate pensions.

- Previous generations relied more heavily on defined benefit pensions – income for life.
- Previous generations were used to seeing higher yields and total returns from their investment portfolios.
- Previous “retiring” generations were a smaller proportion of the population, requiring less strain on society’s resources to support them in old age.

In the United States and in several other wealthy countries, the demographic and financial problems facing retirees are (finally) getting attention as the costs grow so large that they clearly will impact every member of society through tax hikes, cuts in services or both. Long-term solutions at the aggregate level are not going to be easy, although the basic concepts point only in one direction: less money available, more people share it!

This research focuses on a narrower issue, but one that is critically important to many affluent baby boomers approaching or in the early phase of retirement. What can today’s retirees do to provide enough financial security to avoid “money death,” the risk that assets run out during their lifetime?

This is a large and fast-growing segment of the population, and not just in the United States. Looking only at individuals within 10 years of the normal retirement age in each country (above or below), there are seven developed countries whose growth in that population segment over this decade is expected to exceed either or both of 20% or one million people.

The United States stands out. Projections give it by far the biggest growth in actual population in this segment (Exhibit 1), and its growth rate in this segment is projected to be the fastest as well (Exhibit 2). However, the pace of growth in the other six countries (Canada, Australia, the United Kingdom, France, Italy, and Germany) suggests the issue is not confined just to these borders. For example, in those six nations there are now 77 million people in a range of 10 years before or after retirement age. That number is projected to grow to over 88 million by 2020.
As well as the sheer size and growth of this segment, this is the group that has accumulated the most wealth. A breakdown of wealth by age of head of household shows that the 55-plus age bracket dominates the wealth charts across all major countries. The good news for these over-55s is that their median household wealth is typically between 2 and 4 times the size of the younger generations’ wealth (the 35 to 54s). The bad news is that the absolute numbers are way too low to sustain a comfortable retirement without help from public or private pensions. Organisation for Economic Co-operation and Development (“OECD”) data for the United States puts the median household net worth for over-55s not much above $100,000 (2008 data in 2002 dollars). The same source puts the Canadian equivalent number under $100,000.

Importantly, that data is based on the median household, not the mean. In a population like the United States where wealth is unequally distributed, the median is skewed downwards. By definition, half the population is below the median income, but the mean (average) is typically much higher. This research focuses on those nearer the upper
end of the wealth distribution where the money death problem may actually be soluble for the healthy and wealthy
in the baby-boomer generation.

That baby-boomer generation is now moving into its retirement years and, within that group, our focus is largely
on what could loosely be called the “upper middle class” in financial terms. These are households who may not be
in the “high net worth” segment of $10mm plus assets (a segment not typically in danger of money death). But
they do have enough assets to expect to generate a material retirement income to supplement their Social Security
and any defined benefit (“DB”) plan income.

The approach outlined in this research is aimed primarily at those households with assets in the range of $1-$10mm
and whose expected income from Social Security and DB pensions may be only a modest proportion of their
desired income level in retirement. However, our proposals and simulations may be helpful to a much broader
range of the population in retirement planning.

Note that defined contribution (“DC”) plans are treated as part of the asset portfolio in this study. Some DC plans
offer an annuity option to provide lifetime income, but it’s not an option much used. In effect, DC plans are
savings vehicles, not pension plans. In addition to individual investors and their financial advisors, this research is
targeted toward sponsors and administrators of DC plans, in shaping the investment options they provide, and the
advice provided to participants.

**Asking the Right Question**

As the baby-boomers approach retirement and evaluate their income-generation potential, it’s not that they are
getting the wrong answer, but that they may be asking the wrong question – focusing only on the income yield
their investment portfolio can generate. In today’s low-yield investment world, income-oriented investing has
become the Holy Grail, especially for individual investors.

This search for income has been accelerated by the long-term bull market in bonds, which has driven yields to the
lowest levels most individuals have seen in their investing lifetimes (see Exhibit 3). In the United States, the lack
of meaningful current income has been exacerbated by concerns about the municipal bond market, traditionally an
investment haven for the affluent individual.


![Exhibit 3: Yields for 10-Year U.S. Government Bonds (1919 to 2011)](image)

Source: Brandes Institute, as of 12/31/11. Past performance is not a guarantee of future results.
Investors are right to place emphasis on the income component of investing. The Brandes Institute’s 2004 report, “Examining the Income Component of Long-Term Returns,” noted that for periods of 10 years or more (starting in 1926), the income component represented greater than half the returns generated for all income-producing assets classes (stocks, bonds, and real estate).

Identifying quality income-oriented investments makes sense. But reaching for the highest yield available can be very risky. Raymond DeVoe Jr. of Legg Mason wrote perceptively back in 1995, “More money has been lost reaching for yield than at the point of a gun.” For investors now determined – or even desperate – to generate income, they may be asking the wrong question.

- Wrong question: “What investments can generate the x% yield that will pay me the income I need?” (x% generally being a materially higher number than the risk-free rate!)
- Right question: “How can I take the needed amount out of my portfolio every month without ultimately depleting my assets?”

Rephrasing the question changes the framework from a “risk-return trade-off” that pushes investors into increasingly higher risk assets, to an asset-liability decision that involves the investment portfolio and, as will be demonstrated later, a potential solution using longevity insurance.

But getting to the right answer involves more than a pure “investment equation.” Behavioral mistakes can compound the problem. In particular there are two traps that have to be avoided in this situation – mental accounting and Prospect Theory.

Mental accounting is the tendency to categorize different parts of a portfolio (principal and income, for example) in a way that precludes thinking about these pieces as a whole. Some retirees may go to extraordinary lengths to avoid dipping into their principal or capital and so try to raise the income yield to compensate and attempt to maintain their spending level. Trustees may have similar behavior forced on them (e.g. not being able to “invade the principal” of a trust). In essence, this first behavioral trap may lure investors to take excessive risk in pursuit of high yield for its own sake.

But spending a dollar from the “income pot” has the same effect as spending a dollar from the “capital pot.” A better approach would be to focus on total return while managing the portfolio to avoid terminal decline (money death). As already noted, generating income is an important element in total return. In their excellent book The Retirement Plan Solution, authors Don Ezra, Bob Collie, and Matthew X. Smith estimate some guidelines for how much can systematically be withdrawn annually from a typical retiree portfolio without undue risk of running out of money during the lifespan. For portfolios ranging from 20% to 100% in equities, they conclude that an initial spending rate of 3.5 to 4.5% (in inflation-adjusted dollars) carries a high probability of success.

The second behavioral trap pushes investors toward mistakes in the opposite direction, and financially this can be even more damaging (with apologies to Mr. DaVoe!). Daniel Kahneman won a Nobel Prize in 2002 for his work with Amos Tversky on Prospect Theory. This research suggests that individuals often take more risk to avoid the prospect of a loss than they take when the prospect is a gain, typically by a factor of at least two. In practice this means that the fear of losing money is more than double the pleasure of earning the same amount, and this fear may trigger more defensive portfolios (i.e., higher cash and fixed income allocations) than may be appropriate given long-term goals.
Investors are now living in a world in which stock and bond market volatility has been high, particularly the painful “downside volatility” as shown in Exhibit 4. The substantial losses of 2007-9 are still in their memories, and the impact is still not only in their portfolios but burned painfully into their investing psyche.

**Exhibit 4: Downside Volatility (Semi-Variance) for Global Equities and Baa Bonds**

Even with interest rates at historic lows and investors searching for better returns than available in money markets, Prospect Theory provides a strong psychological push to avoid more potential losses. The fear of additional losses tends to drive investors to “safer” asset classes such as bonds and cash. Additionally, conventional investment practice suggests that as individuals move close to retirement, portfolio allocations should increasingly emphasize bonds and cash.

Target-date funds are becoming increasingly popular as the default option in DC and other savings plans. Most target-date funds have an allocation “glide path” that steadily reduces stock allocations and builds bonds during the post-retirement years. After the bear market ending in March 2009, the target-date fund sector came under fire for having equity exposures at “near-retirement” ages deemed to be too high. Some target-date funds had around two-thirds equity exposure at retirement age, but a more typical glide path would reduce an approximately 50% stock allocation at retirement to 30% ten years later.

More than two years after the end of the 2009 bear market in stocks, the trend in retirement planning continues to move toward lower equity allocations. *Pensions & Investments magazine* (May 16, 2011) reports a Morningstar® finding that target-date fund equity allocations were lower in 2010 than in 2009. The magazine cites several examples, including one fund whose post-retirement “glide path” now brings the equity component to zero by 20 years after the retirement date.
What’s wrong with this asset allocation plan?

It may well be an improvement on the prior “default” options used by many DC plan participants in the middle market (such as leaving the assets in a money market fund). But for the affluent population segment, it falls into the Prospect Theory trap: retreating to a more defensive allocation just when investment returns are more critical than ever.

Chapter 4 of The Retirement Plan Solution introduces the 10/30/60 rule for retirement savings. For a DC retiree at 65 who started saving at 25, 60% of his or her total distributions will come from investment earnings after retirement. The “10/30” part refers to 10% that is a return of the actual amounts saved and 30% from investment earnings pre-retirement. The authors note that the 10/30/60 rule is fairly robust under different input assumptions. This is what sports commentators call “a real game-changer!” While investor attention and the industry’s sales materials focus on contribution levels and portfolio allocation pre-retirement, around 60% of total distributions are linked to investment decisions made after retirement.

In essence, we believe this second behavioral trap prompts investors to take a much too defensive position with their assets, just at the time when their long-term returns are most important.

This reflects the basic problem of policy-setting for large groups of people with diverse interests. DC and other savings programs are typically set with the admirable goal of building assets to provide some retirement income across a broad range of the population. The U.S. population as a whole remains heavily dependent on Social Security for retirement benefits. For the pre-boomer retiring generation, Cerulli Associates estimated that in 2005, over three-quarters of retirees got more than 40% of their income from Social Security, and for a third of these, it was their only income. Given the fiscal constraints on current policy this may be the best that society can do for the average American. However, this paper now focuses on the needs of the affluent segment of the population, for whom following the conventional advice may increase the risk of money death and reduce their resources and lifestyle in their later years.

With improvements in healthcare, technology, and lifestyle choices, the long-term trend toward longer life expectancies is well established in almost all countries, both developed and emerging. Increased longevity is both a benefit to society and to individuals. The unique feature of today’s problem is the size of the baby boom generation combined with its expected longevity.

A big contributor to the chance of money death is the projected lifespan from the retirement date. The longer this period, the more likely money death becomes for those who need to draw down from their assets. The United States is better positioned than other countries (on a financial as opposed to lifestyle measure) as its typical retirement age is higher for both men and women than other developed countries. Retirement ages in other countries are now rising and may need to rise significantly further.

Exhibit 5 details both retirement ages and life expectancy at retirement across a sample of countries. The median age of death of retirees doesn’t change much across countries so the lifestyle benefit appears to offset the financial benefit. The Italian man retiring at 61 will typically live to about the same age (82.5) as the American retiring at 65.5. It’s just that comparatively he’ll have four more years of leisure, and the American will have four less years of drawing down savings.
For the affluent segment of this generation, the possibility of money death is a long-term problem only for those who are in good health as they move into retirement. Life expectancies for men and women reaching age 65 in the United States are now 83 and 86, respectively. By comparison, 40 years ago when the parents of some of today’s boomer generation were moving into retirement, the life expectancy at age 65 was only 78 for men and 82 for women.

But these numbers are for the median, and the range of longevity outcomes around that median is quite wide. The average life expectancy of an affluent individual who is generally in good health and hence more likely to “bet” financially on having a longer-than-expected lifespan may be significantly higher than the median for that age and gender. Insurance companies take this into account in their rates when they sell annuities and similar products by using select mortality tables. “Select” refers to buyers who “select” themselves. In other words, it doesn’t make sense for someone in poor physical health to buy a lifetime annuity.

### Longevity Risk and a Solution

Is there a way for individuals to insure against their longevity leading to money death, protecting themselves financially from the consequences of a “late death?” Life insurance is a well-established and commonly used approach to insure against the financial consequences of early death. The financial consequences of a late death (in statistical terms) can also be significant, but there are currently few options for individuals who want to insure against that event. The ideal solution to potential money death might be to have enough “income insurance” that by a certain age the individual no longer has to rely on income being supplemented by withdrawals from the investment portfolio. The financial effect on investment planning is to exchange the uncertainty of the eventual lifespan for the certainty of having a specific age at which most or all lifetime income needs are met and the remaining investment portfolio becomes an “optional extra” for income purposes.

There are insurance policies designed to address these longevity concerns, but they are not widely offered, and not yet widely used. Later in this paper, we will go into more detail into the solution to the “late death” problem, with just a brief overview at this point.
Longevity insurance is a very simple concept. The investor pays a single lump sum premium to an insurance company at (or before) retirement. In return, the insurance company will pay an annuity for life once the policyholder has reached an advanced age (e.g., 85). To get the highest income at that vesting age of 85, the policyholder would accept that if he/she dies before 85, the insurance company keeps the whole premium…no money is returned on death. While that sounds extreme, the trade-off is that the income is substantial once the vesting age is reached. For example, longevity insurance quotes in 2011 indicate that an investment of $100,000 by a male at age 60 would produce an income of over $75,000 a year until death, once he reaches age 85. Note that the guarantees of any annuity are subject to the claims-paying ability of the issuing company.

But the vast majority of annuities currently sold are those that start to pay out at retirement age or soon after. These may be suitable for many purposes, but **not** for insuring against longevity and money death. Why?

- In order to generate enough income to meet the investor’s retirement needs, these annuities may lock up a substantial proportion of the investor’s portfolio, reducing investment flexibility.
- The yields built into fixed payout annuities are currently very low, so the income is small relative to the amount invested.
- Reliance on variable annuities with exposure to volatile equity markets runs the risk that withdrawals deplete the capital during market downturns.
- By the time the retiree reaches advanced age, income from these annuities may be low compared to spending needs, while the balance of the investment portfolio may be too low to make up the difference.

The longevity insurance approach is not for everyone. Using our example above, the average 60-year old American man has a 59% probability of dying before age 85. Longevity insurance may be a good investment only for those who:

- believe themselves to be relatively healthy, with odds more in their favor than the average person;
- are not in need of substantial additional income for the next few years;
- have a sufficiently large investment portfolio so that the lump sum premium is only a modest proportion of assets;
- or, have a portfolio that is not so large that money death is not even a concern.

The segment of society that does meet these conditions is quite large, and is continuing to grow. Given the limited marketing of longevity insurance policies in the United States, potential demand appears far greater than current usage.

Of the four qualifiers listed above, the last three should be quantifiable possibly with the assistance of a financial advisor. Is there a way to quantify the impact of the first bullet point: developing a better understanding of your individual life expectancy or “real age?” Actually, not only can this be done, but our readers may find this an interesting and useful exercise not just for the financial implications but in terms of lifestyle and overall health.

**Real Age**

The concept is straightforward. While your nominal or actual age is the number of years elapsed since birth, your real age (sometimes known as “virtual age”) may be younger or older depending on overall health and lifestyle.
Many adults over 40 are pleased to be told, “Amazing, you look at least ten years younger,” regardless of whether that’s true. (Actually, make that “all adults over 40”). The reality is that given varying hereditary, environmental and lifestyle factors, any group of individuals of the same age and gender do not have the same life expectancy.

While life expectancy is normally expressed as a specific age, it’s important to understand that this number is not a forecast (and certainly not a guarantee). It is the median of a probability distribution: for a large group of people of the same age and gender, this is the age by which half are expected to have died.

This leads to a more specific definition of real age. Given details of an individual’s heredity, health, lifestyle, and environment, a more accurate calculation of future life expectancy can be made. Subtracting that number from the expected age-at-death for the average person of that gender and age will give the real age estimate.

For example, consider a 62-year-old woman who is a physically fit non-smoker with a healthy diet and lifestyle. She has no history of cancer or heart disease in her family. The average 62-year-old American woman has a life expectancy of 85, another 23 years. With the information provided for this individual, a more informed calculation might estimate her median life expectancy at an additional 30 years, not the “average” of 23. Subtracting that 30 years from the average 85-year life expectancy for women of her age gives her a real age estimate of 55.

What does this do for her (other than making her feel good about herself)? For those whose real age is younger than their chronological age it confirms that longevity insurance might be a suitable part of the financial plan. Real age also provides a very useful tool in modeling and managing the investment portfolio in order to reduce the chance of money death, a probability that typically increases with increasing age. This will be illustrated later in this paper.

In practice, how can an individual get a sensible estimate of their real age? For anyone with an internet connection, this is a fairly simple and possibly quite enlightening exercise. Posting “real age calculator” in a search engine will bring up a long list of sites that encourage visitors to complete an online questionnaire for a free estimate of their real age. (A note of caution: most of these sites are free because they rely on selling health-oriented products and services. Users should take care not to leave boxes checked as a default that result in their receiving unwanted promotional mailings for unsolicited products).

These real age calculators range from quick and simple 5-minute question lists, to some that delve deeply into medical history and lifestyle issues and may take 20-30 minutes to complete. For the reader’s convenience, a real age calculator is available on the Brandes Institute website (http://www.brandes.com/Documents/Boomer%20Resources/virtualage.swf). In general, it’s probable that the more accurate and detailed the input, the more useful the output.

Because these real age calculators are estimates based on a limited set of information, it is not surprising that the same person using different calculators will be given different indications of their real age. However, these real age estimates will typically be all higher or all lower than chronological age. It would be surprising to find one real age estimate materially higher and one much lower than chronological age. Most users should be able to come up with a reasonable estimate of their real age for the financial planning simulations described later in this paper.

The important goal is to establish with some objectivity whether real age is higher or lower than chronological age (as those with a lower real age should be more interested in avoiding money death). The secondary goal is to

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1 This real age calculator was designed by Peter Russell based on an application from www.poodwaddle.com website. Peter Russell’s life calculator website is http://www.peterrussell.com/Odds/VirtualAge.php
estimate an order of magnitude of how much higher or lower – marginally, five years, 10 years or more? Given the estimation involved in calculating and using real age, anything more detailed would be spurious accuracy, in our view.

**Boomers Behaving Badly**

Now, we turn to “boomers behaving badly.” Apologies for the images conjured up by this phrase; however, the reference is to the behavioral errors that may impact investment portfolios. Many behavioral errors are well-documented in academic and financial literature, and generally these apply equally to older and younger investors.

The good news for the older generation is that where behavioral tendencies do vary by age, often the older investor is less tempted to stray. For example a 2011 study by Barclays Wealth (Risks and Rules: the Role of Control in Financial Decision Making) confirms the damage done to portfolios by excessive trading even by investors who specifically acknowledge that overtrading is counterproductive. It notes that only 6% of over-65s in the study said they bought and sold more than they should, as opposed to 29% of the under-45s.

The bad news for the older generation is that in our view they are overly influenced by Prospect Theory in their asset allocation in retirement. Recall that Prospect Theory in essence states that the fear of a financial loss is at least double the pleasure from the equivalent gain. Conventional wisdom holds that asset allocation should tilt toward fixed income investments as the investor ages, with that tilt becoming more pronounced quite soon after normal retirement age. The rationale is that older investors cannot accept the volatility of equity investment. In the rest of this paper we argue that for affluent retirees in good health, this may be bad advice on purely rational, economic grounds.

However, we also contend that behavioral biases exacerbate this problem. Many retirees in good health are hopeful they will have a long lifetime – which can raise the chance of money death. Prospect Theory suggests that while they are (rightly) concerned about money death, the fear of loss of all their wealth makes them react twice as strongly to try to avoid that event “at all costs.” So, the reaction is an excessive tendency toward a defensive portfolio.

Here’s where another behavioral bias kicks in: herding. Humans are social animals, with natural and well-documented tendencies to go with the crowd. In this case, conventional wisdom tells retirees to focus on capital preservation: “don’t risk invading the principal and don’t accept equity volatility in case there’s a major bear market from which the portfolio won’t have time to recover.” The conventional wisdom may be appropriate advice for the median retiree, but for the healthy and wealthy retiree it might pay to think differently from the crowd.

For that healthy and wealthy baby-boom investor, it’s now possible to re-write the guidelines for the retirement investment portfolio.

We suggest that investors consider a 3-part objective:

1. Maximize the long-term return potential of the portfolio.

2. Minimize the probability that the portfolio falls to a level that it can’t generate the cash for annual spending needs (“portfolio failure”).

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3. Include a method for increasing income at advanced age; this serves as a fall-back strategy to reduce both the financial and behavioral impact of portfolio failure. (Note that portfolio failure only results in money death if there is not enough income to meet spending needs for the remaining lifetime.)

Why consider these objectives?

1. **Maximize the long-term return.** Life expectancies at retirement for the average person are close to 20 years (based on retirement at 65). This is the median expectation, but there’s still a significant chance that lifespan will materially exceed that median. A 65-year-old man in good health (e.g., with a real age of 60) has about a one-in-four chance of reaching 94 and a one-in-ten chance of making it to 99. Putting that together with the notion that 60% of investment earnings come post-retirement (from the 10/30/60 rule suggested in *The Retirement Solution*) makes a strong case for challenging conventional wisdom of a glide path into a primarily fixed income portfolio.

2. **Minimize the probability of portfolio failure.** Depending on an investor’s circumstances it may not be possible to eliminate this possibility totally. However, this is an important objective for both financial and behavioral reasons.

3. **Reduce the chance of money death even in the event of portfolio failure.** If this possibility can be reduced to minimal levels, it becomes more likely that the investor can focus successfully on the first objective (maximizing returns) without being influenced by the fear factor described earlier.

Adopting these objectives translates immediately into a set of investment guidelines that have more in common with long-term institutional investment thinking than the typical strategies suggested to retirees:

- Hold a significant proportion of assets in higher-return potential assets (e.g., equities and risk-oriented fixed income)
- Diversify globally and by asset class
- Rebalance

For a clear and lively explanation of why this approach should work in the long term for both institutional and individual investors, we refer readers to a paper on the Brandes Institute website “Back to the Future: Conventional Investing in a Complex World”, authored by Robert Maynard, CIO of the Public Employee Retirement System of Idaho, and a member of the Brandes Institute Advisory Board.

For the healthy and wealthy boomer, two more guidelines complete the list:

- Emphasize income-producing investments within the maximum return objective.
- Invest in longevity insurance early enough so that the outlay does not represent more than a modest proportion of total wealth (e.g., under 10%).

Earlier we pointed out the risks of “reaching for yield,” aiming for higher income at all costs. Importantly, the income objective for retiree portfolios should not be to generate a specific level of cash for spending needs, but to support the goal of *maximizing return while reducing volatility* (combining objectives 1 and 2 outlined earlier). Lower volatility will not eliminate the possibility of portfolio failure, but it will contribute to reducing it.
As value investing disciples, we are well aware of the attractions of dividends from equities and higher coupons from fixed income. Value investors seek to buy securities that are mis-priced by the markets and are available at prices well below what the value investor considers intrinsic value. Value-oriented portfolios often tend to have yields higher than the market averages in both equity and fixed income. Long-term studies of value investing show the potential for outperformance from this approach (for example, the Brandes Institute’s Value vs. Glamour research). However, a total return value approach may have significant volatility over shorter-term periods of three years or less, and for the baby boom retiree generation this is definitely a factor to consider.

We believe the investment solution is to diversify globally across portfolios that can produce above-average income while adhering to a total return objective. Both the diversification and the income generation should tend to reduce volatility. The potential benefits of global diversification are well covered in other research and will not be included here. These benefits can be reinforced by using an income-oriented approach, and these advantages should not be overlooked by baby boom retirees. In global markets (and for the United States alone) higher dividend yielding equities have historically produced higher-than-market returns with lower volatility. Keep in mind, of course, that past performance is never a guarantee of future results.

Exhibit 6 demonstrates this over a 30-year period. We divide dividend-paying global stocks into five quintiles. Quintile 1 includes the highest dividend yield stocks at the outset of each measurement period, down to quintile 5 with the lowest yielding stocks. Total return (before tax) and standard deviation are measured over the subsequent five years for each quintile, with the quintiles rebalanced annually, and then the process is repeated each month throughout the 30-year measurement period. All 5-year periods are then averaged to show the annualized numbers for each quintile.

Exhibit 6: Higher Dividend Yields Associated with Higher Returns and Lower Volatility

Global Equities 1982 - 2011, Average 5-Year Returns and Standard Deviation by Dividend Yield Quintile, Annualized Percentages, and with Annual Rebalancing

Not only have returns historically correlated with the level of dividend yield, but higher dividend yields have been associated with lower volatility. Using the same dividend-paying criteria and methodology, Exhibit 6 also shows the volatility of each dividend quintile, with the higher dividend yielding stocks showing less volatility.
It is hard to overstate the importance of disciplined rebalancing in any long-term investment strategy. To quote Robert Maynard (page 22 of the “Back to the Future” paper), “the benefits of rebalancing can only be achieved by actually implementing a rebalancing strategy.” Obvious in concept, but difficult in implementation.

The same approach to income-generation applies to fixed income assets. In today's markets, we’ve already shown that risk-free yields from government securities are at historic lows in the baby-boomers’ experience. In order to diversify effectively while still aiming for income consistent with the portfolio goals, it’s beneficial to include fixed income securities with yields above those of equities. Typically these may be bonds in the lower half of the investment grade ratings. For example, the current yield on Baa-rated bonds (Moody’s lowest investment grade) has averaged over six percentage points higher than the S&P dividend yield over the past 30 years. That yield gap as of year-end 2011 was around 2%.

As an illustration of how higher yielding stocks and bonds can potentially boost return and risk characteristics, Exhibit 7 demonstrates 30 years of hypothetical results for a combination of 80% in the highest quintile dividend yield stocks and 20% in Baa-rated bonds.

**Exhibit 7: Composite Returns, 80% Highest Quintile of Dividend Yielding Stocks Globally and 20% Baa-Rated Bonds, Annually Rebalanced**

![Cumulative Returns, 1982-2011](chart)

Source: MSCI, Barclays Capital, Brandes Institute. Data covers 12/31/81 to 12/31/11. Past performance is not a guarantee of future results. This is a hypothetical example intended for illustrative purposes only. Actual results will vary.

This hypothetical composite portfolio outperformed the MSCI World Index by 3.8% annualized over the period 1982 to 2011 (13.6% vs. 9.8%), lagging materially only during the late 1990s tech bubble, when dividends and current yields were out of favor with many investors.

Exhibit 8 shows downside standard deviation for the same comparison. Even though the composite portfolio recorded high downside volatility in the 2008-9 bear market, it suffered materially less than the MSCI World Index in that period. In prior periods, its downside volatility was low, both in absolute and relative terms.
Exhibit 8: Downside Standard Deviation of the Hypothetical Composite of 80% Highest Quintile of Dividend Yielding Stocks Globally and 20% Baa-Rated Bonds, Annually Rebalanced

Downside Volatility (semivariance), Rolling 5-Year Periods, 1982 - 2011

In summary, we believe that using a diversified value approach in an equity and fixed income portfolio gives the best probability of achieving the investment goals set out in the preceding pages. The income-orientation of value portfolios is one building block. It may also be helpful to include value strategies that specifically emphasize high income where they are available. Diversification applies not only in asset classes but also in a global perspective. And as we already mentioned, it is hard to overstate the importance of rebalancing, and so we are pleased to end this section by restating that conclusion!

PART 2: Don’t Cash Out Before You Cash Out

A Longevity Solution

The research in this section is based on the Masters Thesis project of Pol-Axel Colart, Wim Conjaerts, and Christophe Van den Steen at the Vlerick Leuven Gent Management School in Ghent, Belgium. The Brandes Institute sponsored this project and worked closely with the three researchers. The project won the KBC award for best project in the graduating class.

We will tackle four key questions:

1. How can a deferred annuity play a role in helping investors avoid money death?

2. Demand: Who would benefit from using them?

3. Supply: To what extent are these annuities available to those investors?

4. Where there is both supply and demand, how can the combination of investment and deferred annuity reduce the prospect of money death (and in the process, rewrite retirement planning conventions)?
How can a deferred annuity play a role in helping investors avoid money death? It’s often claimed that “buying a house is the biggest investment decision you’ll ever make.” For most healthy and wealthy baby boomers, that event is well in the past. The biggest decision for them is how to invest their asset portfolio to provide the income they need throughout a hopefully lengthy retirement.

Earlier we emphasized the 10/30/60 rule from The Retirement Solution – that around 60% of all distributions from a DC retirement plan are from investment earnings post-retirement. The Transamerica Center for Retirement Studies 2011 survey found that almost half of U.S. workers said their biggest fear about retirement is not having enough money. “Outliving my money” was the number one concern, cited by 23% of respondents, followed by “Not meeting the basic financial needs of my family” as the second biggest concern, cited by 21%.

For a retiree investor nervous about possible money death, the problem with using only the higher-return investment approach (skewed toward greater equity exposure) is quite simple. The average projected value of their assets should be higher over time. BUT the projected range around that average is much wider than for a conventional fixed income/cash portfolio, leading to concerns that at older ages the asset total may drop below the level that can sustain withdrawals to provide for spending needs.

The solution may be equally simple. Use a small proportion (e.g., less than 10%) of the assets near retirement age to buy a single premium deferred annuity. If the investor does reach an advanced age (e.g., 85), the annuity will generate enough income in the event that the assets left in the portfolio are inadequate.

These are generically named Future Income Annuities or Advanced Life Deferred Annuities. For simplicity, we will call these annuities longevity insurance, which in our opinion best describes their function. Unlike the well-known and actively marketed immediate annuity products, longevity insurance is neither widely available nor aggressively marketed. Even though we believe longevity insurance can play a key role in retirement solutions, there are very few products available, and there is minimal demand from the marketplace. This may be a classic “chicken and egg” situation. There’s no supply because there’s no demand, and no demand due to the lack of supply. The status quo needs a catalyst for change. That is one goal of this research, to challenge the life insurance industry to provide products that help solve the single biggest problem facing financial advisors and their retiree clients.

Why the impasse? The problem with longevity insurance is that its main advantage is also its big weakness, at least in sales terms.

The reason that longevity insurance can pay out such a large annuity income at an advanced age is that there’s a significant probability, often more than 50%, that the policyholder won’t get to the vesting (payout) age. And in that case, no money is returned to the heirs. And even if the vesting age is reached and payouts start, once the annuitant does die, again there’s no further return of capital. To take a theoretical example, a 55-year-old man pays a premium of $100,000 today for longevity insurance that would pay him $100,000 a year for the rest of his life after he reaches age 85, and in the next week he dies in an accident. That $100,000 premium stays with the insurance company. Also note that, as mentioned earlier, the income guarantees of any annuity are subject to the claims-paying ability of the issuing insurance company.

In a financial environment where guarantees are regarded as an important component of many insurance products by both clients and sales professionals, this makes many nervous both for the financial and (for the salesmen and their companies) public relations implications.
Longevity insurance is clearly not for everyone. But it can be a good match for the needs of many boomer retirees. For longevity insurance to make sense for such a client, the following two conditions are needed:

1. Generally good health. This increases the probability that the money invested will ultimately generate enough annuity income to provide a high return purely in financial terms.

2. The longevity insurance premium is only a small proportion of the retirement portfolio. If the policyholder dies before vesting and the annuity never pays, the ability of the assets to generate income in the post-retirement years before death should not be significantly reduced.

In the example above, if the $100,000 premium represented half the investment portfolio this would not be a suitable candidate. On the other hand if it represented only 5%, then the prospect is more reasonable. As a general rule-of-thumb, if the amount paid for longevity insurance is less than the expected annual standard deviation of the investable portfolio, then it may be a suitable choice. The modeling techniques outlined later allow more detailed testing on an individual basis.

Two other important aspects of longevity insurance need to be mentioned.

- Tax planning: Longevity insurance can generally be purchased from taxable assets, or within a DC retirement account. The tax impact differs between these. We are not qualified to provide tax advice, and recommend that any potential investor consult a tax advisor. In the simulations developed for this research, the assumption is that the premium is paid from taxable funds. Under current tax treatment in the United States, we believe part of any eventual annuity payments would be treated as return of capital (based on calculations approved by the IRS) and not taxable.

- Inflation: Longevity insurance is typically quoted as fixed payment annuities, with no inflation adjustment. By their nature these are very long-term contracts. Investors need to factor in assumptions on inflation, and the impact these can have on a potential payment stream that may not start for over 20 years. The models used in this research have the ability to simulate various inflation assumptions input by the user. Note that typically longevity insurance is quoted without inflation-adjustment, although some policies may provide quotes that incorporate specified inflation adjustments after vesting. For those investors or advisors with a pessimistic view on future long-term inflation, this should be taken into account when assessing the attraction of using longevity insurance.

Who would benefit from using longevity insurance? The healthy and wealthy baby-boom generation is not just a U.S. phenomenon. Lengthening life expectancies are a worldwide phenomenon. Many countries have similar population “bulges” approaching retirement. Many of these have relatively wealthy populations with a significant proportion of that wealth concentrated in or around the boomer generation. In the United States there are already around 60 million people within 10 years above or below retirement age in 2011. Including the four largest European countries (Germany, France, Italy, and the United Kingdom) plus Canada and Australia, that total is close to 140 million. By 2020 that total is projected to grow by 20% to over 160 million.

Demand in those countries for a better retirement solution depends on two other criteria. First, is there a significant gap between retiree income needs and the income and support already provided by government or private sponsored pensions, such as Social Security or public or private DB plans? Second, is there a culture such that the extended family or other society safety-nets would reduce individuals’ concern over eventual money death? In their thesis work, Van den Steen, Colart, and Conjaerts were asked by the Brandes Institute to analyze the potential demand for longevity insurance worldwide, and to prioritize the list of countries where the demand would be greatest.
Initial research covered 20 large and/or wealthy countries in North America, Europe, and Asia/Pacific. An initial list of 26 criteria was winnowed down to seven:

1. GDP per capita
2. Longevity: the difference between life expectancy and retirement age
3. Replacement rate: the ratio of average pension to average wage in that country
4. Dependency ratio of retirees to working population
5. The percentage of retirement income typically received from the state
6. The prevalence of Defined Contribution plans relative to Defined Benefit plans
7. A measure of cultural individualism: retirees in countries with strong cultures of extended family support may be less vulnerable

Using these seven criteria, the team analyzed and ranked the 20 countries. The final list included seven countries which best met the combined criteria for potential demand for a financial solution that could mitigate the money death problem. In order of retiree population, these were:

1. United States
2. Germany
3. France
4. Italy
5. United Kingdom
6. Canada
7. Australia

To what extent are these annuities available to those investors in those countries? Even if analysis suggests there may be significant potential demand, to what extent does the life insurance industry offer longevity insurance to meet that demand?

The disappointing answer is that at present supply is very limited. In practice, the United States is the only country where policies are available and competition is limited even there. In conjunction with the Brandes Institute, Van den Steen, Colart, and Conjaerts researched availability, contacting life insurance companies and industry associations in 15 countries.

Only three companies confirmed that they offered this type of annuity, two in the United States, and one in Switzerland.3 (The Swiss company’s annuity rates were so low as to render their policy offering uneconomic, and they were eliminated from the review.)

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3 Since this study was conducted one other U.S. based company began to offer longevity insurance
The lack of these policies was surprising and we tried to identify the reasons. The policy itself is a simple one from an actuarial perspective, and the annuity rates offered by the two competing life companies are consistent with published mortality tables and prevailing long-term interest rates. Profit margins and commissions appear comparable to other policies offered.

Discussions with managements of the companies that do and don’t offer the policy lead us to the following possible reasons:

- Potential customers do not yet appreciate the usefulness of these policies when integrated into investment programs as suggested in this paper. The “boomer retirement” market is just starting to grow fast. Academic research has not yet spurred market action. For example, in Canada, Professor Moshe Milevsky of York University in Toronto has strongly advocated the use of longevity insurance, yet not one life insurance company in Canada has yet put such a policy on the market.

- Life insurance companies may be concerned over mis-selling or misunderstandings over the uses for longevity insurance. In an era when guarantees are sometimes proffered as an important part of a financial (or any other) product, longevity insurance can offer good value precisely because it has no guaranteed element. For example, an insurance company may be concerned that a buyer may die very soon after the purchase, leading to complaints from the heirs that all that money is gone. This may be statistically unlikely to happen to any individual, but as more policies are sold, it is statistically near certain to happen to someone.

- And most importantly in our view, longevity insurance is not interesting as a stand-alone product. To be useful to a retiree, it must be integrated with an appropriate investment program. Through this research, we seek more cooperation between investment and insurance firms in order to better meet customer needs.

For the investor considering this approach, prudence suggests diversifying the insurance risk on what could be a 50-year contract for some lucky individuals. By doing this, there also may be the possibility of further diversification by choosing different vesting ages for the two policies (e.g., 80 and 85) for additional flexibility and risk reduction. This is possible but with only two competitors, the diversification options are limited, to say the least. This puts the responsibility on the investor and advisor to do the appropriate due diligence on the quality and credit rating of the issuing life company (how unfortunate if the insurance company were to “die” before the client!).

For future availability of longevity insurance we are hopeful for Canada, where there appears to be a growing need and some existing advocacy for the approach (see comment on Professor Milevsky above). We are less hopeful in Europe. While the wealthy retiree population is growing, cultural issues and a heavier reliance on government pensions reduce the potential demand. At the beginning of 2013, a new EU directive may put an additional damper on the attractiveness of longevity insurance. The European Gender Directive insurance ruling is that from January 1, 2013, insurance companies can no longer offer different rates for men and women for the same policy. In our view it is likely that the insurance industry, in order to avoid adverse selection, will not move rates to the average of the genders, but move to the gender rate that is in their favor. For longevity insurance (or any other annuity), outside Europe men will continue to be offered better rates than women as their mortality rates are higher. In Europe, we expect that men will only be offered the lower (female) annuity rates after the directive comes into force in 2013.
PART 3: Boomers Behaving Better

Practical Solutions

Focusing on the needs of the U.S.-based “healthy and wealthy” retirees, we can now integrate Part 1’s unconventional investment approach with Part 2’s demonstration of how longevity insurance can help reduce the risk of money death. In combination we believe this can provide a superior solution for these investors, both financially and behaviorally (reducing the fear factor of outlasting their assets).

The key elements of the program are very straightforward, and bring together the concepts developed earlier in this paper:

1. Maximize the long-term return potential of the portfolio while reducing the probability that the portfolio falls to a level that it can’t generate the cash for annual spending needs (“portfolio failure”).
   a. Hold a significant proportion of assets in higher-return potential assets (e.g., equities and risk-oriented fixed income)
   b. Emphasize income-producing investments for both maximizing return and reducing downside volatility
   c. Diversify: globally and by asset class and rebalance periodically

2. Purchase longevity insurance as a fall-back strategy to lower both the financial and behavioral impact of portfolio failure. Buy a policy early enough so that the outlay does not represent more than a modest proportion of total wealth (e.g., under 10%).

To turn this from a theoretical concept to a practical solution, the Brandes Institute included in the Thesis Project of Van den Steen, Colart and Conjaerts the development of a financial model (the Brandes Retirement Simulator) to simulate how this might work for investors in practice. This simulator can help investors and their advisors tailor a suitable mix of investment and insurance to meet their needs and can illustrate the range of possible outcomes for any combination of financial and life expectancy scenarios.

For illustration, we will simulate two radically different approaches. First, we look at “conventional wisdom.” Using what is often called the retirement rule-of-thumb, we simulate an allocation that sets the retiree’s fixed income allocation equal to age, with a 5% cash cushion and the balance in equity. For example a 65-year old would have 65% fixed income, 5% cash and the balance of 30% in equity. By age 95, the rule-of-thumb would have 95% in fixed income, 5% in cash and zero in equity. For practical purposes, our simulation starts this allocation rule at age 65, and then rebalances at ages 75, 85, and 95. We believe this approach is generally in line with advice provided to most retirees. We’ll abbreviate rule-of-thumb to R-O-T (irony intended).

The second simulation takes the opposite tack, allocating substantially to the asset class expected to have the highest future return, equities. The allocation selected is 85% equity, 10% fixed income, and 5% cash. We will demonstrate the difference between the two approaches as well as the importance of managing the assets to increase the long-term total return potential.

To get started, the simulator requires basic information regarding personal details, assets, income and spending.
These include:

**Personal Details**

- Age, real age, gender, nationality, retirement age

**Assets**

- Current portfolio, asset assumptions, rebalancing strategy

**Income (pre-tax)**

- Current income, post-retirement income including pensions, current and expected future tax rates

**Spending (after tax)**

- Current spending, post-retirement spending, estimate of inflationary impact on spending

Key differences between the Brandes Retirement Simulator and other financial models include the ability to include “real age” in life expectancy probabilities, and the calculation of a longevity insurance annuity to help reduce the chance of money death and the associated fear factor.

To illustrate the output, we use three hypothetical retirees, Alex, Bobby, and Chris. Alex is a 60-year-old U.S. man planning to retire at age 65, but in good health with a real age of only 55. His annual pre-tax income is currently $200,000, and he expects to make about $100,000 a year for the five years after retirement through consulting, eventually stopping work at age 70. He can take his pension (including Social Security and other defined benefit pensions) totaling $50,000 a year at age 65, but has no other annuity income, and his expected annual spending after he retires is $100,000.

Doing the basic math, Alex will not dip materially into capital until after age 70, but after that there’s a big gap between Alex’s income and spending that needs to be met by drawing from the investment portfolio. Alex has saved diligently, and has investable assets of $1.8 million.

For Alex, as for most investors, assets may include 401k, IRA or other tax-deferred DC assets. Some of these DC assets may still be subject to tax on withdrawal, with that tax rate still uncertain. In the Brandes Retirement Simulator we suggest that investors make an adjustment to their total assets to take this into account, for example reducing all of their still-to-be-taxed DC assets by 25% in order to estimate the “investable assets” input for the simulation.

First, the model charts Alex’s income and spending (Exhibit 9). The simulation also recommends an amount of longevity insurance Alex should buy, vesting at age 85. The solid lines in Exhibit 9 represent income (green) and spending (red) projections. The dotted lines show the impact of purchasing longevity insurance now, hence the increase in spending at age 60 followed by higher income after age 85.
In this simulation we have used after-tax annual return assumptions of 7% for equity, 3.5% for fixed income and 2% for cash (using normal distribution assumptions), as well as asset class volatility and correlation assumptions that are representative of past experience. The model runs a Monte Carlo simulation of outcomes for Alex’s assets given the income and spending data in Exhibit 9. This example assumes Alex follows the R-O-T conventional allocation wisdom that rebalances fixed income higher with age.

Exhibit 10 shows the median projection, along with the (good outcome) 95th and (bad outcome) 5th percentile projections for Alex’s assets. This simulation is run without giving any consideration to purchasing longevity insurance.
This illustrates Alex’s problem if the bad outcome 5th percentile is the result: money death at age 90, where the 5th percentile line crosses the zero axis. In the median outcome, Alex’s assets stay above $2 million until age 100, and in the good outcome (95th percentile) assets are over $10 million by age 100.

The simulator can illustrate a much better strategy. Using the same investment return assumptions, we now switch Alex’s allocation away from conventional R-O-T, to an equity-tilted 85% equity, 10% fixed income and 5% cash. The model proposes Alex purchase longevity insurance at age 60 that will pay a pretax annuity of $172,000 starting at age 85.

Exhibit 11 shows the change in investment projections due to the new allocation. The median outcome near age 100 is more than double (over $5mm versus $2 million) and the good outcome 95th percentile assets are more than four times higher. However, in the bad outcome (5th percentile) Alex still experiences money death around the same age (90) as for the R-O-T allocation. Interestingly, the 5th percentile projections for both allocations by age 100 are relatively close. Both project that Alex would be close to $2 million in debt assuming spending levels don’t change (in practice, the most likely impact is that spending levels would indeed change when the assets are gone).

Exhibit 11: Hypothetical Accumulated Asset Projections Using Equity-Tilted Allocation (Alex)

Source: Brandes Institute. This is a hypothetical example intended for illustrative purposes only. It does not represent the performance of any particular investment vehicles. Actual results will vary.

So, changing the asset allocation mix leaves Alex much better off under most outcomes and only slightly worse-off in the bad outcome. But by including the longevity insurance in the projection, that bad outcome can be improved. Exhibit 12 shows only the 5th percentile outcome (in red, from Exhibit 11), and for information it also shows the probability of Alex surviving at each age (gray dotted line, right-axis scale). The green dotted line is the 5th percentile asset outcome with the longevity insurance. Assets are lower until age 85, due to the purchase of the longevity insurance reducing assets at the outset. Money death is postponed until age 95 in this scenario, compared to age 90 in the original R-O-T scenario, but subsequent to money death, there is a big difference between the two. In the original R-O-T scenario, after money death Alex has only the government pension (the solid green line in Exhibit 9), but in the “equity-tilt plus longevity insurance” scenario, there’s the additional income from the longevity insurance (dotted green line in Exhibit 9). In either scenario, Alex may have to reduce
spending to the level of income (green line). In the conventional R-O-T approach that may be a financial disaster for Alex, while with the equity-tilt and longevity insurance, it may just need some belt-tightening.

**Exhibit 12: 5th Percentile Hypothetical Projections Using Equity-Tilted Allocations and Longevity Insurance (Alex)**

Source: Brandes Institute. This is a hypothetical example intended for illustrative purposes only. It does not represent the performance of any particular investment vehicles. Actual results will vary.

Can Alex do even better and attempt to reduce the chance of money death to negligible levels? Earlier (Exhibit 6) we demonstrated the potential of an income-oriented approach to increase returns and reduce volatility. We also referred to other Brandes Institute research showing the potential for increased long-term returns through focusing on value securities versus glamour. The income and value approaches have some overlap as value investing tends to emphasize income securities as a result of the analytical process. In Exhibit 13, we assume that a value approach with an income-tilt can add 2% net of fees annualized over the long-term. This additional 2% is applied to both equity and fixed income returns (not cash) as the value process works for both asset classes. While income-oriented investing can reduce volatility (see Exhibit 8), value investing may increase it. To be on the conservative side, we have increased the volatility assumptions for stock and bond returns in Exhibit 13 by over 2% for each.

**Exhibit 13: Hypothetical Equity and Fixed Income Return Assumptions Increased by 2% Annualized, 5th Percentile Hypothetical Projections Using Equity-Tilted Allocations and Longevity Insurance (Alex)**

Source: Brandes Institute. This is a hypothetical example intended for illustrative purposes only. It does not represent the performance of any particular investment vehicles. Actual results will vary.
With these increased return assumptions, in the 5th percentile bad outcome Alex still experiences money death in his early 90s. But by including the longevity insurance recommended by the simulation (in this case, $55,000 annually from age 85), money death is postponed until several years after Alex’s 100th birthday.

Exhibit 14: Hypothetical Asset Projections ($mm) for Alex at Age 100

- 5th percentile projection for “equity-tilt higher returns” is actually $118mm, off the scale for this chart

Source: Brandes Institute. This is a hypothetical example intended for illustrative purposes only. It does not represent the performance of any particular investment vehicles. Actual results will vary.

The key comparison is summed up in Exhibit 14. Comparing the conventional R-O-T allocation to an 85% equity-tilted allocation, the simulator’s Monte Carlo median and 95th percentile “good outcome” projections show much higher assets for the equity-tilted allocation. The “bad outcome” 5th percentile projections are similar for the two allocations. If the return and volatility assumptions for stocks and bonds on the equity-tilted allocation are raised by 2% to simulate successful active management, then the good outcomes are even better, but the bad outcome is generally no worse.

Exhibit 15 shows that putting less than 10% of Alex’s current investment assets into longevity insurance would delay the age of “money death” for the bad outcome by several years, and provide additional income even after Alex’s assets are depleted.

Exhibit 15: 5th Percentile Hypothetical Outcome: Projected Age of Money Death

Source: Brandes Institute. This is a hypothetical example intended for illustrative purposes only. It does not represent the performance of any particular investment vehicles. Actual results will vary.
Based on these projections, Alex would seem to have a simple choice. By rejecting a conventional R-O-T allocation in favor of one with a higher return orientation plus some longevity insurance, Alex could potentially be

- better off as he could have substantially more assets in old age in almost all projected outcomes (other than the 5th percentile bad outcome or worse);
- and better off in those few projected bad outcomes where he runs out of assets regardless of his allocation because he will have additional annuity income after age 85, well before money death is expected to occur.

So we contend that for Alex, R-O-T is WRONG.

But is this the right solution for everyone?

The answer is no, but for two different reasons.

First, for those who have sufficient assets to meet all their spending needs, and hence a negligible prospect of money death, there is no need to build longevity insurance into the mix. Why insure against an event that won’t happen?

Consider Bobby, who has double the assets of Alex, but otherwise the same income and spending profile. Exhibit 16 shows Bobby’s asset projection using the equity-tilted allocation. Even at the 5th percentile outcome, Bobby avoids money death. At the wealthier end of the scale, the “Bobbies” among the boomers may not need to buy longevity insurance (although some may still do so to invest in their own longevity if they are particularly healthy). Logically, most “Bobbies” do tend more toward equity-tilted allocations in order to secure long-term returns, as they don’t have to fear money death.

Exhibit 16: Hypothetical Asset Projections Using Equity-Tilted Allocations (Bobby)

Source: Brandes Institute. This is a hypothetical example intended for illustrative purposes only. It does not represent the performance of any particular investment vehicles. Actual results will vary.

Second, consider Chris, who has half the assets of Alex, but the same income and spending projection. Unfortunately for Chris, the numbers don’t stack up. Whatever Chris’ allocation approach, money death is likely
at some age between late 70s and early 90s. Exhibit 17 uses the equity-tilted allocation and Exhibit 18 uses the R-O-T. Chris either has to hope for a 95th percentile outcome, or more realistically, cut planned spending in retirement. Longevity insurance could help at advanced age, but there’s a good chance that Chris runs out of assets well before the vesting age, and the premium paid for the longevity insurance increases that chance.

Exhibit 17: Hypothetical Asset Projections Using Equity-Tilted Allocations (Chris)

![Graph](image1)

Source: Brandes Institute. This is a hypothetical example intended for illustrative purposes only. It does not represent the performance of any particular investment vehicles. Actual results will vary.

Exhibit 18: Hypothetical Asset Projections Using R-O-T Allocations (Chris)

![Graph](image2)

Source: Brandes Institute. This is a hypothetical example intended for illustrative purposes only. It does not represent the performance of any particular investment vehicles. Actual results will vary.

Clearly most investors would rather be a Bobby – with no problem, rather than a Chris – with no solution.
However, many may be similar to Alex, who has a problem but also can find a better solution than conventional wisdom suggests. Prior to running a full simulation, there is a relatively simple test to establish whether this approach will help the investor.

**Money-Life Ratio**

Are you an Alex? Continuing the theme of avoiding money death, we introduce the money-life ratio. This ratio takes investable assets and divides them by the difference between planned spending and income in the year after retirement. Essentially, this is a measure of how quickly the investment portfolio will suffer drawdowns and eventual money death due to excessive spending or inadequate income (or both). The lower the money-life ratio, the higher is the probability of an early money death. In the examples above, Alex has a money-life ratio of 26, Bobby’s is 33, and Chris has a money-life ratio of just 8.

After extensive testing of the various simulations, we calibrate the interpretation of the money-life ratio as follows:

- Over 30: you are a “Bobby,” and the chance of money death is negligible
- 18-30: you are an “Alex,” and the money death problem should be soluble
- Under 18: you are a “Chris” and may need to reduce planned spending in retirement

The money-life ratio is only a rough guide and is not intended as a substitute for the simulation, but as a quick indicator of whether the simulation may be helpful or (as a “Chris”) the solution is not in investment strategy but in careful budgeting.

**Practical Advice on Using the Brandes Retirement Simulator**

The many input variables for the Brandes Retirement Simulator can be grouped into two broad categories: personalized inputs and future assumptions.

Personalized inputs such as assets, income, spending, age and gender allow the user to customize the model in as much (or as little) detail as they’d like. Generally for any individual user, this information will be treated as “locked in;” in other words, even though the simulator may be run many times using different future assumptions, these personalized inputs will be left unchanged.

Note however, that the personalized inputs on expected date of retirement and expected spending after retirement can have a significant impact on the model’s projections.

It may seem obvious that working (and hence accumulating extra assets) for a few more years and then spending a bit less each year in retirement will help avoid depleting assets in the long-term. What is not obvious is how big a difference this can make.

As an example, take Chris (Exhibit 18) who has limited assets. Even using the fixed-income orientation of the R-O-T Chris faces money death at age 87 on the median projection. If Chris were to work an additional five years before retiring and taking Social Security, and cut post-retirement spending by 10%, then the median asset projection at age 100 moves up by almost $3mm (from -$2mm to +$0.7mm) with money death deferred by almost two decades to age 105 (and Chris has only a 1% chance of making it to that age).
In a broader context, Professor Richard Thaler, a noted behavioral expert at the University of Chicago recently observed that almost half of retirees take their Social Security benefits as soon as they are eligible (46% take benefits at age 62). It should be no surprise to readers of this research that those who consider themselves in above average health would be much better off by delaying the start of their (increased) benefits until age 70. But only 5% delay past the “normal retirement age” of 66 according to Thaler.

Future assumptions include varying asset allocation and rebalancing strategies, which have been the focus of the illustrations used in this research paper. They also include assumptions on returns on equity, fixed income and cash, along with the volatility and correlation of these returns. Users should note that the simulated results are quite sensitive to the return assumptions. For example, increasing returns by 1% annually over a 40-year period will have a significant impact, and this should not come as a surprise.

Volatility assumptions can also have an impact, particularly on the edges of the distribution, the 5th and 95th percentile outcomes (correlation assumption changes tend to have less of an impact than volatility changes). Reducing volatility assumptions can narrow the gap between the extreme outcomes significantly. With our focus on whether the 5th percentile outcome results in money death, lower volatility assumptions (particularly for equities) lower the chance of early money death. The default values for volatility and correlations in the Brandes Retirement Simulator are set to be representative of long-term historical experience, but users are encouraged to input values that fit their own expectations.

Two “Big Questions” Need to be Addressed

While developing this research we discussed these concepts with plan sponsors, financial advisors and clients. Two questions in particular were recurrent themes.

1. What about the impact of inflation?

2. What about the impact on equity-tilted retiree portfolios if a major bear market (like 2008–9) cuts stock prices? A retiree dependent on income from that portfolio may not have time to rebuild their assets

Inflation

When dealing with long time horizons, inflation clearly has to be taken into account. In the broad context of allocating equity and fixed income portfolios, higher inflation rates generally favor equity over fixed income. Although not the subject of this research, history suggests that high and volatile inflation rates can be damaging to both equity and fixed income returns.

From a practical perspective, the Brandes Retirement Simulator allows the user to customize inflation assumptions with specific inflation rates for income, pensions and annuities, spending (pre and post retirement), and healthcare spending at advanced ages.

The longevity insurance modeled in the examples in this paper assume a fixed annuity after reaching age 85. Inflation will reduce the spending power of that annuity in present day dollars. For example, an annuity of $100,000 in 25 years’ time would be worth only $48,000 in today’s dollars at 3% average inflation. Stretch that to 40 years, and it would be worth $31,000. However, we note that spending inflation is an input to the Brandes Retirement Simulator, so the model can take inflation expectations fully into account in income, spending, and asset projections.

Investors expecting a high future inflation rate will find the longevity insurance safety-net less useful. They should however be even more skeptical of the R-O-T allocation approach that would move them ever-further into fixed income in a high inflationary environment.

**Bear Markets**

The focus of this research is ideas for investors within 10 years of retirement and who have post-retirement life expectancies of perhaps 30 years or more. These are long-term investors whether or not they currently think that way. The previously described 10/30/60 retirement rule suggests that 60% of DC-type retirement distributions come from investment earnings after retirement. Our contention is that by reducing the probability and the fear of money death, these investors have a better chance of sticking to an approach that can increase their long-term retirement wealth. We believe that the key to dealing with severe bear markets in this approach is rebalancing. During periods when equity markets are declining in absolute terms or relative to bonds, we believe that boomer retirees are best served by maintaining a long-term perspective and periodically rebalancing back to their chosen equity allocation targets.

As a practical concern, we note that herding is a well-known behavioral effect, particularly the temptation to panic and sell-out when markets appear to be collapsing. If investors and their consultants and advisors do not believe they can resist this strong behavioral influence, then they may well be better off considering an immediate annuity. This eliminates the possibility that they will “self-destruct” their long-term investment strategy, but with the trade-off that their retirement lifestyle will likely be much more financially restricted than under our alternative approach.

**Conclusions**

After a lengthy and detailed research paper, our conclusions are brief and straightforward.

Our suggested considerations for healthy and wealthy boomers concerned about money death fits into three categories. The first two are well-documented and advocated by the financial community:

1. The obvious: work longer and control spending in retirement.
2. The not-quite-so-obvious: defer starting pensions and Social Security to a later age.

The third is our contribution to the “great retirement debate:”

3. The contrarian: maintain high-return goals while reducing the financial and behavioral impact of money death.

For the generation of 60 million baby boomers in the United States who are within 10 years either side of retirement age, conventional wisdom tells them to move into less volatile and potentially lower-return assets even though risk-free rates are at 50-year lows. For many of the affluent and healthy in this boomer generation, we believe this advice is WRONG. They should be investing for the long term, not locking themselves into today’s low fixed rates. By using higher-return potential equity and fixed income assets they would have the potential to increase their portfolios significantly over what may be a lengthy retirement. At the same time a modest investment in longevity insurance can help reduce not only the probability of running out of money in retirement, but importantly reduce the fear of that event and the resulting negative behavioral impact.

For the healthy and wealthy boomers in other countries, we would offer the same ideas but at least for now it seems that longevity insurance is not available to complement the investment approach. We hope that this research provides some stimulus to action in that context.
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**MSCI World Index:** The MSCI World Index with net dividends is an unmanaged, free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets. The MSCI World Index consists of 24 developed market country indices. This index includes dividends and distributions net of withholding taxes, but does not reflect fees, brokerage commissions, or other expenses of investing.

**Barclays Capital U.S. Aggregate Corporate-Long Bond BAA:** The Barclays Capital U.S. Aggregate Corporate Bond-Long BAA is a subset of the Barclays Capital U.S. Aggregate Bond Index. Representing publicly issued U.S. corporate and specified foreign debentures and secured notes that meet the specified maturity, liquidity, and quality requirements. In this case, long maturities and BAA ratings. To qualify, bonds must be SEC-registered.

**Barclays Capital U.S. Aggregate Bond Index:** The Barclays Capital U.S. Aggregate Bond Index is an unmanaged index consisting of U.S. dollar-denominated, fixed-rate, taxable bonds. The U.S. Aggregate Bond Index is a broad-based benchmark that measures the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market, including Treasuries, government-related and corporate securities, MBS (agency fixed-rate and hybrid ARM passthroughs), ABS, and CMBS. The U.S. Aggregate rolls up into other Barclays Capital flagship indices such as the multi-currency Global Aggregate Index and the U.S. Universal Index, which includes high yield and emerging markets debt. The U.S. Aggregate Index was created in 1986, with index history backfilled to January 1, 1976. The index is a total return index which reflects the price changes and interest of each bond in the index.

Withdrawals from tax-deferred retirement plans, such as traditional 401(k) plans or IRAs, are typically taxed as ordinary income and, if taken prior to age 59-1/2, may be subject to an additional 10 percent federal income tax penalty. To qualify for the tax-free and penalty-free withdrawal of earnings (and assets converted to a Roth), Roth 401(k) and IRA distributions must meet the five-year holding requirement and take place after age 59-1/2 or as a result of the owner’s death, disability, or a qualifying first-time home purchase ($10,000 lifetime maximum).

Annuities have fees and expenses, and they carry a certain level of risk. Any guarantees are contingent on the claims-paying ability of the issuing company. Annuities typically have surrender charges that are assessed during the early years of the contract if the contract owner surrenders the annuity. In addition, if the contract is surrendered before age 59-1/2, you may be subject to a 10 percent federal income tax penalty. The earnings portion of annuity withdrawals is typically subject to ordinary income taxes.

Rebalancing is a taxable event that may result in a taxable gain or loss, thus rebalancing in non-tax-deferred accounts may result in a current tax liability, and are potentially subject to investment fees and expenses.

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