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Creating Sustainable Retirement Income in 401(k) Plans Using Managed Risk Funds

A WHITE PAPER BY
FRED REISH AND BRUCE ASHTON

Executive Summary

401(k) participants are faced with a serious risk: will their retirement account (coupled with Social Security and personal savings) provide them with adequate income to last through retirement? One key to addressing this risk is to accumulate adequate retirement savings in the plan, but to do that, 401(k) participants should have access to equity investments which generally have higher returns than fixed income securities. However, exposure to higher yields typically includes exposure to higher risk, which creates a dilemma for plan committees seeking ways to help their participants accumulate adequate sustainable retirement income. (We use the term “plan committee” to refer to the fiduciaries responsible for management of the plan and its investments, since this role is often performed by a committee or officers of the company.)

One approach to resolving this dilemma is to offer managed risk funds as a designated investment alternative. Such funds are designed to permit participants to maintain exposure to equity investments while also stabilizing volatility and reducing the potentially devastating effects of sequence-of-returns risk.

While plans are not required to address these issues, if a plan committee elects to do so, it must prudently select and monitor the investment. If it chooses to offer managed risk funds, the committee should take into account both the typical investment criteria used in selecting funds for the plan and the experience of the fund adviser in managing such funds.

Milliman, Inc., through its subsidiary Milliman Financial Risk Management LLC, has offered managed risk strategies to financial institutions for a number of years. Recently, it introduced these strategies to the 401(k) plan market through its Even Keel Managed Risk Funds. Because of its extensive experience in providing managed risk solutions, Milliman’s Even Keel Managed Risk Funds may help plan committees offer a solution to their participants to the retirement income risk. The Funds do this by taking advantage of the equity markets, while seeking to provide a degree of downside protection during large market declines.

SEPTEMBER 2014

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The law and Drinker Biddle’s analysis contained in this white paper are general in nature and do not constitute a legal opinion or legal advice that may be relied on by third parties. Readers should consult their own legal counsel for information on how these issues apply to their individual circumstances. Further, the law and analysis in this white paper are current as of September 2014. Changes may have occurred in the law since this paper was drafted. As a result, readers may want to consult with their legal advisors to determine if there have been any relevant developments since then.

The financial analyses and description of the Even Keel Managed Risk Funds included in the Appendices were prepared by or based on materials prepared by Milliman, Inc. Since they are not financial consultants, the authors have relied on those materials in preparing in this White Paper.

Discussion

Introduction

Approximately 88 million American workers are relying on their 401(k) accounts to provide them with income in retirement.¹ As of March 2014, this group accounted for nearly 64% of all American workers; their 401(k) accounts collectively hold over \$4.5 trillion in assets. Despite an overwhelmingly favorable impression of 401(k) plans, many Americans struggle to sort through the challenges associated with how to invest their contributions, how much replacement income they will need, how to spend their account balance after retirement and how to invest for growth during retirement, while maintaining a comfortable level of risk at the same time. Ultimately, they seek to address these challenges in an effort to alleviate one of their biggest fears – running out of money in retirement.

It is a truism to say that participants need to invest in assets that outpace inflation. This generally means investing in equities, based on a fundamental investment precept: equity exposure is critical to enhanced returns and the potential for portfolio growth but also subjects the account to greater risk. With equity-heavy investments, participants are especially susceptible to sequence-of-returns risk, that is, the risk of incurring large losses shortly before or after retirement, when they are less able to recoup those losses through additional contributions or investment gains. If participants need to withdraw money while the portfolio value has significantly declined, the losses can dramatically reduce future retirement income, and deplete the overall portfolio value years too soon.

Given the risks, plans and service providers are seeking ways to help participants accumulate adequate retirement benefits that will provide sustainable retirement income. (By that, we mean income sufficient to maintain a retiree's desired standard of living during retirement.) An approach that may be viewed as an alternative to insurance guarantee

products – traditional annuities and guaranteed minimum withdrawal benefit features – is to offer managed risk funds as an investment option. Managed risk funds are designed to facilitate exposure to the potentially enhanced returns of equity investments, while also reducing the exposure to downside risk and minimizing the sequence of returns risk (discussed later in this paper).

Under the Employee Retirement Income Security Act of 1974 (ERISA), sponsors of 401(k) plans are not required to address the risk that their participants will fail to achieve sustainable retirement income. They are not obligated to offer managed risk funds. If they do offer such funds, however, they must prudently select and monitor them (as they would with any other investment option or sustainable retirement income solution included in a plan).

This paper discusses the risks impacting retirees, available solutions that seek to address those risks, and legal issues involved in choosing a potential solution. Also included is a detailed discussion of the way managed risk funds seek to create sustainable retirement income for plan participants. Additionally, we will examine the risk management approach of Milliman Financial Risk Management LLC (“Milliman”), a subsidiary of Milliman, Inc. This examination includes a review of the Even Keel Managed Risk Funds, a family of mutual funds developed by Milliman, which incorporate the firm's institutional risk management strategy at the plan participant level.

Retiree Risks

The biggest challenge facing retirees who must rely on their 401(k) plan savings is saving enough money for retirement. “Saving enough” is an elusive concept tied to how much replacement income the retiree feels is adequate, how long the retiree (and possibly his or her spouse) will need the money to last and what happens in the economy and securities markets both before and after the participant

¹ American Benefits Council. “401(k) Fast Facts.” June 2013. <http://www.americanbenefitscouncil.org>

retires. On the first issue – how much replacement income is adequate – many observers use 75-80% of final pay as a rule of thumb for the amount of annual income the retiree will need.

The risks affecting the retirement income equation can be summarized as follows:

- Longevity risk: how long a retiree will need the income;
- Withdrawal rate risk: how much the retiree withdraws from the investments in his account to pay his monthly bills in retirement;
- Inflation risk, which impacts the spending power of a retiree's savings;
- Cognitive risk: the probability that a retiree's decision-making abilities will erode as he ages; and
- Sequence-of-returns risk: the order in which investment gains or losses occur immediately before or after retirement.

While it is important to manage all these risks, the sequence-of-returns problem may involve the greatest risk. Fortunately, it may also be the most easily managed.

To understand the impact of the sequence-of-returns risk, consider the annual returns of the S&P 500 Index (a common benchmark used to measure the performance of an equity-heavy portfolio) during the 14 year period from 2000-2013, as shown in Appendix B. The graph illustrates that if a participant had retired during the early 2000s, his account would have sustained enormous losses. Withdrawals to pay his living expenses during the down market are locked in, with devastating results to his retirement income. It is unlikely that the retiree's money would last for the rest of his life. We discuss this issue in more detail in Appendix A, Discussion of Legal Issues.

In the next subsection, we identify various solutions designed to address these risks, including managed risk funds.

Available Solutions

The 401(k) marketplace has begun to focus on the sustainable retirement income dilemma. Some of the more commonly preferred solutions include products that provide an insurance company guarantee of income for life, such as traditional annuities or guaranteed withdrawal benefit (GWB) features wrapped around a specified (often conservatively managed) investment fund. These products address many of the retiree risks, especially the longevity risk; but some, like the GWB, have costs in addition to investment expenses to pay for the guarantee. Other vehicles include managed payout services and mutual funds, which provide a defined payout amount, but no guarantee that the funds will last.

Another solution to creating sustainable retirement income involves the use of managed risk funds. These funds take advantage of widely-used institutional risk management strategies that have long been employed by financial institutions in an effort to stabilize volatility and preserve their financial health. Managed risk funds were designed to reduce adverse effects when the market is declining, and to facilitate investment in growth assets on a sustainable basis to take advantage of a rising market. These strategies help to mitigate the sequence of returns and inflation risks, and if held for the long term, may address the longevity risk as well, since the strategies tend to maximize the exposure to growth assets during an increasing market cycle. Managed risk funds offer the possibility of providing a retiree with a relatively stable source of income over the long term, in both up and down investment cycles. In addition, they carry no added costs over and above investment expenses. The managed risk concept is discussed in more detail in Appendix B, Examination of Investment Issues.

In the next subsection, we summarize the issues that 401(k) plan committees must address in selecting managed risk funds or other retirement income solutions for their plans.

ERISA Issues

All 401(k) plan committees are obligated to act prudently in the selection and monitoring of investments and service providers for the plan. Selecting a sustainable retirement income solution does not present fiduciary issues that are fundamentally different from selecting any other investment option for the plan. For all investment decisions, the plan committee needs to apply generally accepted investment theories (like modern portfolio theory) or consult an advisor who can assist with that process. The committee should evaluate a manager's qualifications and experience, the track record of the product, and whether the costs are reasonable. For sustainable retirement income solutions, the committee or its consultant may need to gather and analyze additional information.

For example, in the case of an insured product, such as an annuity or GWB, the plan committee must assess information that would enable it to conclude that, at the time of selection, the insurance company is financially able to make all future guaranteed payments. In the case of a managed payout fund, the plan sponsor should consider how payouts are structured and how the payments or the payout period are affected in the event of market declines.

Selection of a managed risk fund may be a simpler process. The committee would consider the same quantitative factors as it would for the other diversified investment vehicles, such as performance, cost and volatility, and qualitative factors, such as the qualifications of the fund adviser, adviser tenure, experience in applying risk management strategies and the like. Assuming the managed risk fund otherwise satisfies the selection criteria in a plan's investment policy statement, its inclusion in a plan's designated investment alternatives could assist the committee in two ways:

- It may help provide a less volatile alternative to other investments. By dampening investment risk, it may help participants accumulate a larger account balance during their working years;
- It offers a potential retirement income solution, to the extent the committee determines that to be important for the plan workforce.

Managed risk funds may offer additional advantages over other forms of retirement income alternatives. Because they are mutual funds, like other investment alternatives offered in most plans, they may be easier for participants to understand. The funds may be rolled over to or purchased in an IRA if a participant changes jobs or retires. Finally, they do not require intensive systems integration with plan recordkeeping systems that is sometimes problematic with other products.

Appendix C includes a discussion of the Even Keel Managed Risk Funds, managed by Milliman Financial Risk Management LLC, which employ the Milliman Managed Risk Strategy™. This strategy is an investment technique that seeks to stabilize portfolio volatility around a target level, capture growth in rising markets, and reduce downside risk during severe, sustained market declines. The Milliman Managed Risk Strategy™ is currently applied to over 50 institutional and retail investment products. Milliman has provided this type of risk management to institutional investors for more than 16 years.

Conclusion

In the current environment of participant funded and directed plans, many participants face the risk of running out of money during retirement. They must deal with multiple risks. Have they saved enough? Will they live longer than they expected? Will they withdraw their money too fast or will they be subject to economic and investment factors over which they have no control? The last risk factor calls

for the application of a general investment precept: to generate a sustainable retirement income, participants need to invest in equities (before and after retirement) that can take advantage of higher returns. However, this also means exposure to greater levels of risk. If this risk materializes in market declines occurring shortly before or after a participant retires, the damage to his portfolio may be irreversible.

The investment risk factor, including the sequence of returns risk, causes a problem for plan committees that want to help their participants accumulate sustainable retirement income by providing in-plan investments. Even though not required to address this problem, when a plan committee does so, it must act prudently in selecting and monitoring the solution.

Managed risk funds are designed to permit participants to maintain or potentially increase exposure to equity investments, due to the risk management strategy's ability to stabilize volatility. This ultimately helps retirees avoid the negative impact of the sequence-of-returns effect. With its extensive experience in providing managed risk solutions, Milliman's Even Keel Managed Risk Funds may help plan committees offer a solution to their participants that seeks to take advantage of the equity markets, while stabilizing volatility and reducing downside risk through broad based declines in the market.

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Appendix A: Examination of Legal Issues

In this Appendix, we address the risks facing retirees in greater detail, and then discuss the fiduciary issues surrounding a sustainable retirement income solution.

Retiree Risks

Studies have shown that most American workers are not saving enough to cover their anticipated retirement income needs.² Because they are living longer and incurring higher healthcare costs, they need more money for retirement, and it needs to last longer.³ Many retirees fail to recognize that even though they have stopped working, their money must not. In other words, just as their 401(k) accounts needed to be prudently invested while they were working, they must continue to invest wisely after they retire (whether their money stays in the 401(k) plan or is rolled to an IRA). Because it may need to last for as much as 30 years, it should contain a reasonable exposure to equity investments in an effort to take advantage of the higher returns those investments are able to achieve. However, higher equity exposure also means greater exposure to risk, which can be especially harmful in the years immediately before or after retirement. This risk/reward trade-off is the fulcrum of retirement income planning.

Aside from the investment concerns, a number of other factors contribute to the risk that retirees will outlive their assets.⁴ Here are the principal issues:

- *The replacement income issue:* Many participants fail to translate their lump sum account balance in their 401(k) plan to a stream of monthly payments. This is understandable, since the account balance is often the largest accumulation of liquid funds that the employee will see in his lifetime and may be viewed as “wealth” rather than an income source. Participants may also fail to recognize that the amount of replacement income they will actually need to maintain the same standard of living in retirement is between 75% and 85% of their final pay.⁵ These two shortcomings then lead to a third, which is the failure to understand how much they must defer to achieve the kind of monthly income

needed for retirement.

- *Longevity:* Statistics on life expectancy indicate a 50% probability that, for a married couple aged 65, at least one spouse will be alive 25 years later and a 25% probability that one will be alive at least 30 years after retirement.⁶ In application, suppose a couple retires at age 65 after working for 40 years. They will need to plan on replacing their income for another 30 years to be reasonably confident they will not outlive their savings.
- *Withdrawal rates:* Few participants understand how much they can withdraw without running the significant risk of outliving their funds, or the need to exercise discipline in spending their accumulated savings.⁷ Studies have shown that a withdrawal rate of about 4% of the starting balance, inflation adjusted, has a 90% probability of lasting 30 years.⁸
- *Inflation risk.* This has not been a significant factor in recent years, but it may become a bigger risk in the future. Even fairly small increases in the cost of living erode spending power. This will require that retirees withdraw a larger portion of their retirement savings each month to pay for the same goods and services. And this means that retirees will need to reduce their standard of living or risk running out of money sooner. While some programs, like Social Security and some government defined benefit pension plans, have built-in inflation protection, 401(k) plans or IRAs (and most private sector defined benefit plans) offer no such protection.

As a result, retirees are ill-advised to invest their retirement savings too conservatively if they hope to combat inflation risk. This generally means keeping a significant portion of their money invested in equities in an effort to seek the

6 Reish, Fred, Ashton, Bruce and Byrnes, Pat, “The Problem with Living Too Long,” Institutional Retirement Income Council (2010), <http://www.ircouncil.org/docs/The%20Problem%20With%20Living%20Too%20Long.pdf>. . . For more recent information, see Society of Actuaries, Exposure Draft, RP-2014 Mortality Tables, February 2014.

7 One recent study showed that more than 33% of those interviewed had no idea how much they could safely withdraw and roughly 25% expected to be able to withdraw more than 10% of their retirement savings each year. See, Lee Barney, “American All Over the Map on Retirement Drawdown Rates,” Money Management Executive (October 13, 2011).

8 William P. Bengen, “Determining Withdrawal Rates Using Historical Data,” Journal of Financial Planning, October 1994, pages 171-180. . . Some more recent studies have suggest that a 3% withdrawal rate is more appropriate in the investment environment of the first decades of the twenty-first century. . .

2 See, for example, “Workforce Management and Retirement in a 401(k) World,” Watson Wyatt Insider (September 11/ 2007).

3 See, Cantore, Tara, “MetLife Finds Too Many Pre-Retirees with Faulty Math,” Plan Adviser (October 2011)

4 See Allianz RFI Response, at page 4.

5 See, for example, Aon Consulting, “Aon Consulting/Georgia State 2008 University Replacement Ratio Study.”

higher returns generally available in equity investments, thus offsetting the effects of inflation. This is due to the fact that equities generally share a positive correlation to inflation over time. Managed risk funds are designed to reduce the inherent risk, in doing so, may also provide substantial protection against inflation.

- *Cognitive risk:* As individuals age, they often become less able to make effective financial decisions. (Statistically, older retirees are more likely to suffer cognitive disorders).⁹ Recent studies have shown that people in their 80s and older experience some degree of mental deterioration that affects their ability to make sound decisions, such as those involving investments and distributions.¹⁰
- *Investment or sequence-of-returns risk:* This may be the most significant risk facing retirees, as this type of risk has the potential to significantly alter the entire course of an individual's retirement savings and overall standard of living. In light of this, implementing an appropriate investment plan that seeks to address this risk may mean the difference between having adequate funds and running out of money.

This issue has received considerable attention because of the volatile securities markets of the early and late 2000s. The risk arises when a retiree takes withdrawals – which are necessary to pay his living expenses – from a portfolio that is depreciating in value. The withdrawals have the effect of locking in losses caused by market

⁹ See Allianz of America, *Behavioral Finance and the Post-Retirement Crisis (A Response to the Department of the Treasury/Department of Labor Request for Information Regarding Lifetime Income Options for Participants and Beneficiaries in Retirement Plans)*, prepared by Prof. Shlomo Benartzi, UCLA, at page 9 (April 29, 2010) (the "Allianz RFI Response"); see also BMO Retirement Institute, *Financial decision-making: Who will manage your money when you can't?*, July 2011, which reached similar conclusions based on studies of the Canadian population.

¹⁰ See, David Laibson, "Cognitive Impairment: Precipitous Declines in Cognition Can Set the Stage for Poor Decisions About Retirement Finances," which appears in the Allianz RFI Response, <http://www.dol.gov/ebsa/pdf/1210-AB33-617.pdf>. . Professor Laibson's research showed a significant decrease in "analytic cognitive functioning" as people age and that older adults make financial mistakes. In effect, older people are less able to make cogent financial decisions, to analyze financial data and properly consider risks, which suggests that they are less able to make sound decisions about their financial security once they reach their 80s...a point when they may live another 10 or more years. . .

downturns, which means that the amount of retirement savings is reduced and the ability to recoup the losses is diminished.

To understand the impact of this risk, consider the following data showing the impact of market volatility on investments. As shown in the chart in Appendix B, the annual returns of the S&P 500 Index (a common benchmark used to measure the performance of an equity-heavy portfolio) during that 14 year period from 2000-2013, reflect gains, often double digit, over 70% of the time (10 out of the 14 years), and losses in only four years (2000-2002 and 2008). The gains range from 2.1% to 32.4%, while the losses range from -9.1% to -37%, resulting in an average annual return of 5.55%. An investor who invested in a portfolio in 2000 and continued to hold it through 2013 would have had a compound annualized growth rate of only 3.6%. Volatility alone reduces the return by almost 2%.

Now consider the impact of these gains and losses on a retiree (based on investments that track the Index). If he retired in 2000 and received no new contributions to his account thereafter, his account would have lost over 40% by 2003. Though the market rose over 60% in the next five years, the retiree would not have recouped those early losses even if he had not taken any withdrawals. When we factor in withdrawals to pay the retiree's living expenses (at the rate of 5% per year, for example), the losses from the early down-market years would be fully realized, and recoupment of those losses would be impossible. The 37% loss in 2008 would have been even more devastating.

Conversely, if the individual had retired at the beginning of 2003 (or within the next several years, during the rising market), the 2008 loss, while hardly pleasant, would not have had the same catastrophic impact. Even with 5% per year withdrawals, the account of the individual who retired in 2003 would have grown by roughly 35%, so that the loss in 2008 would have left the retiree with roughly the same amount he had when he retired.

If the participant who retired in 2000 had invested a significant portion of his account invested in managed risk funds, the results would have been far less severe. This is discussed in “Examination of Investment Issues” in Appendix B.

Fiduciary Principles

The following discussion addresses the issues faced by plan committees in selecting retirement income solutions, such as managed risk funds. We begin by identifying the fiduciary principles that apply to a committee’s decision.

The fundamental obligation of ERISA fiduciaries is to act “for the exclusive purpose” of providing benefits and defraying reasonable expenses of administering the plan.¹¹ This is known as the exclusive purpose rule. How well the fiduciaries fulfill this requirement is judged in accordance with the “prudent man rule”.¹² Specifically, a fiduciary is required to discharge his duties

“...with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent man acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims ...”¹³

The standard is not a test of what an average person, or even a reasonable person, would do. Rather, as the prudent man rule says, a fiduciary’s conduct is measured by what would be done by a hypothetical prudent person who is “familiar with such matters.” This places an obligation on plan committees to understanding how to invest funds for retirement.

The DOL has indicated that fiduciaries satisfy the prudent man standard if they give appropriate consideration to the facts and circumstances that they know or should know are relevant to the investment and act accordingly

in making their decision.¹⁴ The first part of the duty entails a proper investigation of the issues, and results in the fiduciaries being properly informed.¹⁵ For investments, this means gathering data about items such as performance, cost, consistency of investment management, how well the fund fits within a plan’s investment policy and the like. For managed risk funds, this means obtaining information about the experience and track record of the manager in avoiding significant losses in down markets and taking advantage of gains in up markets. The investigation enables fiduciaries to satisfy the second part of the duty, to make a prudent decision that is reasonably connected to the relevant information obtained through the investigation.¹⁶ This is often called making an “informed and reasoned decision.”

The assessment of whether a fiduciary is acting prudently is focused less on the outcome and more on the process used by the fiduciary in making decisions. As one court explained, the issue is whether the fiduciaries “at the time they engaged in the challenged transaction, employed the appropriate methods to investigate the merits” of the transaction.¹⁷

In its regulation on selecting investments, the DOL clarifies that in the investigation process the plan committee is required to gather information it *should* know is relevant to the decision.¹⁸ This means the committee has two tasks: it must assemble and assess relevant information; and, regardless of the committee members’ level of knowledge or investment sophistication, the plan committee must assess the information that a knowledgeable investor would consider relevant, or material, to the decision. The latter often entails engaging a consultant to assist the plan sponsor in gathering and analyzing the data.

14 29 C.F.R. §2550.404.a-1(b)(1).

15 See, generally, *Riley v. Murdock*, 890 F.Supp. 444, 458 (E.D.N.C. 1995).

16 See, generally, *Fink v. National Savings and Trust Company*, 772 F.2d 951, 962 (D.C. Cir. 1984).

17 *Katsaros v. Cody*, 744 F.2d 270, 279 (2d Cir.1984); cert. denied sub nom, *Cody v. Donovan*, 469 U.S. 1072, 105 S.Ct. 565, 83 L.Ed.2d 506 (1984).

18 ERISA Regulation Section 2550.404a-1(b).

11 ERISA §404(a)(1)(A).

12 ERISA §404(a)(1)(B)

13 *Id.* . . . Emphasis added.

It is important to keep in mind that ERISA does not require the plan to provide a retirement income solution. Also there are no requirements on the type of solution a plan committee can choose, whether it be an insured product, like an annuity or GWB, a managed payout fund, a managed risk fund or some other option. If the committee chooses to offer such a product, however, the prudent man rule dictates that the plan committee must make a prudent choice of the specific product to be offered to the participants.

What this requires for the different alternatives will vary. For example, for an insured solution that offers a guarantee of payments many years into the future, the plan sponsor will need to consider the viability of the insurance company that provides the guarantee. As indicated in a DOL regulation, the plan committee must be able to conclude that, at the time of selection, the provider “is financially able to make all future payments” under its guarantee.¹⁹

In contrast, the diligence required to select a managed risk fund may be less data intensive though no less rigorous. That is, the plan committee will need to gather and assess all of the information it would normally obtain on any investment alternative, including information about performance, cost and the like, as well as information about the fund manager. For a managed risk fund, the

latter will include information about the manager’s experience and track record in carrying out a risk management strategy. That information might include, for example, how long the manager has provided managed risk strategies, the types of clients and assets under management for which it has provided such a strategy and information during past investment cycles on how well the strategy helped to reduce losses while taking advantage of gains in rising markets. In essence, the inquiry would consider whether the manager offering the managed risk fund has demonstrated an ability to carry out its strategies effectively.

The important factor to keep in mind is that the assessment process is fundamentally the same for the managed risk money manager as for other fund advisers.

Appendix B discusses the investment considerations relevant to the managed risk strategy and how they help provide participants a sustainable retirement income. This is followed by Appendix C, which contains a description of the Even Keel Managed Risk Funds, offered by Milliman Financial Risk Management LLC.

¹⁹ ERISA Regulation Section 2550.404a-4(b)(1) and (4). . . The regulation relates only to the selection of an annuity provider in a defined contribution plan, but the precepts in the rule may be applicable to the selection of a GWB product by analogy.

Appendix B: Examination of Investment Issues

The following discussion is based on materials prepared by Milliman Financial Risk Management LLC, and relies on its expertise in investment matters.

As baby boomers move into retirement, most of them will need to rely on their 401(k) accounts as a primary source of retirement income. While much effort has been expended on helping participants accumulate retirement savings, less thought has been given to creating sustainable retirement income. But the focus is beginning to shift, along with an awareness that 401(k) accounts need to be invested, both before and after retirement, to simultaneously achieve growth and manage risk.

It has been widely noted that Americans have generally not saved enough for retirement. As shown in Appendix B-1, 31% of Americans aged 55 to 64 have a household net worth below \$50,000. For the 46% of Americans aged 55 to 64 with a household net worth between \$50k and \$500k, investments in growth assets will be important in order to maintain living standards during retirement.

Risk management is an important part of using growth assets to produce retirement income. Portfolio volatility adversely affects the investment outcome for retirement-oriented investors in several different ways. First, for buy-and-hold investors, volatility reduces compound annualized growth rates over time.²⁰ Second, as investors take withdrawals, they encounter the sequence-of-returns problem. As described earlier, when the market is down, withdrawals reduce portfolio value at an accelerated rate. Even if the market subsequently recovers, the investor's internal rate of return is damaged. Third, investors tend to panic when faced with large declines in portfolio value. Research studies of the effects of investor behavior have repeatedly shown that investors' behavior reduces portfolio

returns.²¹ Appendix B-2 shows a simple example with the S&P 500. From 2000 to 2013, the cumulative effect of these three factors was to reduce investor returns by over 6% per year.

Managed risk funds have grown rapidly in the retirement savings market. They were developed specifically to reduce the adverse effects of volatility for retirement-oriented investors. Managed risk funds allow investors to sustainably invest in growth assets through the use of a risk management strategy.

Historically, individuals managed risk in their retirement savings portfolios by allocating a large portion of the portfolio to bonds. In the past, bonds were a useful risk management and income generation tool. However, this is not the case in today's low interest rate environment. The ten-year treasury rate is approximately 2.5% today. At these rate levels, using bonds as a risk management tool forces investors to play a zero-sum-game. With this traditional bond strategy, investors can have growth or risk management, but they cannot have both.

Financial institutions have historically used a different strategy for risk management. A widely used institutional risk management strategy is to use exchange-traded futures contracts on major equity indices to hit a pre-specified risk target.²² This approach was successful throughout the bear market from 2000 to 2002 and the global financial crisis of 2008 and 2009.

A fund with the Milliman Managed Risk Strategy™ works in a straightforward way. The strategy includes two risk management processes that operate concurrently. First, the fund includes a volatility management process. This is a daily process to estimate the current volatility of the fund and to adjust a futures position to stabilize this volatility. During periods of financial stress, volatility in the equity markets will

²¹ Dalbar, Inc. "2013 QAIB Quantitative Analysis of Investor Behavior." March 2013. Dalbar, Inc.

²² Mungan, Kenneth P. "Performance of Insurance Company Hedging Programs During the Recent Capital Market Crisis." Milliman.com/insight. December 1, 2008. Milliman, Inc.

²⁰ Mungan, Kenneth P. "The 6% Rule: Determining Portfolio Withdrawal Rates using Stochastic Analysis and Managed Risk Equities." Milliman.com/insight. September 14, 2014. Milliman, Inc.

increase dramatically. For example, equity market volatility quadrupled during the 2008 and 2009 financial crisis. The volatility management process attempts to stabilize the returns to keep the volatility of the fund from increasing significantly for a material length of time.

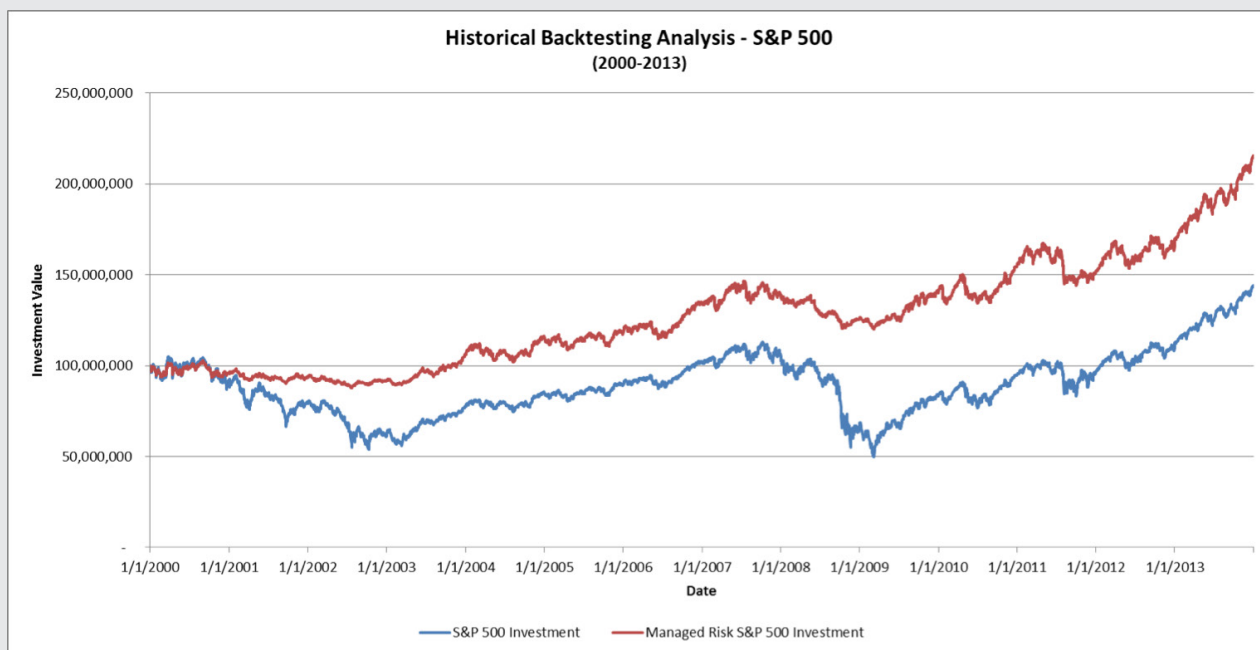
The Milliman Managed Risk Strategy™ also includes a capital protection strategy. The capital protection strategy uses a well-established risk management technique to attempt to reduce the impact of broad based market declines on the fund. These two risk management techniques are paired together in an effort to produce a stable result over a wide range of market environments.

Since the Milliman Managed Risk Strategy™ is a quantitative risk management process, Milliman is able to compare the risk management calculations on

a day-to-day basis with historical data as illustrated by the charts in the three Exhibits²³ below. Exhibits 1 and 2 show the S&P 500 index (with dividends reinvested) as compared with the Milliman Managed Risk Strategy™. Exhibit 1 shows the period from 2000 to 2013, and Exhibit 2 shows the period from 1990 to 1999.

Exhibit 1*

²³ These results are based on simulated or hypothetical performance results that have certain inherent limitations. Unlike the results shown in an actual performance record, these results do not represent actual trading. Also, because these trades have not actually been executed, these results may have under- or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity. Simulated or hypothetical trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. No representation is being made that any account will or is likely to achieve profits or losses similar to these being shown.

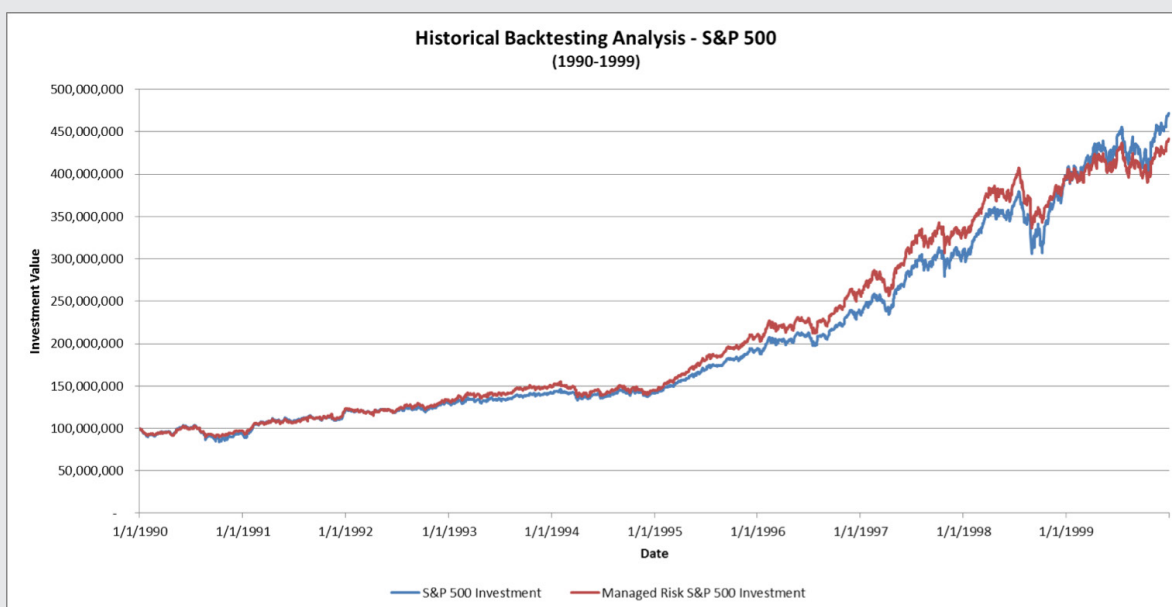


*The backtest is based on a \$100,000,000 investment from 1/1/2000 to 12/31/2013. The S&P 500 is an unmanaged index that is not available for direct investment. The returns for the 'S&P 500 Investment' and the 'Managed Risk S&P 500 Investment' both include a 1% fund management fee but do not include taxes, sales charges, or any other expenses. The rates of return are hypothetical historical illustrations and do not represent the returns of any particular investment portfolio. There is no assurance that the investment process will consistently lead to successful investing.

The Milliman Managed Risk Strategy™ stabilizes results during difficult market periods, including the bear market from 2000 to 2002 and the global financial crisis in 2008 and 2009. However, the strategy also participates in growth during favorable market periods. During the bull market from 2003 to 2007 and the period after the financial crisis, an investor using the Milliman Managed Risk Strategy™ would

have captured much of the growth. This is due to the presence of the volatility management process. During periods of sustained market growth, volatility tends to be lower than normal. Portfolios with a volatility management process will tend to maximize their exposure to growth assets during these periods.

Exhibit 2*

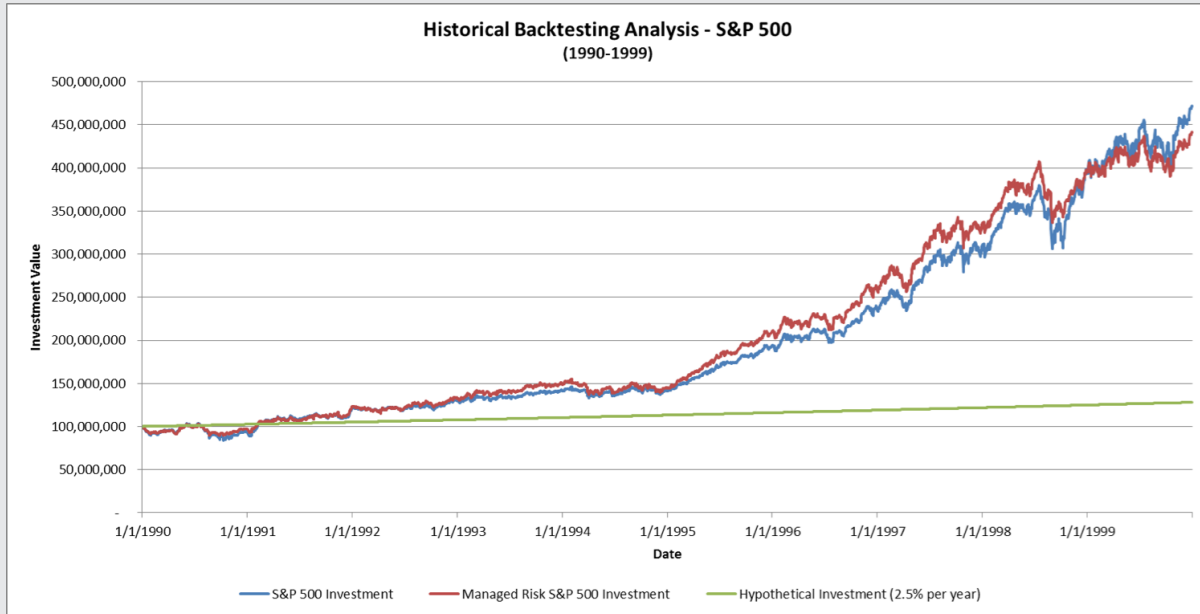


*The backtest is based on a \$100,000,000 investment from 1/1/1990 to 12/31/1999. The S&P 500 is an unmanaged index that is not available for direct investment. The returns for the 'S&P 500 Investment' and the 'Managed Risk S&P 500 Investment' both include a 1% fund management fee but do not include taxes, sales charges, or any other expenses. The rates of return are hypothetical historical illustrations and do not represent the returns of any particular investment portfolio. There is no assurance that the investment process will consistently lead to successful investing.

Exhibit 2 shows the effect of the Milliman Managed Risk Strategy™ during a prolonged bull market. The period shown in this analysis is 1990 to 1999. During this period, the S&P 500 marched relentlessly upward. A risk managed portfolio during such a period would likely underperform a 100% equity portfolio without risk management. However, note the substantial increase in value for the results with the Milliman Managed Risk Strategy™. For the typical retirement-oriented investor, a 100% equity portfolio is not a feasible investment choice. The risk level is simply too high.

Exhibit 3 shows the managed risk result compared to a hypothetical portfolio earning 2.5% per year, consistent with today's long-term bond yields. There is significant growth potential when equity investments are combined with institutional quality risk management.

Exhibit 3* (appearing on page 14)



*The backtest is based on a \$100,000,000 investment from 1/1/1990 to 12/31/1999. The S&P 500 is an unmanaged index that is not available for direct investment. The returns for the 'S&P 500 Investment' and the 'Managed Risk S&P 500 Investment' both include a 1% fund management fee but do not include taxes, sales charges, or any other expenses. The returns for the 'Hypothetical Investment (2.5% per year)' do not include fees, taxes, sales charges, or any other expenses. The rates of return are hypothetical historical illustrations and do not represent the returns of any particular investment portfolio. There is no assurance that the investment process will consistently lead to successful investing.

Appendix B-1: Distribution of Net Worth – 2011 United States Census [Prepared by Milliman, Inc.]

The chart below²⁴ shows the distribution of household net worth for Americans who are between 55 and 64 years old. In this demographic, 33% of people have a household net worth below \$50,000 while 21% of people have a household net worth above \$500,000. The remaining 46% of Americans aged 55 to 64 have a household net worth between \$50k and \$500k.

²⁴ Source: United States Census Bureau, "Net Worth and Asset Ownership of Households: 2011, Table 4. Percent Distribution of Household Net Worth, by Amount of Net Worth and Selected Characteristics: 2011," <http://www.census.gov/people/wealth/>

		HOUSEHOLD NET WORTH								
		Negative - Zero	\$1 - \$4,999	\$5K - \$9,999	\$10K - \$24,999	\$25K - \$49,999	\$50K - \$99,999	\$100K - \$249,999	\$250K - \$499,999	\$500K or Over
55 - 64 yrs.		12%	6%	3%	5%	6%	10%	21%	15%	21%

There is a gap between the amounts of money that people have *saved* for retirement compared to what they will *need* in retirement. Bond yields are currently relatively low and may not provide

sustainable income during retirement. Therefore, a large part of this demographic may need to invest in equities to maintain its current standard of living in retirement.

Appendix B-2: Effects of Volatility [Prepared by Milliman, Inc.]

Volatility reduces returns for retirement-oriented investors for multiple reasons. First, it reduces compound annualized growth rates for buy and hold investors. Second, it decreases the internal rate of return for investors who take periodic withdrawals from their account. Finally, volatility can lead to detrimental investor behavior.

This appendix demonstrates these negative effects of volatility by looking at the S&P 500 index from 2000-2013. The chart below shows the annual returns for the S&P 500 index over the last 14 years:

2001	-11.9
2002	-22.1%
2003	28.7%
2004	10.9%
2005	4.9%
2006	15.8%
2007	5.6%
2008	-37.0%
2009	26.4%
2010	15.1%
2011	2.1%
2012	16.0%
2013	32.4%

Reduction in Compound Annualized Growth Rate

The average annual return for the S&P 500 index over this time period is 5.55%. However, a buy and hold investor would have earned a compound annualized growth rate of only 3.60% over this same period. Thus, volatility reduces the investor's returns by almost 2%.

This 2% reduction occurs because the investor does not get the arithmetic average annual return of the index, but rather gets the cumulative return of the index. For example, consider an investment that increases by 50% and then decreases by 50%. This

investment has an average annual return of 0%, but the investor realizes a return of -25%.

The Sequence of Returns Effect

Withdrawals can be factored into this analysis by assuming that the investor starts with \$100 on January 1st, 2000 and then withdraws \$5 from their account at the end of every year. The investor's internal rate of return is 1.08% (taking into account the withdrawals and the residual fund value that the investor has on 12/31/2013). Thus, the sequence of returns effect further reduces the investor's returns by over 2.5%.²⁵

The sequence of returns effect reduces returns because the investor is taking fixed withdrawals from a portfolio that is changing in value. When the investor withdraws money from their portfolio following a market decline, they have taken money off the table. Thus, even if the market eventually recovers, the investor's portfolio will not fully recover.

Investor Behavior

Numerous studies show that investor behavior generally reduces returns because investors behave in sub-optimal ways. For example, Morningstar found that investor behavior reduces returns by about 1% per year:

The average fund investor lagged the average fund over the past 10 years by a total of 0.95% annualized. The average fund returned 7.05%, but the average investor netted 6.1%. That's a good chunk of the return investors failed to capture and evidence that investors overall made poor choices in the past decade.²⁶

²⁵ In this example, if the investor starts with \$100, the investment will increase to \$150 (a 50% increase) and then fall to \$75 (a 50% decrease).

²⁶ Russell Kinnel, Morningstar, 4/16/2013, "Why Investors Lag the Returns of Their Funds: Volatility proves challenging for many shareholders," <http://www.morningstar.com/advisor/t/73663027/why-investors-lag-the-returns-of-their-funds.htm>

Dalbar, using at a different set of metrics, found that investor behavior reduces returns by almost 4% per year:

With the Standard & Poor's 500-stock index near an all-time high, it's worth considering how investors in stock mutual funds have fared in the market rally that began more than 4 years ago. Not so great, according to latest Quantitative Analysis of Investor Behavior study by Dalbar Inc. Fund investors have significantly underperformed the S&P 500 over the past 3, 5, 10 and 20 years. While average stock fund investors did almost match the S&P 500's 16% total return last year, they lagged the index by nearly 4 percentage points per year from 1993 to 2012.

More than half of the gap in returns can be attributed to performance chasing and other bad investing habits, Dalbar found. The message from the Dalbar's yearly analysis has been consistent since its first study in 1994: "No matter what the state of the mutual fund industry, boom or

but: Investment results are more dependent on investor behavior than on fund performance. Mutual fund investors who hold on to their investment are more successful than those who time the market." ²⁷

Negative investor behavior can be factored into the analysis of the S&P 500 by assuming that, if the investor's account ever cumulatively loses more than 20% of its value, the investor will move his or her money to a money market account for three years. This further reduces the investor's return by almost 2%.

The chart below shows that the cumulative effect of volatility - including all three negative effects - reduces investor returns by over 6% per year during this time period.

²⁷ Tom Anderson, Forbes, 3/28/2013, "Fund Investors Lag As S&P 500 Nears All-Time High," <http://www.forbes.com/sites/tomanderson/2013/03/28/fund-investors-lag-as-sp-500-nears-all-time/>.

S&P 500 (2000 to 2013)	Returns	Reduction in Returns
Average of the Annual Returns	5.55%	
Compound Annualized Growth Rate	3.60%	-1.95%
Internal Rate of Return (5% withdrawals)	1.08%	-2.52%
Internal Rate of Return with behavior model	-0.82%	-1.90%
		-6.37%

This analysis is based on S&P 500 returns from 1/1/2000 to 12/31/2013. The S&P 500 is an unmanaged index that is not available for direct investment. The returns do not include fees, taxes, sales charges, or any other expenses.

Appendix C: Description of the Even Keel Managed Risk Funds

Milliman has offered managed risk strategies to financial institutions for a number of years. Recently, it introduced these strategies to the 401(k) plan market through its Even Keel Managed Risk Funds. The following description of the Milliman Even Keel Managed Risk Funds is based on materials prepared by Milliman Financial Risk Management LLC.

Milliman has historically provided its risk management strategy to financial institutions to protect their financial health. Given the needs of baby boomers noted in the prior section, Milliman is now offering the Milliman Managed Risk Strategy™ within a range of retirement savings funds. It draws on its experience in providing institutional risk management to give 401(k) account holders access to this expertise. In particular, the Even Keel Managed Risk Funds pair each class of the equity market with the Milliman Managed Risk Strategy™. Through use of the Even Keel Managed Risk Funds, plan sponsors, working with an investment consultant, can create managed risk solutions for plan participants.

There are four funds, each of which provides access to a different portion of the equities market. Each fund

“[s]eeks to provide investors with risk-managed exposure to [the relevant equity class] using an investment methodology that uses, in addition to these securities,

....futures contracts on U.S. Treasuries, cash and cash equivalents. The Fund’s risk management process is based on the Milliman Managed Risk Strategy™, a proprietary strategy that actively accounts for changing market conditions, seeking to protect growth in bull markets and defend against losses during major downturns.²⁸

Each fund combines one segment of the equity market -- large capitalization U.S. companies, small- and medium-capitalization U.S. companies, securities of companies in foreign developed markets, and

securities of companies in emerging markets -- with the Milliman Managed Risk Strategy™. The Even Keel Managed Risk Funds include:

- Even Keel Managed Risk Fund – this fund uses U.S. large cap equities.
- Even Keel Opportunities Managed Risk Fund – This fund uses U.S. small and mid-cap equities.
- Even Keel Traveler Managed Risk Fund – This fund uses developed international equities.
- Even Keel Explorer Managed Risk Fund – This fund uses emerging market equities.

Milliman seeks to leverage investment best practices known to have a proven track record for success. Plan sponsors, working with their investment consultants, can combine the Even Keel Managed Risk Funds with other investments to meet their plan objectives. For example, the Even Keel Managed Risk Funds can be incorporated into custom target date or target risk portfolios. By using the Even Keel Managed Risk Funds, the equity exposure of these portfolios would be covered by an established, institutional-quality risk management process.

At Milliman, the target date approach is being introduced to clients using InvestMap™, its proprietary custom target date model allocation technology. By including the Even Keel Managed Risk Funds in the core lineup and developing a custom target date portfolio as a QDIA, and by combining this with a well-thought out plan design that includes leveraging automatic contribution arrangements (which may or may not include an Eligible Automatic Contribution Arrangement (EACA) or Qualified Automatic Contribution Arrangement (QACA)), Milliman is providing a solution to maximize participation and contributions while making available institutional risk management around appropriate asset allocation glide paths at the individual participant level.

²⁸ Product descriptions may be found at www.evenkeelinvestments.com/#products.