

Experience MassMutual Defined Benefit Investment Solutions

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Pension risk and the bottom line

MassMutual’s integrated investment and de-risking solutions provide transparency and can help meet long-term defined benefit plan financial goals. Our investment and risk management skills, combined with our pension expertise, help us to create customized solutions to keep plan costs predictable and funding status stable.

No matter where an organization’s defined benefit plan is in its life cycle – implementation, active, closed, frozen, or on target to be terminated – our expertise and flexible service models can support all aspects of your plan.

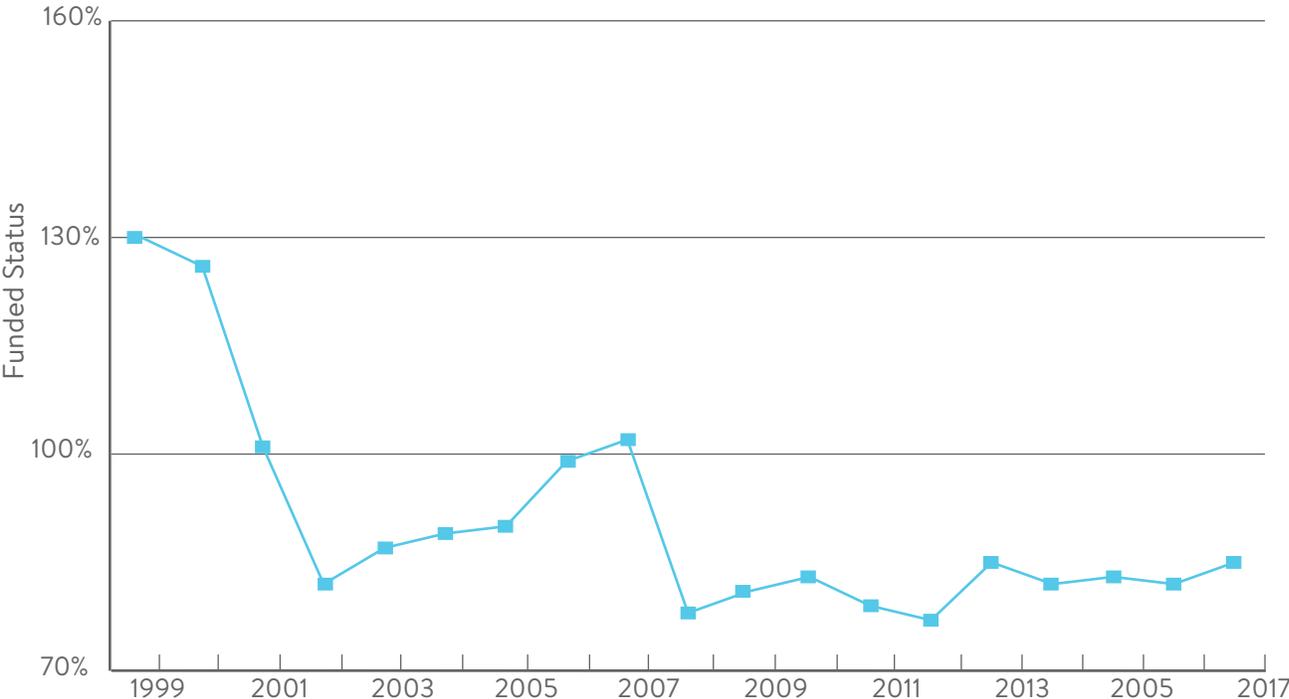
Over the past few years, many defined benefit (DB) plan sponsors have worked to reduce balance-sheet exposure to pension liabilities through a variety of de-risking strategies.

Plan sponsors are adopting risk-hedging strategies by investing more in the fixed income category to mitigate funding-level risk arising from interest rate volatility and equity market fluctuations.

Recent dramatic declines in funding status have strained plan sponsors’ finances, raised awareness of pension risk, and compelled the 100 largest U.S. corporate pension plans to make more than \$315 billion in pension contributions.¹

Since 1999, America’s corporate defined benefit plan sponsors have seen the plan funded statuses deteriorate due to market volatility.

FUNDED RATIO – ASSETS/PROJECTED BENEFIT OBLIGATION



¹ Milliman 2018 Pension Funding Study, corporate pension contributions from 1999-2017.

Traditional and liability-driven strategies

To help sponsors build plan strategies, MassMutual conducts an annual asset liability management (ALM) review. Based on the findings of the study, we provide insights into potential risk/reward trade-offs based on durations of assets and liabilities and long-term plan-management strategies based on the funded status of the plan. The goal is to help sponsors and their advisors make informed investment and risk management

decisions. MassMutual’s client-focused, consultative approach can help plan sponsors and their advisors mitigate funding volatility.

Simplifying the complex

As senior management and boards of directors become increasingly motivated to de-risk their defined benefit plans, leading practices can help them sort through the complexity of the process.

MassMutual offers several effective, integrated funding, investment and de-risking strategies designed to simplify the complexity.

MASSMUTUAL DEFINED BENEFIT INVESTMENT STRATEGY DEVELOPMENT: “SIMPLIFY THE COMPLEX”



Total return funding strategy

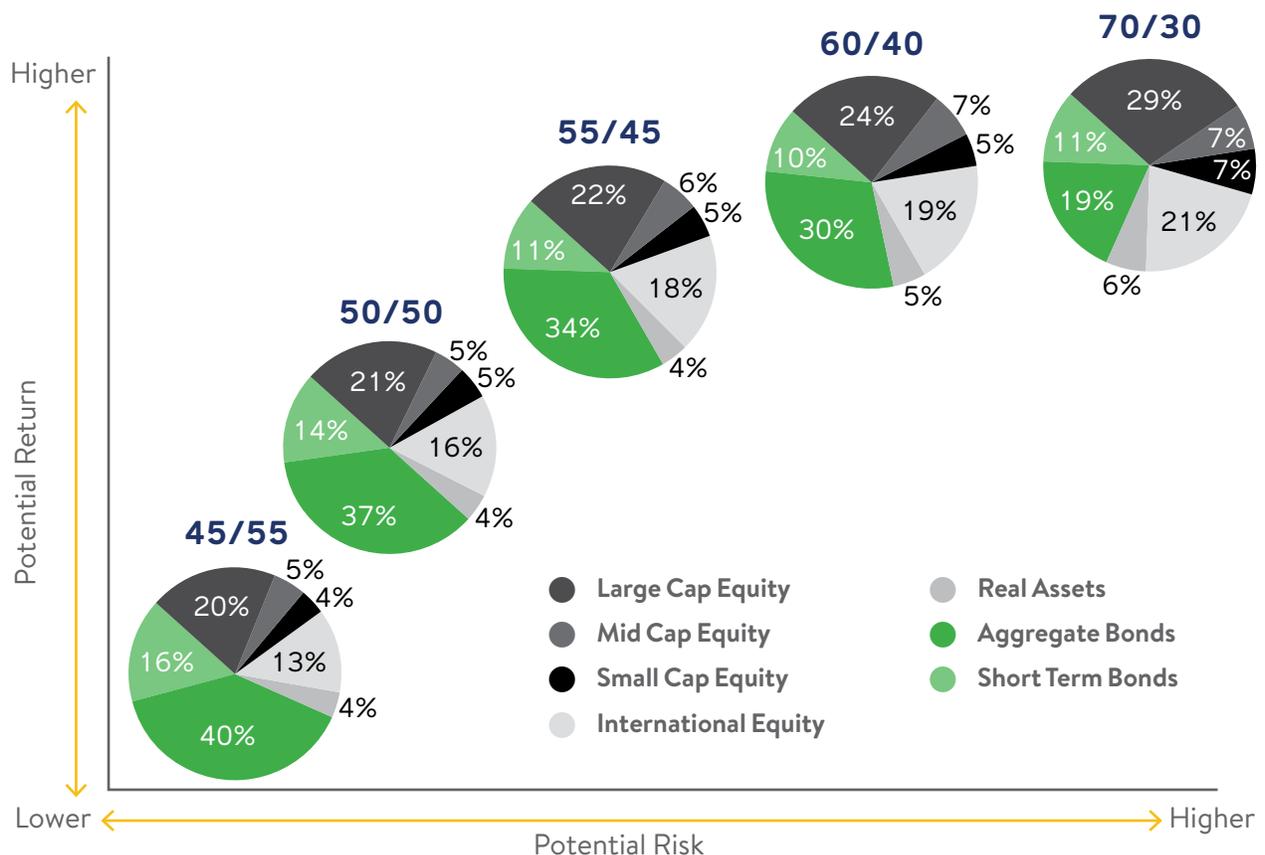
Put simply, traditional pension plan strategies focus on the total return of the pension plan investments as a means to cover future liabilities. This is a common and appropriate strategy for underfunded pension plans.

MassMutual's approach utilizes a mix of higher return seeking investments (equity) with traditionally more stable, less volatile investments (fixed income), balancing the unique and varied risk parameters and plan objectives of each client.

Our actuaries and investment professionals work in tandem with the advisor to help design and implement the best course of action, keeping a watchful eye on relevant factors such as funding status, risk/return, and the growth of a plan's assets versus the growth of its liabilities.

MassMutual can help plan sponsors optimize their pension plan portfolios by offering a suite of diverse mutual funds across a variety of strategies, partnering with many of the most well-respected and top-performing investment managers in the field.

MODEL PORTFOLIOS TO MATCH YOUR GOALS AND RISK TOLERANCE (Risk/Return trade-off of sample asset mixes)



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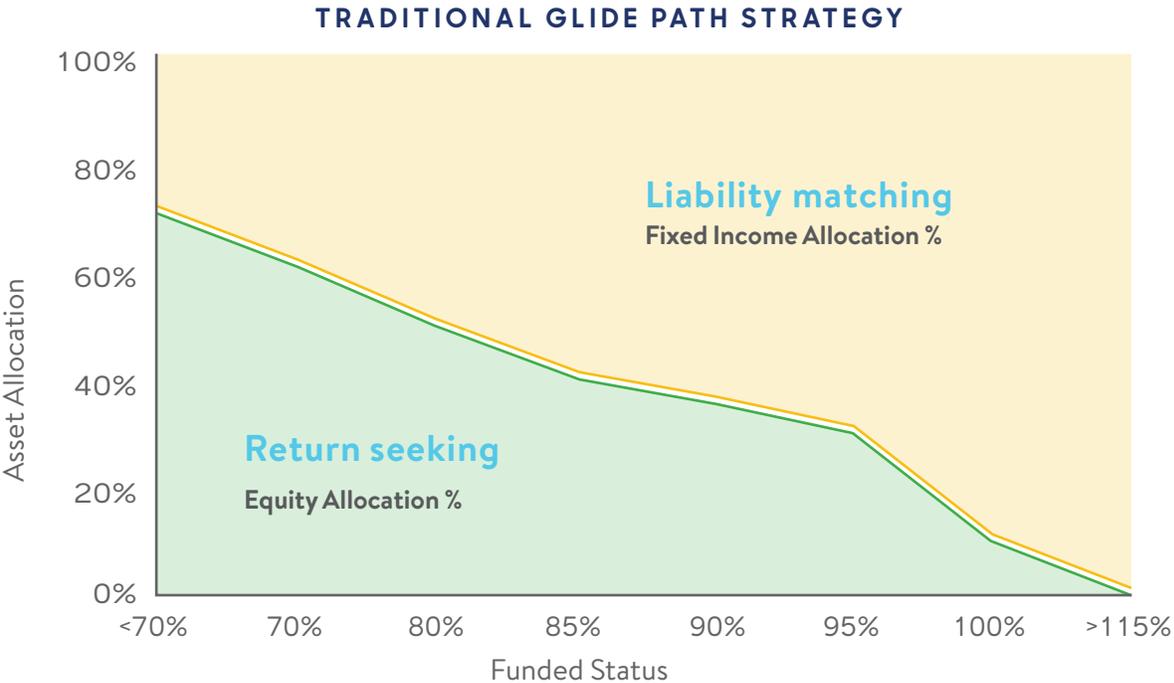
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Liability-driven investing

Glide paths have become the foundation for the Liability-Driven Investing (LDI) strategy because they introduce a systematic framework for managing funding ratio changes and, ultimately, create a risk-controlled path for the plan to follow. To accomplish this, glide paths create a link between the funding ratio and the appropriate equity/fixed income split.

Fixed income oriented strategies, like LDI, use dynamic asset allocation strategies to move assets between return seeking and risk hedging investments by designing the appropriate glide path based on predetermined triggers, like the improvement in the funded status of the plan.

MassMutual has deep experience designing both traditional and two-prong glide path strategies.



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In a more sophisticated two-dimensional glide path approach, the investment strategy is divided into two components: one that manages liability risks and another that seeks to generate appropriate investment returns.

A flexible investment platform

MassMutual offers a flexible investment platform for defined benefit plan sponsors which includes a core menu of institutional investment options, supported by strategic asset allocation strategies and investment policy assistance from MassMutual Investment Management.

Our defined benefit investment menu is specifically tailored for an effective strategy and includes a broad universe of funds managed by more than thirty of the industry's top investment firms, including MassMutual's retirement-focused investment solutions.

Our strength lies in our approach

In addition to offering a comprehensive, flexible investment platform, MassMutual Funds partners with more than 15 industry leaders to deliver unique multi-manager investment solutions designed to meet the needs of plan sponsors and their participants.

ASSET CLASS	MASSMUTUAL FUNDS	
U.S. Large Cap Equity	Select Diversified Value Premier Disciplined Value Select Fundamental Value Select Equity Opportunities Premier Main Street	Select Blue Chip Growth Select Growth Opportunities Premier Disciplined Growth Premier Fundamental Growth MM S&P 500® Index
U.S. Small & Mid-Cap Equity	Select Small Cap Value Equity Select Small Company Value Select Mid Cap Value MM S&P® Mid Cap Index	Select Mid Cap Growth Premier Small Cap Opportunities Select Small Cap Growth Equity MM Russell 2000® Small Cap Index
International Equity	Select Overseas Premier International Equity Select T. Rowe Price International Eq.	Premier Global Premier Strategic Emerging Markets MM MSCI EAFE® International Index
Fixed Income & Balanced	Premier Core Bond Premier Diversified Bond Premier High Yield Premier Balanced	Premier Inflation Protected & Income Premier Short-Duration Bond Select Strategic Bond Select Total Return Bond
Money Market/ Capital Preservation	Premier U.S. Gov't MMKT	

Investors should carefully consider investment objectives, risks, charges and expenses. This and other important information is contained in the Fund's prospectuses and summary prospectuses, which can be obtained from www.MassMutual.com/funds. Please read them carefully before investing. The investment is not FDIC-insured, may lose value and is not guaranteed by a bank or other financial institution.

Partner with a proven leader

For more than 70 years, we have built our reputation serving institutional retirement plans by earning our clients' trust and delivering long-term, customized defined benefit solutions to meet their unique financial needs.

Experience our consultative, client-focused approach to creating innovative, tailored solutions to help drive better outcomes for defined benefit plans.

MassMutual's financial strength ratings are among the highest of any company in the industry.

FINANCIAL STRENGTH RATINGS²

A.M. Best	A++ (Superior; top category of 15)
Fitch Rating	AA+ (Very strong; second category of 21)
Moody's Investors Service	Aa3 (High Quality; fourth category of 21)
Standard & Poor's	AA+ (Very strong; second category of 21)

Experience the MassMutual difference.
For more information, please go to [MassMutual.com](https://www.massmutual.com).

² Financial strength ratings are as of May 28, 2019: A.M. Best Company: A++ (Superior; top category of 15); Fitch Ratings: AA+ (Very Strong; second category of 21); Moody's Investors Service: Aa3 (High Quality; fourth category of 21); Standard & Poor's: AA+ (Very Strong, second category of 21). Ratings are for MassMutual (Springfield, MA 01111) and its subsidiaries, C.M. Life Insurance Co. and MML Bay State Life Insurance Co. (Enfield, CT 06082). Ratings are subject to change.

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Member FINRA and SIPC. MMLD is a subsidiary of Massachusetts Mutual Life Insurance Company (MassMutual), 100 Bright Meadow Blvd., Enfield, CT 06082. Investment advisory services provided to the MassMutual Premier and Select Funds by MML Investment Advisers, LLC. MML Investment Advisers, LLC is a subsidiary of MassMutual.

Investors should carefully consider investment objectives, risks, charges and expenses. This and other important information is contained in the Fund's prospectuses and summary prospectuses, which can be obtained from www.MassMutual.com/funds. Please read them carefully before investing. The investment is not FDIC- insured, may lose value and is not guaranteed by a bank or other financial institution.

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