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# Annual Conference

OCTOBER 27-30, 2013 | LAS VEGAS

ORIGINAL→ESSENTIAL→UNBIASED→**INFORMATION**

## Investment Risk Management of a Defined Benefit Plan

Session Reef D

1:30 PM- 2:45 PM

October 28, 2013

# Today's Presenters

- **L Wayne Adams,**  
Director – Investments,  
AT&T
- **Mark Ruloff,**  
Director - Asset Allocation,  
Towers Watson Investment Services

# Today's Discussion

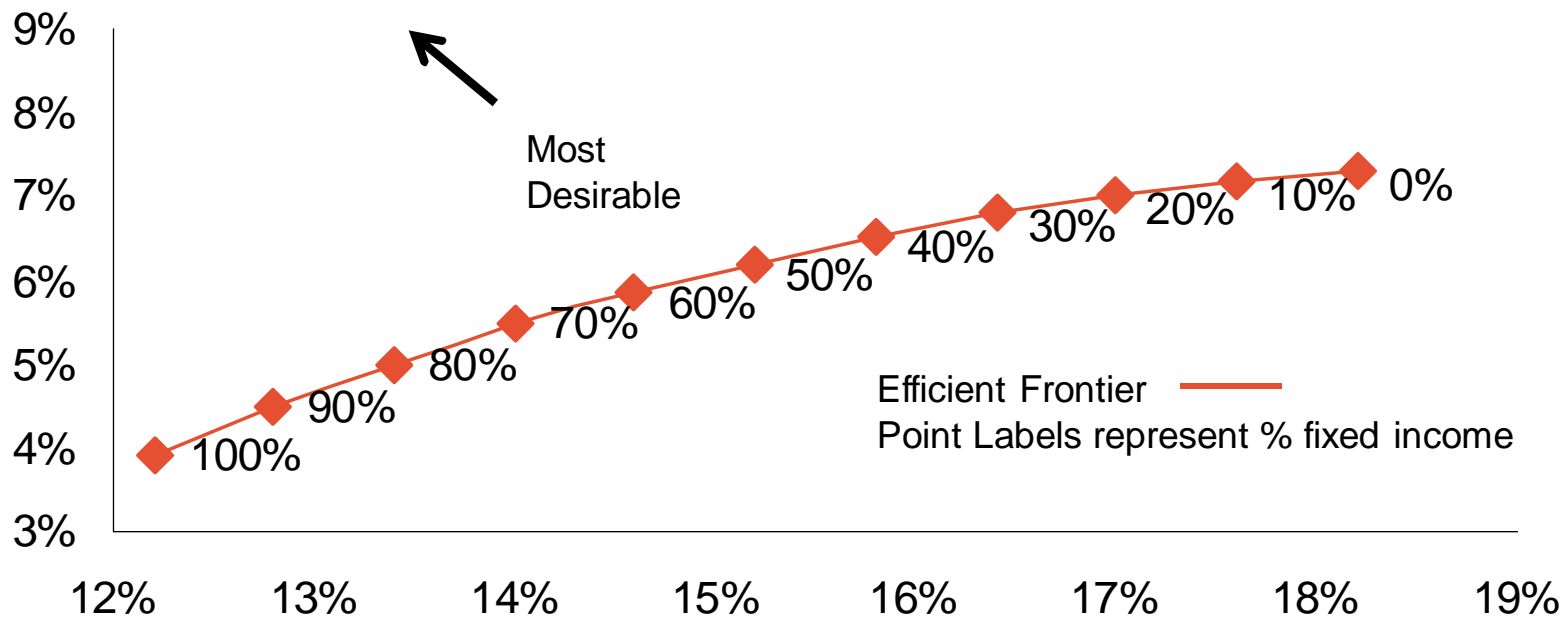
- **Opening Thoughts**
- **Payout/Liability Hedging**
- **Better Diversification**
- **Risk Steering**
- **Risk Pricing**
- **Long-Termism Risk Return Concepts**
- **Beyond Investment Policy**
- **Closing Thoughts**

# Opening Thoughts

- **Holistic approach considering risks to plan sponsor**
- **Many tools beyond diversification and liability hedging**
- **Risk and return management**

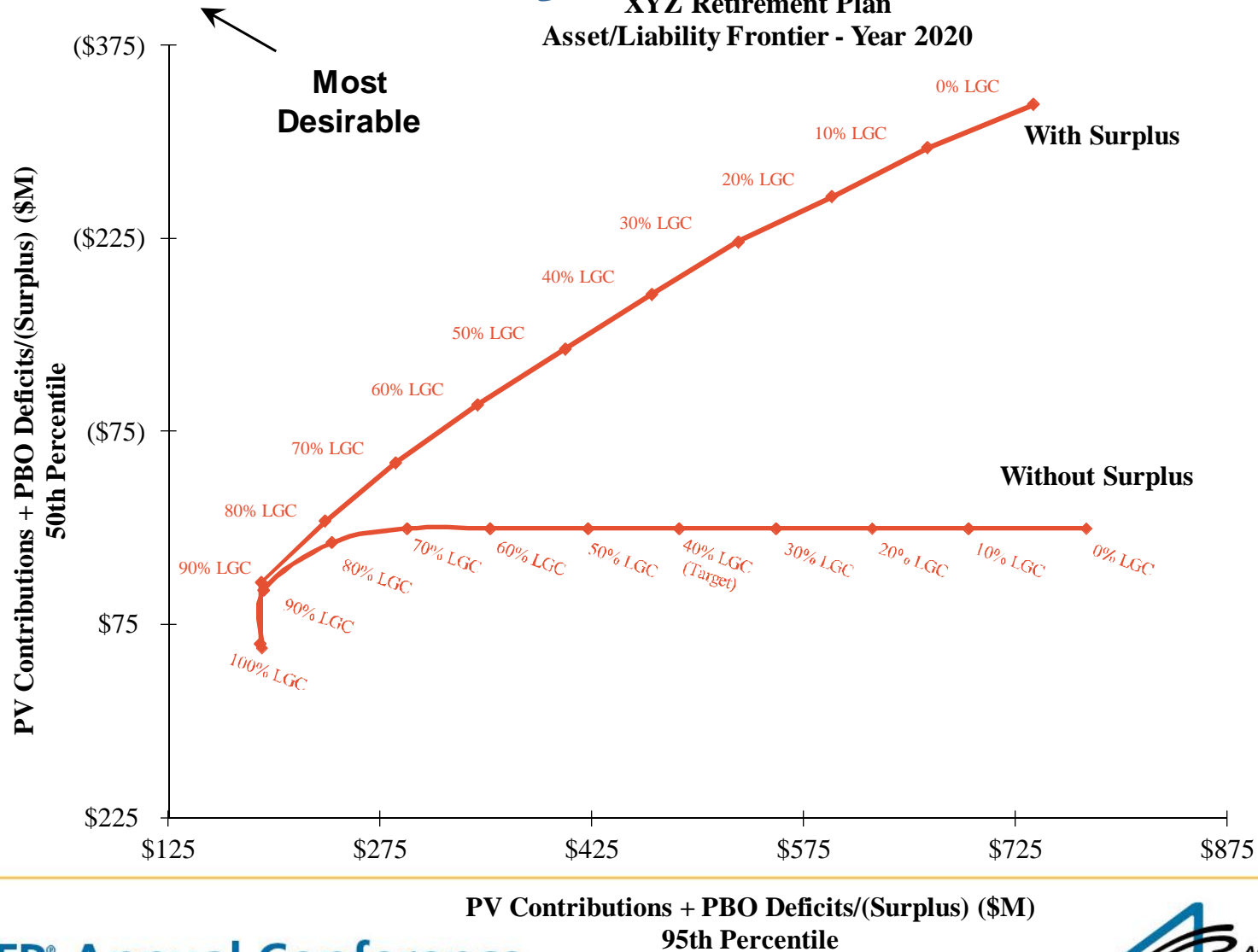
# Standard Efficient Frontier

## Illustrative Efficient Frontier

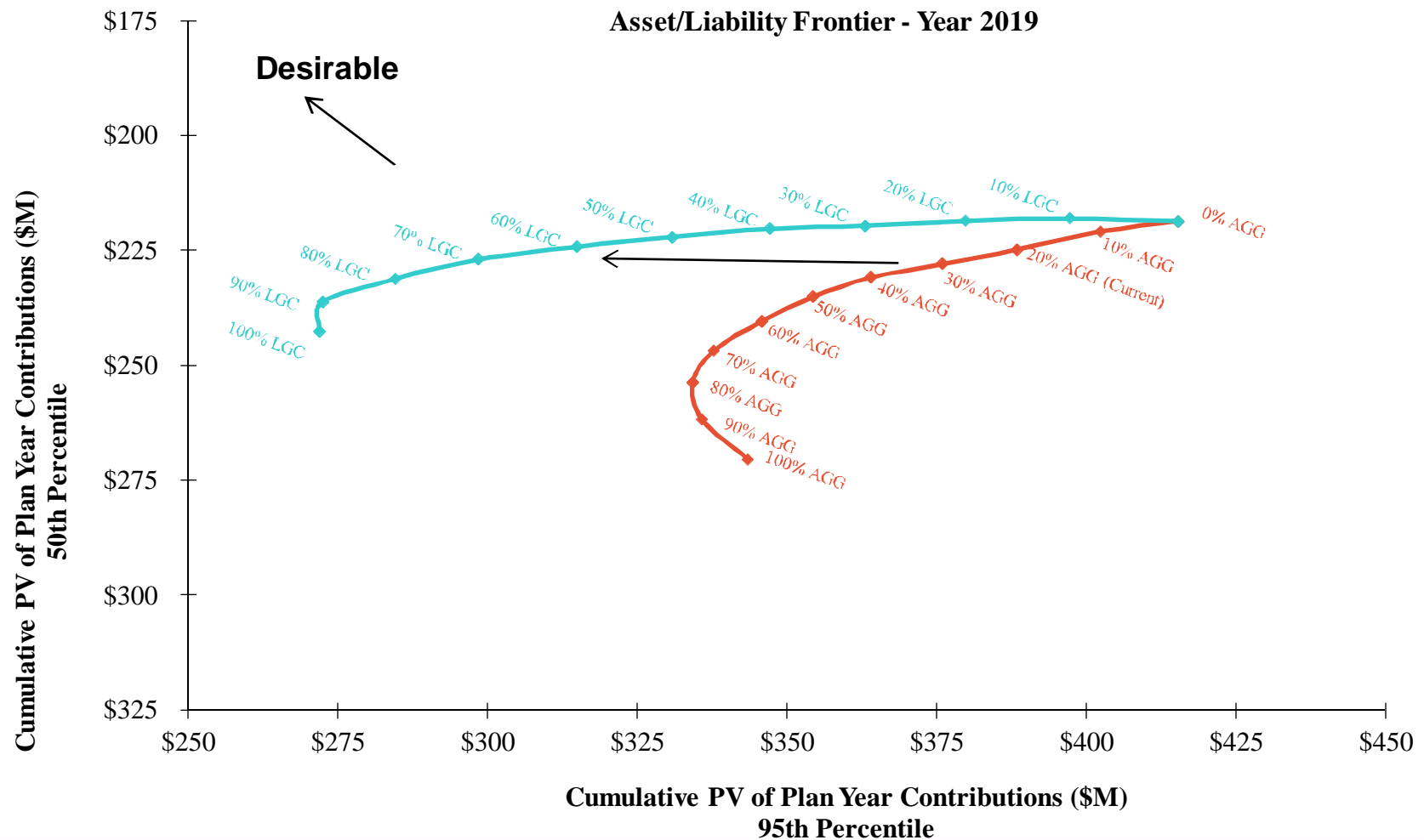


# Asset/Liability Efficient Frontier

XYZ Retirement Plan  
Asset/Liability Frontier - Year 2020



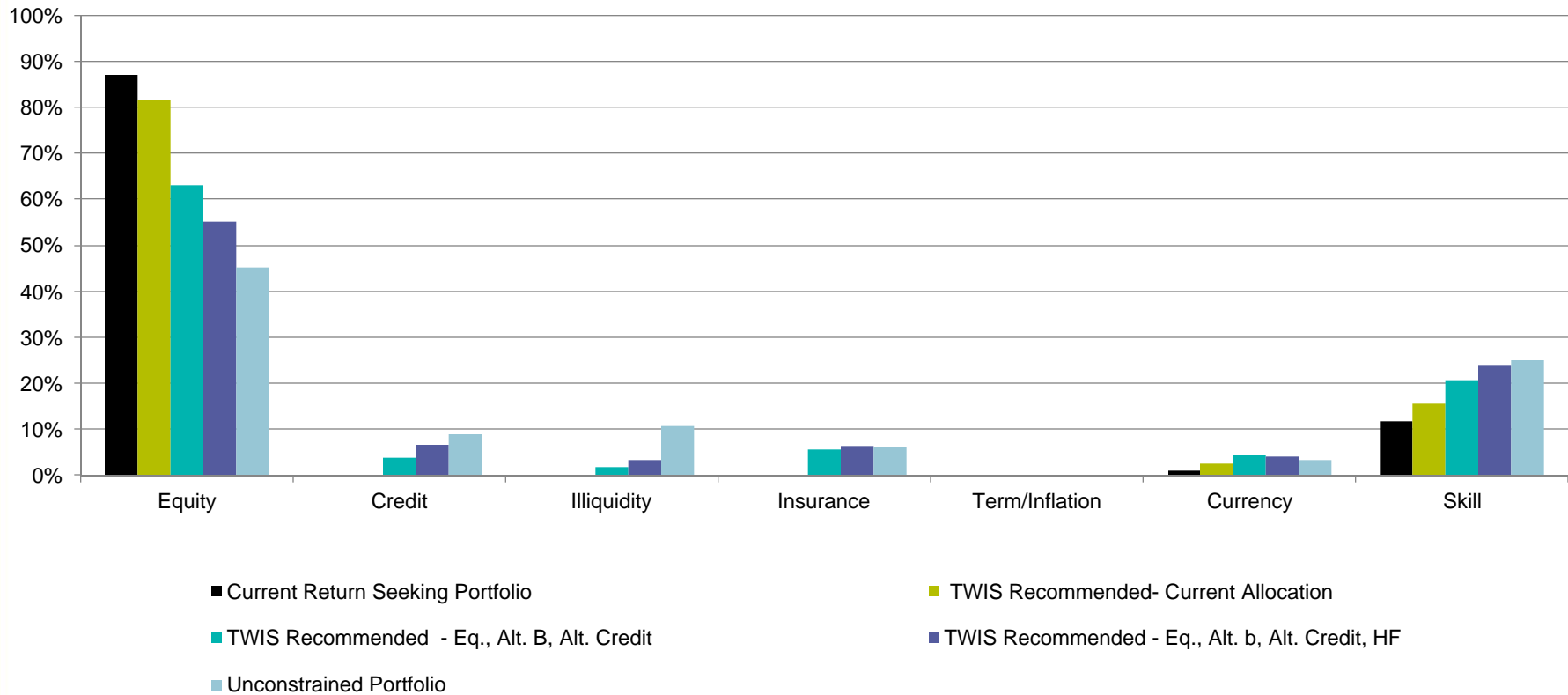
# Liability Hedging



# Diversified Portfolio: Risk/Return Buckets

## Sample Portfolio Construction Results

Attribution of Return\*

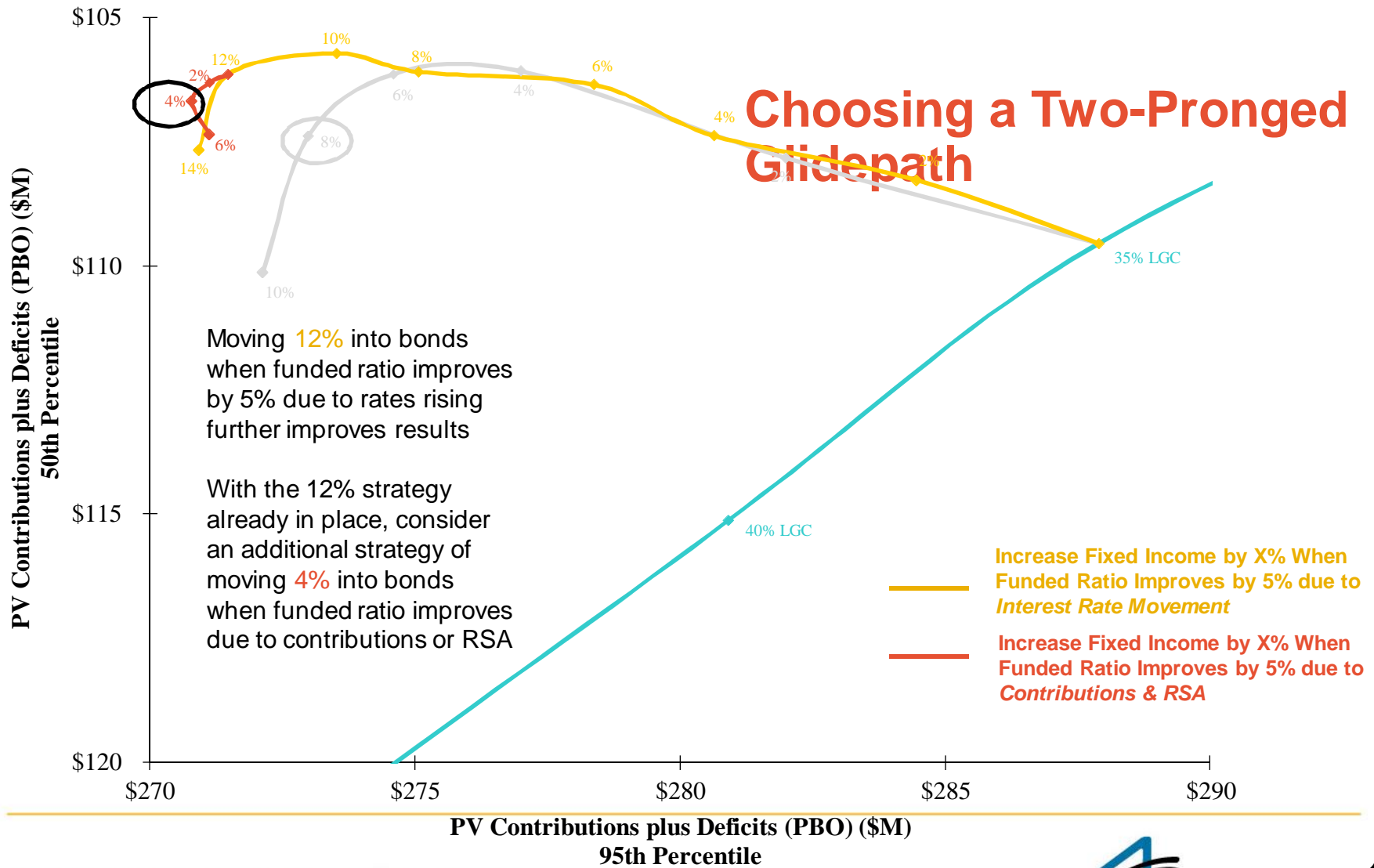




# Risk Steering

- **Dynamic Asset Allocation**
  - Separating funded status trigger into interest rates, returns, and contributions
  - In declining markets
- **Enterprise Risk Management**
  - Compare investment portfolio options with core operations
- **Consideration of investments compared to core business risks**
  - Sponsor Beta
  - Commodities
  - Inflation
  - Cash contributions

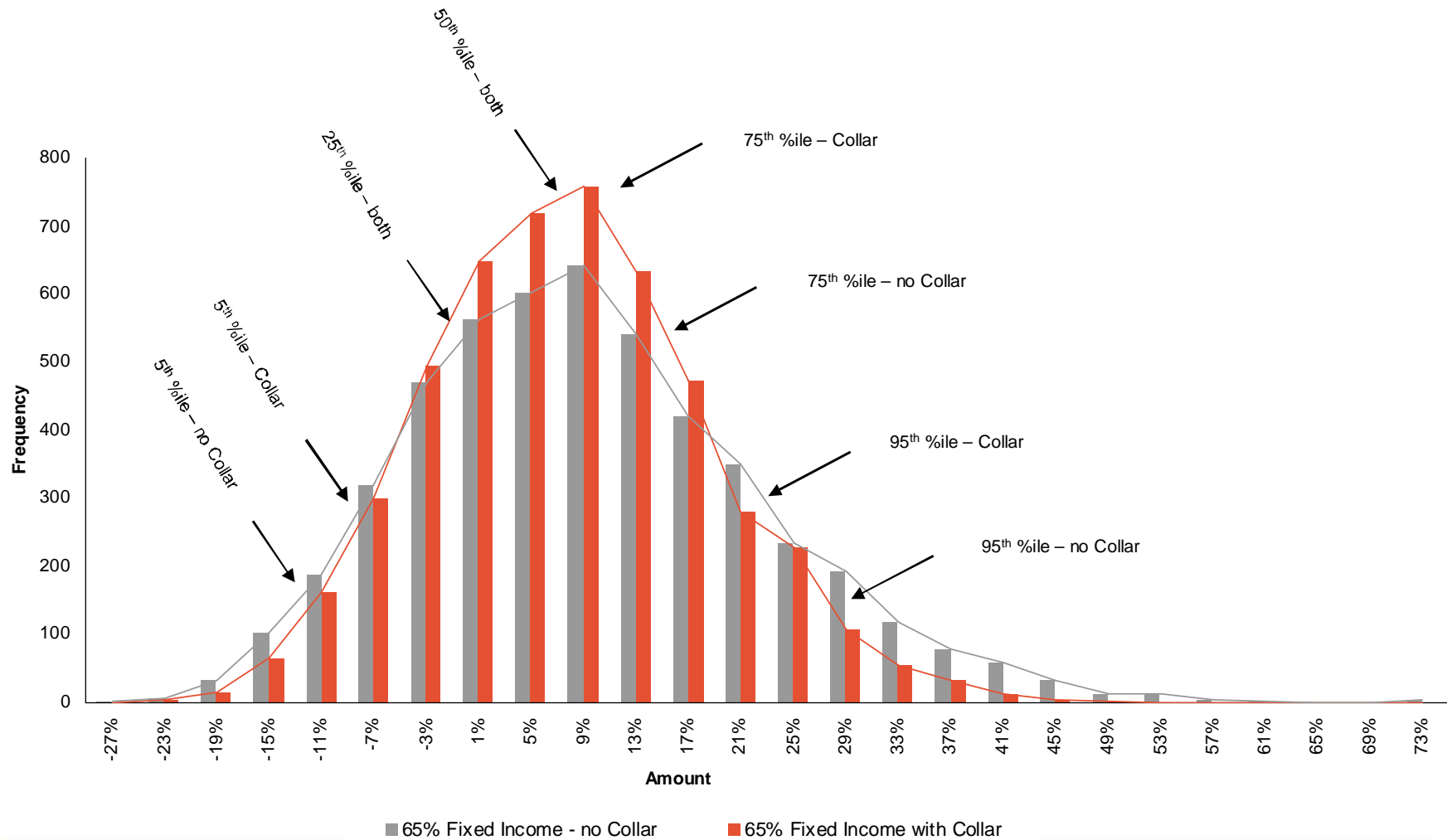
# Sample Analysis of Dynamic Asset Allocation: Cumulative Contributions plus Deficits



# Risk Pricing

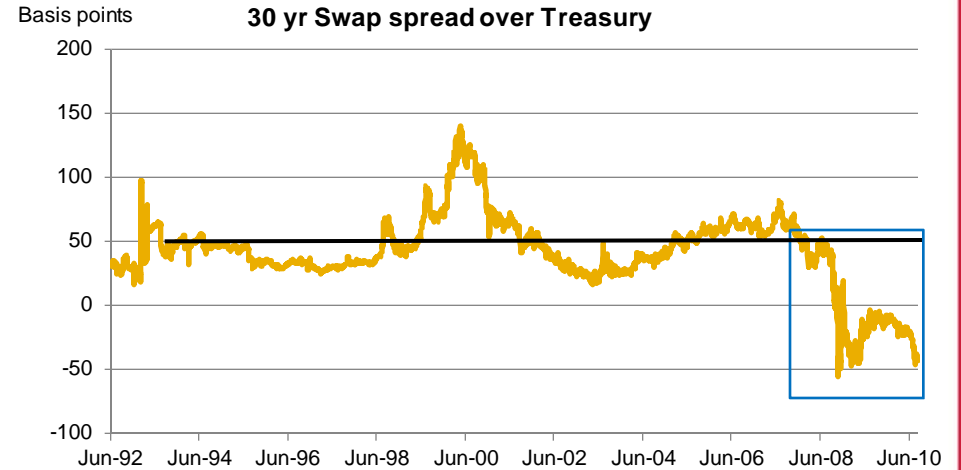
- **Puts, calls, and collars**
- **Swaps, swaptions, and swaption collars**
- **Generally would be a loss of value if done always and passively**
- **Requires good governance to know when to use and how to implement**
- **Could depend on connection with enterprise risks**
  - Put on swaption to avoid “unbearable” situation, like breaking of bond covenants

# Collared vs. Uncollared Domestic Equities: Annual Return



# Development of Liability Hedging Elements

Approach is often to obtain the appropriate hedge for a certain risk exposure at the cheapest possible price



Sources: BarCap, Towers Watson

However, markets are complex and we expect negative swap spreads to continue to persist in the near-term

We outlined rationale for our view in a note to clients earlier this year

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## What Matters in Global Markets

### Pricing of U.S. Interest Rate Swaps

Market pricing for any asset is subject to the forces of supply and demand. This paper analyzes a few key drivers of today's supply and demand in the interest rate swap market, whose pricing levels in the wake of the global financial crisis have attracted much attention among institutional investors. In short, we believe that the current negative spread on U.S. interest rate swaps is likely to dissipate over the medium term (i.e., a number of years) but not necessarily over the short term.

#### Background

Traditionally, the swap spread, which is defined as the difference between the yield of a fixed-rate swap minus the equivalent maturity Treasury bond yield, has always been positive. This yield relationship reflected risks borne by the swap holder, relative to the Treasury bond investor, such as counterparty risk (among others that we outline in this article) which called for compensation to the swap holder in the form of a yield over and above Treasury yields.

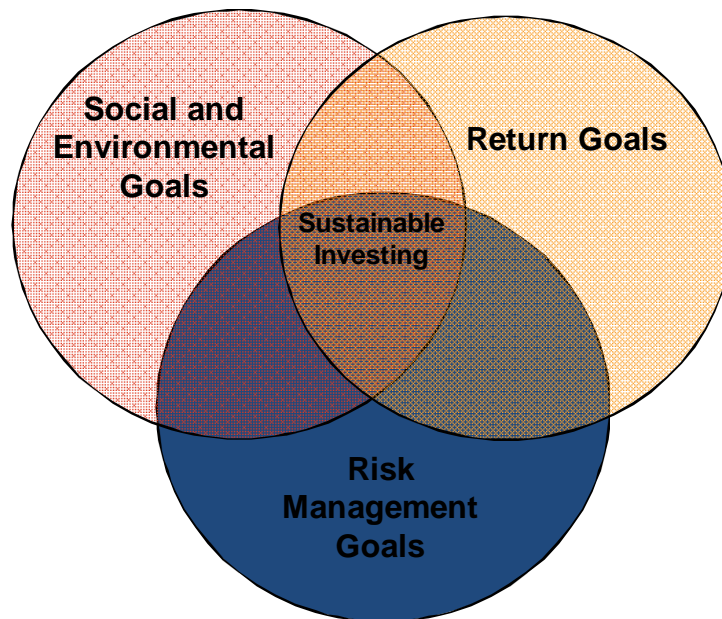
However, since late 2008, at the height of the liquidity and financial crisis (and following the collapse of Lehman Brothers), this spread (at the long end of the Treasury yield curve) has turned

# Long-Termism Risk/Return Concepts in Model Portfolio

- **Risk framework**
  - Risk return framework
  - Risk return management, not just measurement
  - Long-term risk return management framework
- **Risk scenarios**
- **Theme investing**
- **Extreme risks**

# Sustainability

Universal Owner



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## Sustainable Investing

### The role of 'Universal Owners'

"Our real problem then, is not our strength today; it is rather the vital necessity of action today to ensure our strength tomorrow."

Dwight D. Eisenhower

#### In short

This paper reviews the Universal Owner<sup>2</sup> concept and how practice may change in the future. It draws on a recent paper titled *Universal Owners: Opportunity Backlogs and Leadership Calls* by Roger Urwin.<sup>3</sup> We finish by commenting on the implications for institutional funds that are not Universal Owners.

#### The concept

A Universal Owner is a large asset owner who, as a consequence of its size, owns a slice of the whole economy and market through its portfolios. Universal Owners adapt their actions with the intent of improving long-term performance by benefiting the whole economy and market in a logical but ambitious extension of sustainable investing.<sup>4</sup> They justify these actions on financial grounds.

Universal Owner principles include:

- Understanding context: through their investment holdings, Universal Owners own externalities which might impact long-term value.
- Developing and acting on beliefs: risk exposure to externalities is managed through active ownership strategies and integration of ESG (environmental, social and governance) factors into asset allocation.
- Recognising the ancillary benefits of actions.

Very few institutions (Urwin cites only six prominent ones) actively promote a Universal Owner philosophy, with lack of familiarity with the concept and the pressures of short-termism being common obstacles. As a result there is little in the way of measurement of the effectiveness of the Universal Owner approach.

As complexity and connectivity increase in investment, so the size and impact of externalities will increase. Probably the most important externalities are the environmental costs incurred by businesses due to climate change, resource

depletion and pollution. The UN PRI<sup>5</sup> estimates that the total cost of such externalities for listed companies exceeded \$2.5 trillion in 2008.<sup>6</sup> There are three avenues that Universal Owners may take to manage the risks associated with such externalities: active ownership, seeking to influence public policy and using an investment strategy influenced by ESG considerations.

#### A Universal Owner perspective

For the concept to have meaning, Universal Owners need to take large and influential actions. This can be through substantial individual company holdings, through an investment strategy that emphasises certain sectors (for example clean tech companies) or through regulatory influence. In all of these areas, influence is greater if Universal Owners collaborate.

#### Universal ownership

Many institutional funds' holdings are highly diversified across the global market and global economy. Their ownership carries an opportunity to influence future outcomes. They are 'universal' in the fact that their investments and the externalities of those investments are far reaching, and they are 'owners' in the fact that their investment stakes are of sufficient size to effect change.

#### Externalities

Externalities are effects of economic activity (either production or consumption) on unrelated third parties, who could be other companies or society more generally. The effects could be positive or negative. An example of an externality is the long-term environmental impact of a polluting factory.



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**AT&T**

**Reducing Risk at the Total Plan Level**



## Background

- **AT&T is considering a transition plan for implementation of an increased long duration bond allocation within the Master Pension Trust (MPT). AT&T is considering a two-phased approach.**
  - Phase 1: Transition the long duration bond allocation from 10% to 35% specified time frame
  - Phase 2: Increase the long duration bond allocation to a higher target (ex: 45%) at some future unspecified date
- **In the 2013 ALM study covering the AT&T Pension Benefit Plan, AT&T is considering between 30% and 50% long government/credit bonds which is attractive from an asset/liability modeling perspective. Long duration bonds provide a better match to the liability and improve most ALM results relative to AT&T's current mix of aggregate and long duration bonds.**

## Long Duration Implementation Considerations

- **AT&T's goal should be a timely and cost effective transition that avoids any unintentional exposures that could add risk to the portfolio. To determine an appropriate transition strategy, AT&T must consider a number of important objectives**
  - Managing duration exposure
  - Managing credit spread exposure
  - Limiting transaction costs
  - Avoiding any time "out of the market"
  - Avoiding any unintentional exposures
  - Timeliness of the transition
- **Key decisions regarding implementation can be grouped into three broad categories**
  - Portfolio: what should the new long duration portfolio look like?
  - Source of new assets: from which other strategies will assets be taken in order to increase the long duration allocation?
  - Timing and strategy: how quickly will the transition take place and what is the best way to accomplish it while meeting AT&T's objectives?

## Key Decisions: Portfolio

- **What type of fixed income should be in the long duration bond portfolio?**
  - Long physical bonds only? Allow core bonds with derivatives overlay?
- **What is the target duration of the new portfolio?**
  - The AT&T liability duration is 11-12 years while the Barclays Long Gov't/Credit Index duration is almost 15 years. A custom benchmark constructed to match the duration profile of AT&T's liability may improve the hedging benefits of the portfolio.
- **What is the split to government vs. credit?**
  - The Barclays Long Gov't/Credit Index is approximately 39% Gov't/61% Credit (3/31/13). The split varies over time based on market performance and new issuance.
  - A credit-tilted benchmark (ex: 25% Gov't/75% Credit) may provide a better hedge to liabilities discounted using corporate bond rates.

## Key Decisions: Source of New Assets

- **What is the source of the new long bond assets?**
  - AT&T has several incumbent long bond managers managing 10-14% to the total. Additional assets are needed to bring the total long bond allocation up to 35%
  - The remainder of the AT&T MPT fixed income segment are invested in active core bonds, passive fixed income, and private placements/alternatives
  - Active core bonds and passive fixed income are obvious candidates to transition into long duration bonds mandates, provided that there are no unusual liquidity constraints
  - Private placements/alternatives are typically illiquid but could serve as long duration allocations if combined with derivatives overlays to extend duration. Alternatively, these assets could continue as return-seeking assets and other return seeking assets (equities or alternatives) could be liquidated and shifted into long duration.

## Key Decisions: Timing and Strategy

- What is the appropriate timing and strategy for the portfolio transition?
  - AT&T has specified a one-year transition period for Phase 1 (moving to 35% long duration). Timing for transition to a higher long duration target (Phase 2) is unspecified. Timing for each transition should be determined according to AT&T's hedging objectives while also considering market liquidity and transaction costs
  - For the relatively short and fixed one-year transition period in Phase 1, we typically recommend a time-based dollar-cost averaging approach. However AT&T may want to consider triggers based on market yield levels given the Fed's latest statements regarding economic recovery and tapering of its quantitative easing program.
  - If the transition period for Phase 2 is sufficiently long and flexible, AT&T should consider developing a journey plan with a dynamic de-risking process based on funded status improvements. Triggers based on market yield levels should be considered only if AT&T has strong views on the direction and level of future yields. A journey plan that incorporates de-risking triggers can be enhanced by a dynamic risk overlay which factors in market conditions when a trigger is hit to assess whether the planned de-risking is attractive at that time.
  - Once key decisions have been made about the target portfolio, sources of assets, and timing, AT&T should seek input from its current fixed income managers regarding market liquidity and potential trading costs associated with the transition activity. If other return seeking assets will be liquidated to provide funds, a liquidation plan should be developed with those managers.

## Summary of Analysis

	Current AT&T Lineup		Shift fixed income asset to 100% Long Government Credit
Dollar Duration Hedge	26%		42%
Credit Hedge	20%		30%
Curve Hedge	24%		37%
Funded Status Sensitivity*	83% +18/-15		83% +16/-14

- Data as of 6/30/2013
  - Assets: App. \$45 billion
  - Liabilities: App. \$52 billion

# Liability Driven Investing Explained

**Dollar duration hedge:** Measures the effectiveness of the hedging assets to match the change in the liability value due to changes in the overall level of interest rates

A 26% dollar duration hedge is interpreted as a \$1,000 change in liabilities should produce a \$260 change in assets. Increases as the duration of assets more closely match duration of the liabilities.

**Credit hedge:** Measures the effectiveness of the hedging assets to match the change in the liability value due to changes in the overall level of credit spread

Liabilities are measured as an AA rated bond. Given an increase in credit spread, the value of the liability will increase. This measure gives an estimate of how closely the assets will track a movement of value given a change in credit spreads.

**Curve hedge:** Measures the average effectiveness of the hedging assets to match the change in the liability value due to changes in the shape of the yield curve

In an uneven shift in interest rates, assets and liabilities will be affected differently depending on duration and maturity. This measure gives an estimate on how well the assets will move line in with the liabilities given an uneven shift in rates.

**Funded status sensitivity:** Measures overall change in funded status due to changes in interest rates and equity returns

Also known as funded status volatility. Analysis is based on +/- 1% change in interest rates and +/- 20% change in asset values. The higher the hedge percentage, the lower the funded status volatility.

# Current

(in millions, except percentages)

## Assets

	Current Lineup	
	Assets (\$M)	Asset (%)
Return Seeking	\$ 29,355	65.0%
Aggregate Fixed Income	\$ 9,484	21.0%
Long Govt/Credit	\$ 6,323	14.0%
Preferred Equity	\$ -	0.0%
<b>Total</b>	<b>\$ 45,162</b>	<b>100.0%</b>

## Hedge Summary

Dollar Duration Hedge %	26%	Hedge Port. Yld.	3.2%
Credit Hedge %	20%	Liability Yield	5.0%
Curve Hedge %	24%		

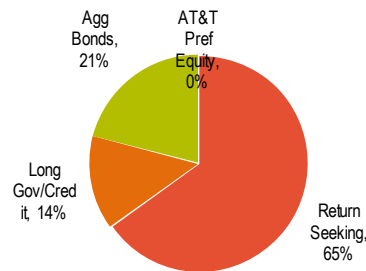
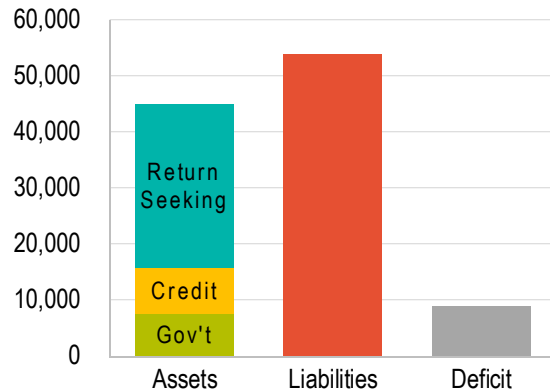
Stress Test Decline	-28%	FS Sensitivity	-15% to +18%
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## Analysis of Funded Status Sensitivity

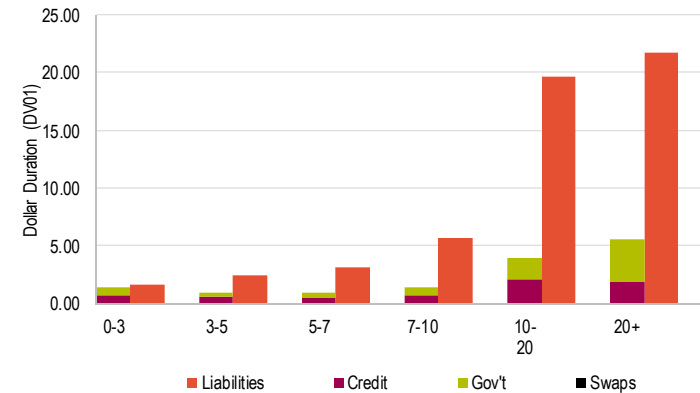
		Change in Discount Rate		
		-1%	0%	+1%
Return Seeking Assets Return	-20%	68%	72%	77%
	0%	78%	83%	89%
	+20%	87%	94%	101%

Reflects instantaneous changes to assets and liabilities and parallel shifts in the yield curve

## Asset Allocation Policy



## Key Rate Duration Distribution





# Shift To Long Gov't Credit

(in millions, except percentages)

## Assets

	Current Lineup		After Long Gov't / Credit Shift	
	Assets (\$M)	Asset (%)	Assets (\$M)	Assets (%)
Return Seeking	\$ 29,355	65.0%	\$ 29,355	65.0%
Aggregate Fixed Income	\$ 9,484	21.0%	\$ -	0.0%
Long Gov't/Credit	\$ 6,323	14.0%	\$ 15,807	35.0%
Preferred Equity	\$ -	0.0%	\$ -	0.0%
<b>Total</b>	<b>\$ 45,162</b>	<b>100.0%</b>	<b>\$ 45,162</b>	<b>100.0%</b>

## Hedge Summary

Dollar Duration Hedge %	42%	Hedge Port Yld.	4.5%
Credit Hedge %	30%	Liability Yield	5.0%
Curve Hedge %	37%		

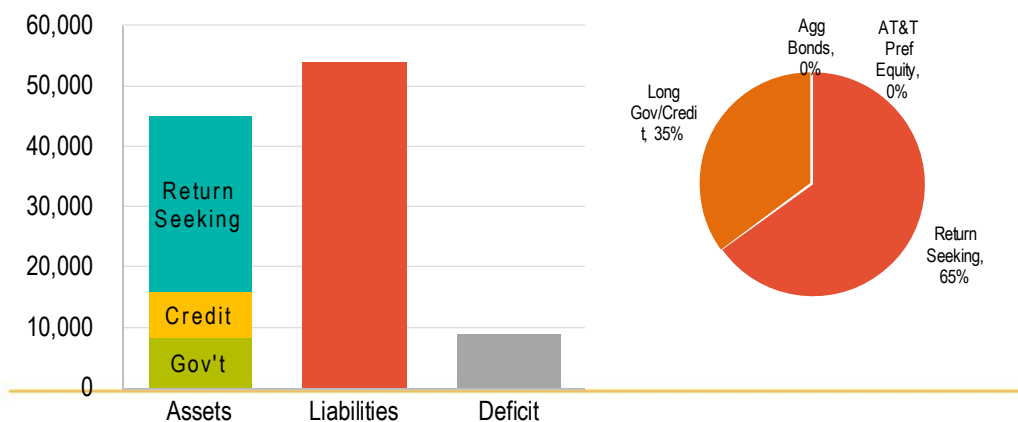
Stress Test Decline	-28%	FS Sensitivity	-14% to +16%
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## Analysis of Funded Status Sensitivity

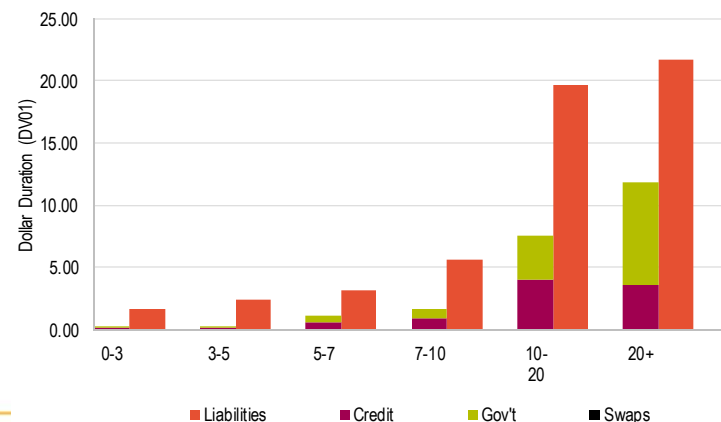
		Change in Discount Rate		
		-1%	0%	+1%
Return Seeking Assets Return	-20%	69%	72%	76%
	0%	79%	83%	87%
	+20%	89%	94%	99%

Reflects instantaneous changes to assets and liabilities and parallel shifts in the yield curve

## Asset Allocation Policy



## Key Rate Duration Distribution



# Closing Thoughts

- **Holistic approach considering risks to plan sponsor**
- **Many tools beyond diversification and liability hedging**
- **Risk and return management**

# Questions

# Disclaimer

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