Real Money:

Option Strategies to Meet Institutional Liabilities

DGV Solutions

CBOE RMC Europe 2016

Disclosure

PLEASE READ THE FOLLOWING IN CONNECTION WITH YOUR REVIEW OF THIS PRESENTATION

In general, this disclaimer applies to this document and the verbal or written comments of any person presenting it (collectively the “Presentation”). DGV Solutions LP, taken together with its affiliates, is referred to herein as “DGV” or “DGV Solutions.” This Presentation is being provided to you at your specific request for informational purposes only and does not constitute an offer to sell or a solicitation of an offer to buy any security and may not be relied upon in connection with the purchase or sale of any security. Any such offer would be made only by means of formal offering documents (i.e., the offering memorandum, organizational document and/or agreement and subscription document related to the securities of the specific investment fund or other vehicle being offered), the terms of which shall govern in all respects. You may not rely on this Presentation as a basis to make an investment decision.

This Presentation represents the views, opinions and judgments of DGV Solutions as of the date of this Presentation. DGV is not soliciting any action based on this Presentation. This Presentation should not be viewed as research, nor does this Presentation constitute a personal or other recommendation or take into account your particular investment objective or financial situation or needs. The economic and market assumptions and forecasts presented herein are DGV estimates and do not guarantee, and are not necessarily indicative of, future results. DGV’s market and other views, opinions and judgments expressed in this Presentation may change, including in substantial and/or material ways, and DGV is not obligated to update this Presentation or otherwise notify you of any such changes. Nor is DGV Solutions obligated to provide any update to this Presentation if it is later shown to be inaccurate.

DGV Solutions has not independently confirmed the accuracy of certain information contained in this Presentation, and such information, although believed reliable, is not guaranteed. This Presentation is being provided in summary fashion and does not purport to be complete. This Presentation is not (and you shall not construe it as) legal, tax, regulatory, investment, financial or accounting advice. You acknowledge that you are knowledgeable and experienced with respect to the financial, tax and business aspects discussed in this Presentation.

The S&P 500 Index is a well-known, broad based index that is thought be representative of the U.S. stock market as a whole. The CBOE Put-Write Index measures the performance of a hypothetical portfolio that sells S&P 500 Index put options against collateralized cash reserves held in a money market account. Annualized volatility is the measure of the degree to which an individual value in a probability distribution tends to vary from the mean of the distribution. Past performance is not indicative of future results.

No chart, graph, or other figure provided should be used to determine which securities to buy or sell, or which investment program to employ. All figures are estimated and unaudited. Calculations of return and volatility data may vary based on varying time periods and may not be consistent across all presentations. Inaccuracies may exist.

Any “Projections” (projected returns, opinion, predictions or expectation about any future event, calculation of portfolio breakdown) contained in the Presentation are based on a variety of estimates and assumptions by DGV Solutions. These estimates and assumptions are inherently uncertain and are subject to numerous scenarios that are outside of DGV Solution’s control. There can be no assurance that the estimates and assumptions made in connection with the Projections will prove accurate, and actual results may differ materially. The inclusion of the Projections herein should not be regarded as an indication that DGV Solutions considers the Projections to be a reliable prediction of future events, and the Projections should not be relied upon as such.

DGV’s President, Chief Investment Officer and primary owner serves an a strategic advisor to Jeffrey Slocum & Associates, Inc., an institutional investment consulting firm. This affiliation creates a potential conflict of interest that prospective clients and/or investors considering DGV or its services or investment funds should understand and evaluate in connection with any potential investment or engagement.

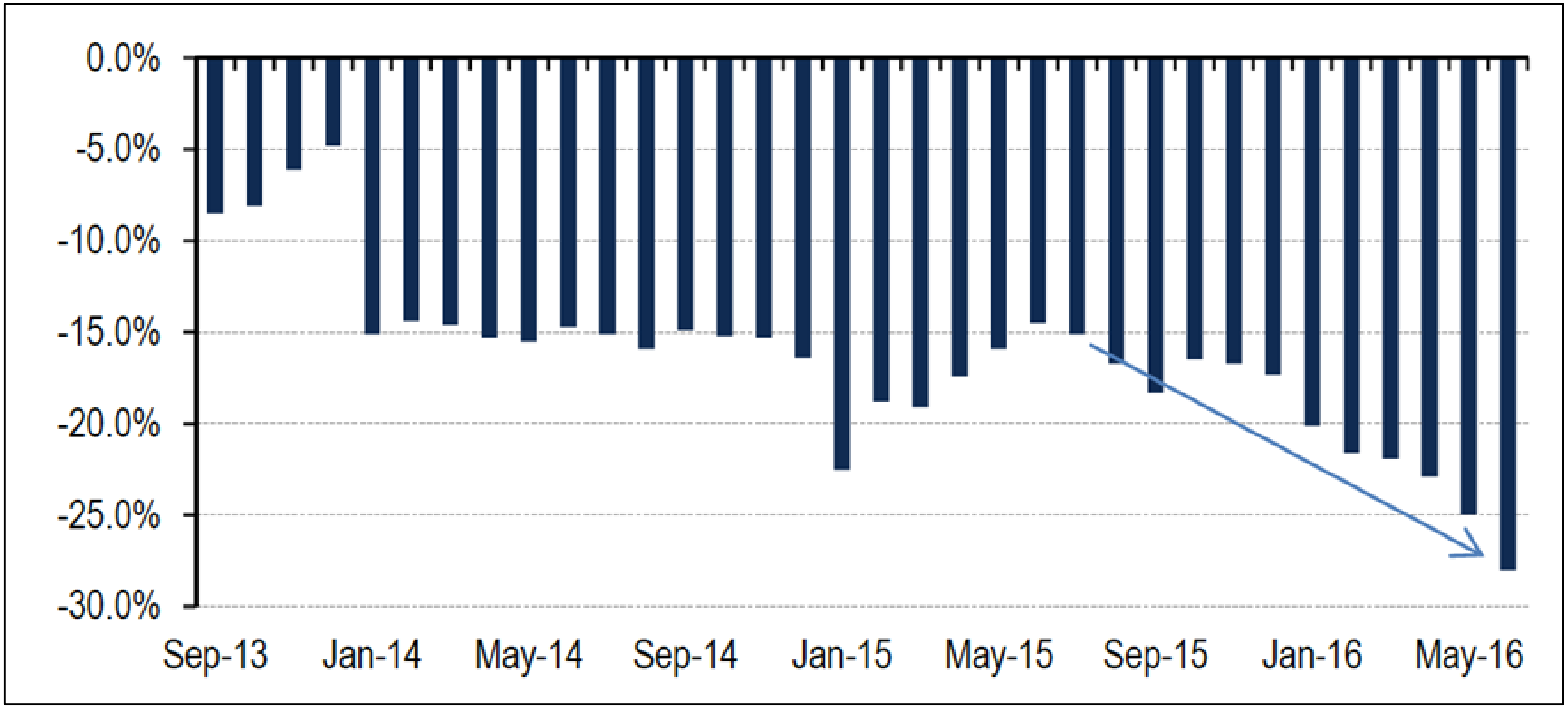
The Presentation is provided on a confidential basis solely for the information of those persons to whom it is transmitted and is not to be reproduced or used for any other purpose. The Information contained in this Presentation is strictly confidential. Any reproduction, dissemination or onward transmission of this Presentation, or the information contained herein, is strictly prohibited.

Institutional Liabilities

- Pension plans face the tyranny of funded status ratios that are doubly geared to economic variables
- Endowments require high returns to meet spending objectives but new gifts are highly correlated to risk assets
- It is critical to maintain allocations to equities and their high return expectations to have any chance of meeting liabilities
- Option strategies that reduce downside exposure – even at the expense of upside participation – without reducing return expectations, better align assets with the overall enterprise risk/liabilities of the institution

Institutional Liabilities

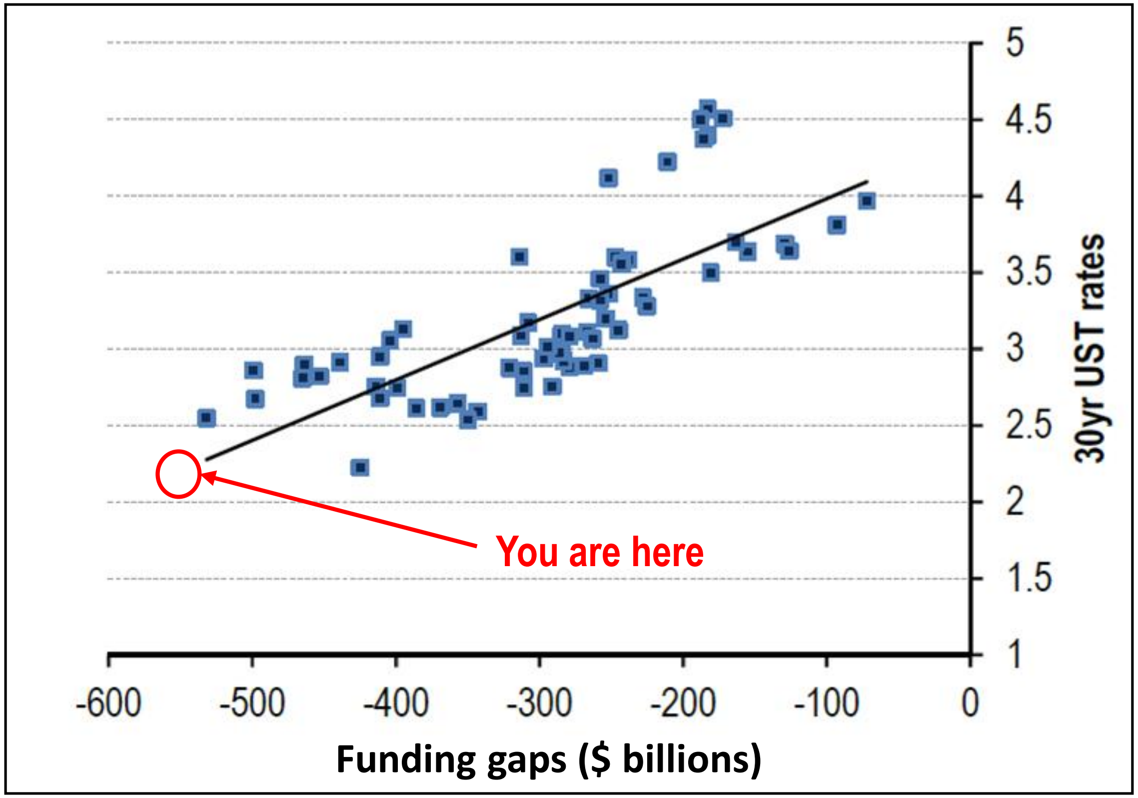
Funding Gaps of Top 100 U.S. Corporate Defined Benefit Pension Plans



Source: BofAML Global Research, Milliman

Institutional Liabilities

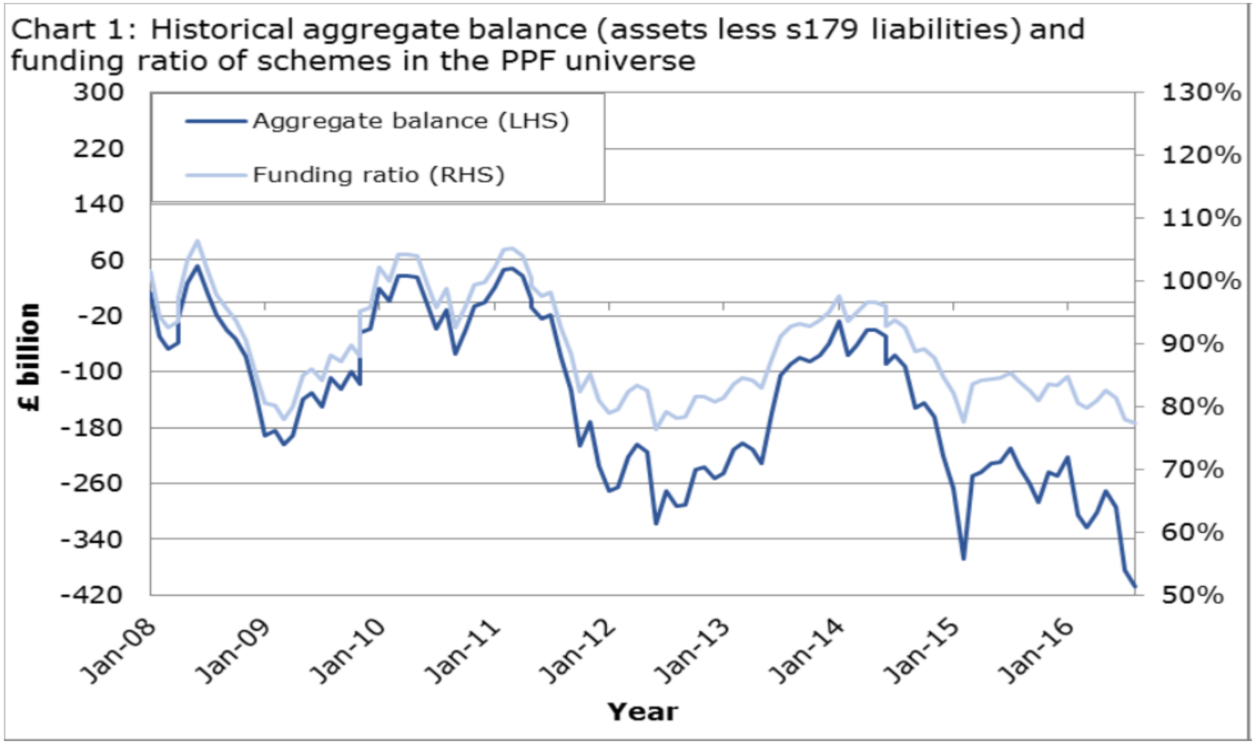
Funding Gaps of Top 100 U.S. Corporate Defined Benefit Pension Plans



Source: BofAML Global Research, Milliman

Institutional Liabilities

Pension Plans Covered by the UK Pension Protection Fund

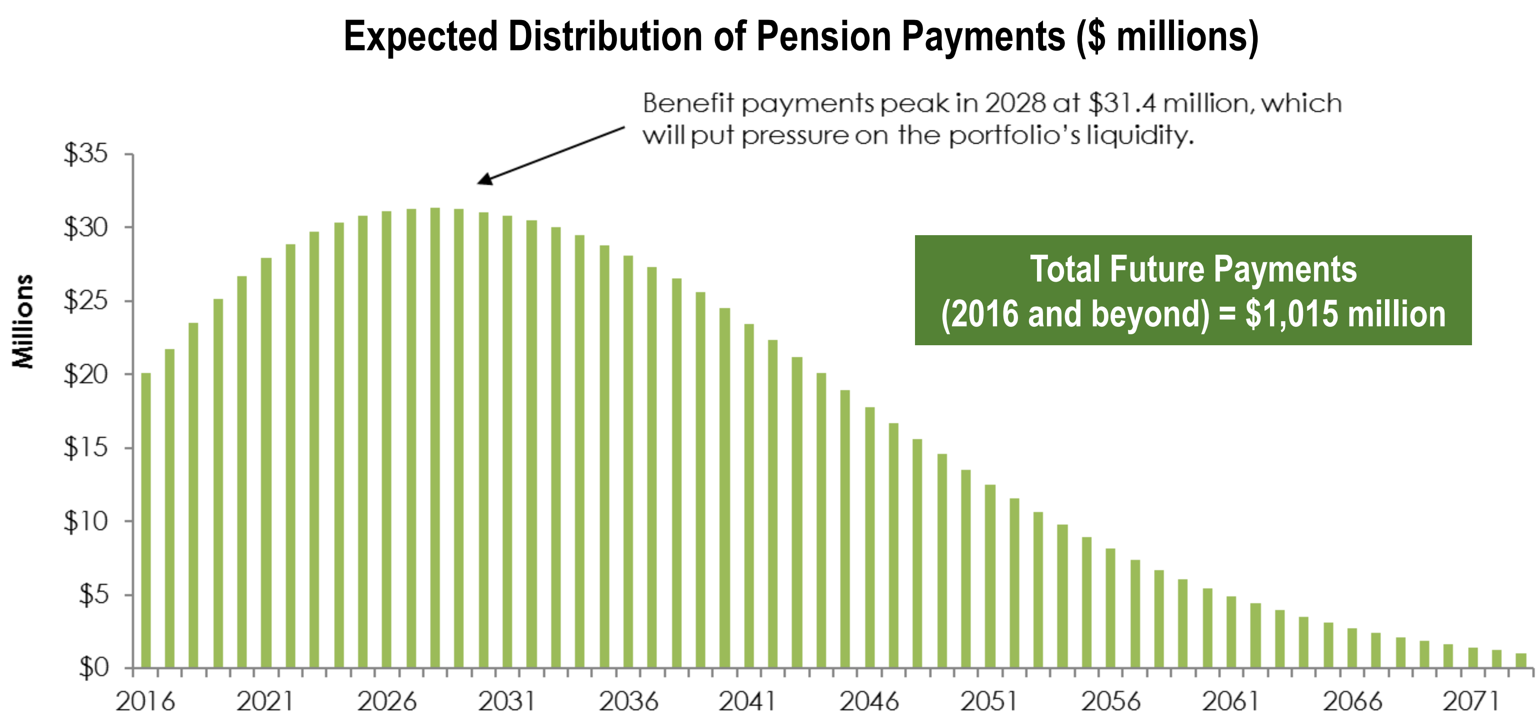


Source: UK Pension Protection Fund

- **85% of Britain's 6,000 pension funds covered by the PPF are in deficit.**
- **The total deficit was £408 Billion ($530 Billion) at the end of July.**
- **That represents an increase of £113 Billion since May.**

DGV Solutions

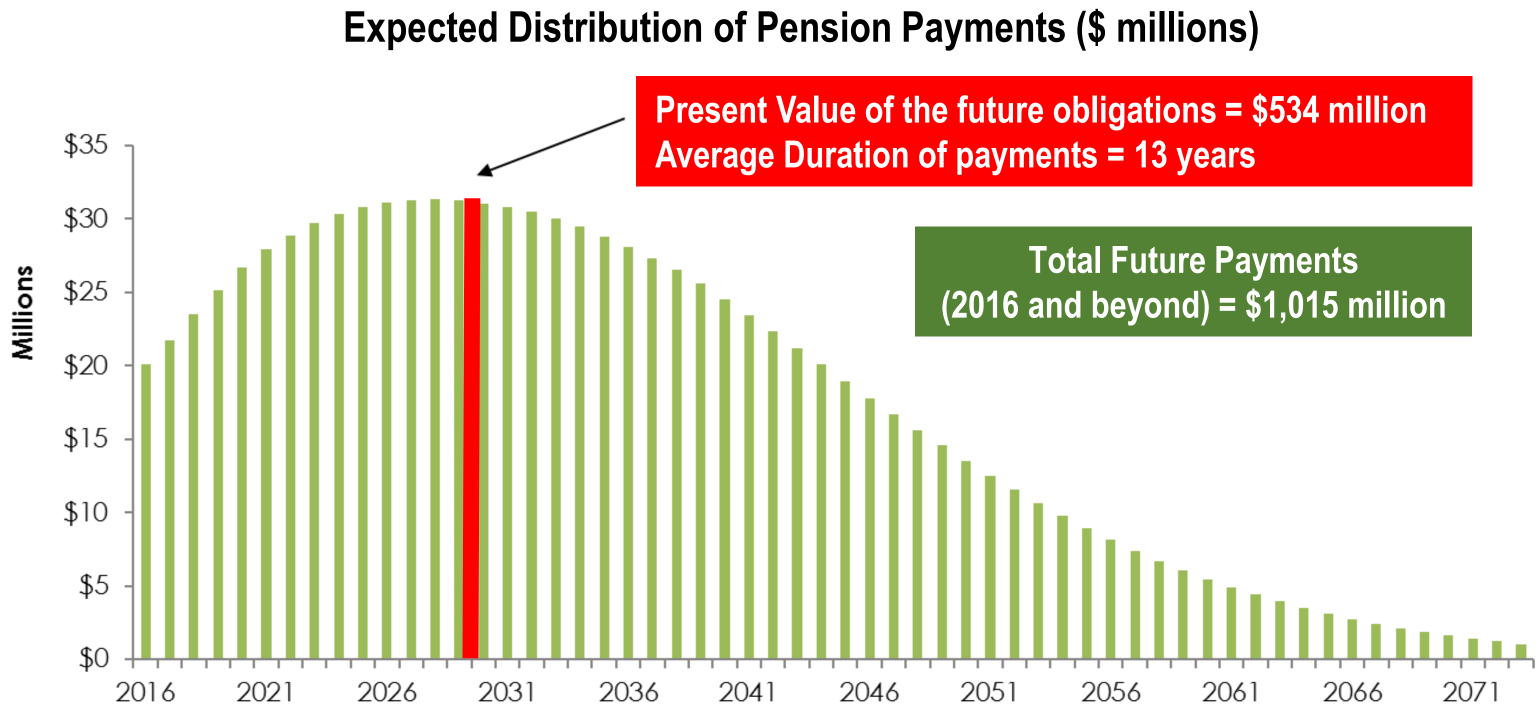
Sample Pension Distributions



- Payments from the hypothetical plan will change over time as current employees retire, terminated employees become eligible for payments, and current retirees pass away
- The distribution pattern can be estimated as above based on actuarial assumptions (mortality rates, expected retirement rates, etc.)

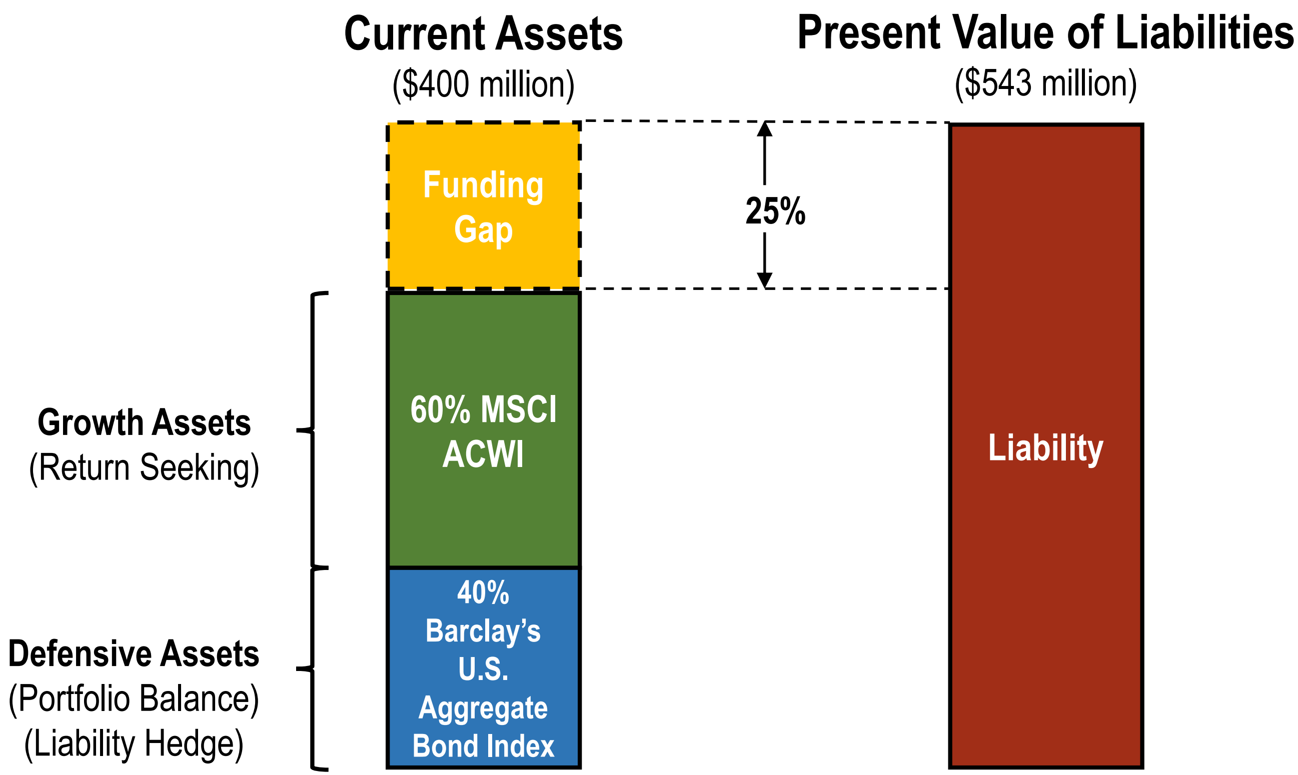
DGV Solutions

Sample Pension Distributions



- Payments from the hypothetical plan will change over time as current employees retire, terminated employees become eligible for payments, and current retirees pass away
- The distribution pattern can be estimated as above based on actuarial assumptions (mortality rates, expected retirement rates, etc.)

Sample Pension Assets



- **We assume a very simple portfolio of Global Equities and U.S. Investment Grade Bonds proxied by the MSCI ACWI and the Barclay's U.S. Aggregate Bond Index**

Sample Pension Funded Status Matrix

Funded Status Ratio

Return on MSCI ACWI	Interest Rate Movements -150bps	-100bps	-50bps	3.80%	+50bps	+100bps	+150bps
+30%	76%	82%	87%	93%	99%	104%	109%
+20%	70%	76%	80%	87%	93%	98%	103%
+10%	64%	70%	75%	81%	87%	92%	97%
0%	58%	64%	69%	75%	81%	86%	91%
-10%	52%	58%	63%	69%	75%	80%	85%
-20%	46%	52%	57%	63%	69%	74%	79%
-30%	40%	46%	51%	57%	63%	68%	73%

Source: DGV Estimates

- The Funded Status of this hypothetical plan currently stands at 75%
- Market movements for the growth assets (MSCI ACWI) will positively or negatively affect the Funded status
- Interest rate rises (or declines) will hurt (help) bond exposures in the portfolio (Barclay's U.S. Aggregate Bond Index), which have a duration of ~5.5 years
- Interest rate rises (or declines) will help (hurt) liability exposures, which have a duration of ~13 years

Sample Pension Funded Status Matrix

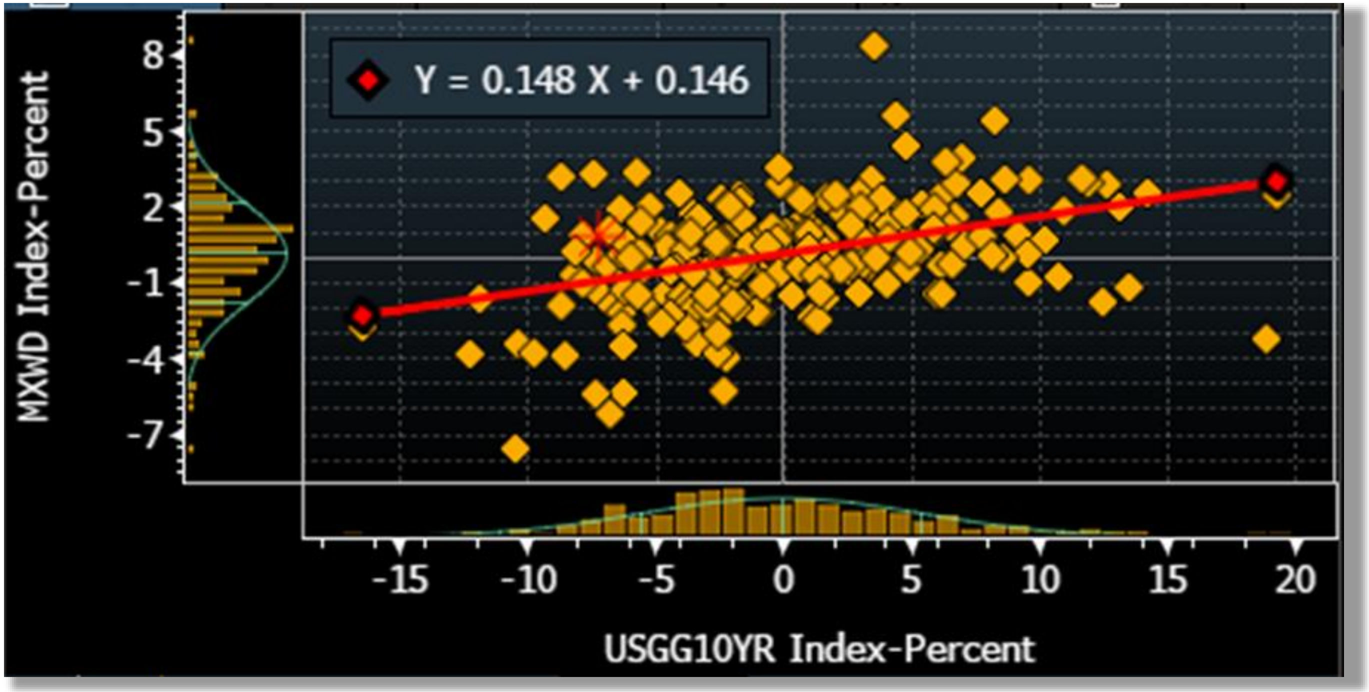
Funded Status Ratio							
	Interest Rate Movements						
Return on MSCI ACWI	-150bps	-100bps	-50bps	3.80%	+50bps	+100bps	+150bps
+30%	76%	82%	87%	93%	99%	104%	109%
+20%	70%	76%	80%	87%	93%	98%	103%
+10%	64%	70%	75%	81%	87%	92%	97%
0%	58%	64%	69%	75%	81%	86%	91%
-10%	52%	58%	63%	69%	75%	80%	85%
-20%	46%	52%	57%	63%	69%	74%	79%
-30%	40%	46%	51%	57%	63%	68%	73%

Funded Status ratios are sensitive to movements in Global Equity markets. With no change in interest rates, a +/- 30% move in equity markets will swing the Funded Status +/- 18%

- The Funded Status of this hypothetical plan currently stands at 75%
- Market movements for the growth assets (MSCI ACWI) will positively or negatively affect the Funded status

Equities and Yields

MSCI ACWI versus U.S. 10-Year Treasury Yields
(weekly return regression - 5 years through 8/2/16)



Source: Bloomberg

- **Global Equities and Bond Yields tend to be positively correlated**
- **A 30% rise in Global Equities would likely correspond to a 100 - 150bp rise in interest rates**

Sample Pension Funded Status Matrix

Funded Status Ratio

			Interest Rate Movements				
Return on MSCI ACWI	-150bps	-100bps	-50bps	3.80%	+50bps	+100bps	+150bps
+30%	76%	82%	87%	93%	99%	104%	109%
+20%	70%	76%	80%	87%	93%	98%	103%
+10%	64%	70%	75%	81%	87%	92%	97%
0%	58%	64%	69%	75%	81%	86%	91%
-10%	52%	58%	63%	69%	75%	80%	85%
-20%	46%	52%	57%	63%	69%	74%	79%
-30%	40%	46%	51%	57%	63%	68%	73%

Source: DGV Estimates

In reality, given the positive correlation between Global Equities and interest rates, the Funded Status tends to be extremely volatile. A +/- 30% move in Global Equities may swing the Funded Status by 69%. A beta greater than 1!

- **Funded Status ratios can be extremely volatile due to the positive correlation between interest rates and Global Equities**
- **Investment strategies that provide downside protection in exchange for upside performance better match institutional liability profiles**

CBOE Put-Write Index

CBOE Put-Write Index

- **Sells 1-month at-the-money put options and rolls to the subsequent month upon expiration.**
- **Holds a collateral position of 1-month and 3-month U.S. T-bills fully backing the notional amount of puts sold.**

Annual Returns	CBOE Put-Write Index	S&P 500 Index
1989	24.57%	31.69%
1990	8.88%	-3.10%
1991	21.32%	30.47%
1992	13.80%	7.62%
1993	14.14%	10.08%
1994	7.09%	1.32%
1995	16.88%	37.58%
1996	16.41%	22.96%
1997	27.68%	33.36%
1998	18.54%	28.58%
1999	21.01%	21.04%
2000	13.06%	-9.10%
2001	-10.63%	-11.89%
2002	-8.58%	-22.10%
2003	21.77%	28.68%
2004	9.48%	10.88%
2005	6.71%	4.91%
2006	15.16%	15.79%
2007	9.51%	5.49%
2008	-26.77%	-37.00%
2009	31.51%	26.46%
2010	9.02%	15.06%
2011	6.17%	2.11%
2012	8.14%	16.00%
2013	12.28%	32.39%
2014	6.38%	13.69%
2015	6.40%	1.38%
Total Return	1348.23%	1226.41%
Annual Return	10.41%	10.05%
Volatility	12.03%	18.09%

- The Put-Write Index has produced the best relative returns in low return (<10%) environments.
- Over 27 years, the Put-Write Index has outperformed the S&P 500 (+10.41% vs. +10.05%) with only two-thirds of the volatility.

Source: Bloomberg; DGV

Past performance relates to the referenced index(es), not any DGV fund or strategy, and does not guarantee, and is not necessarily indicative of, future results.

CBOE Put-Write Index

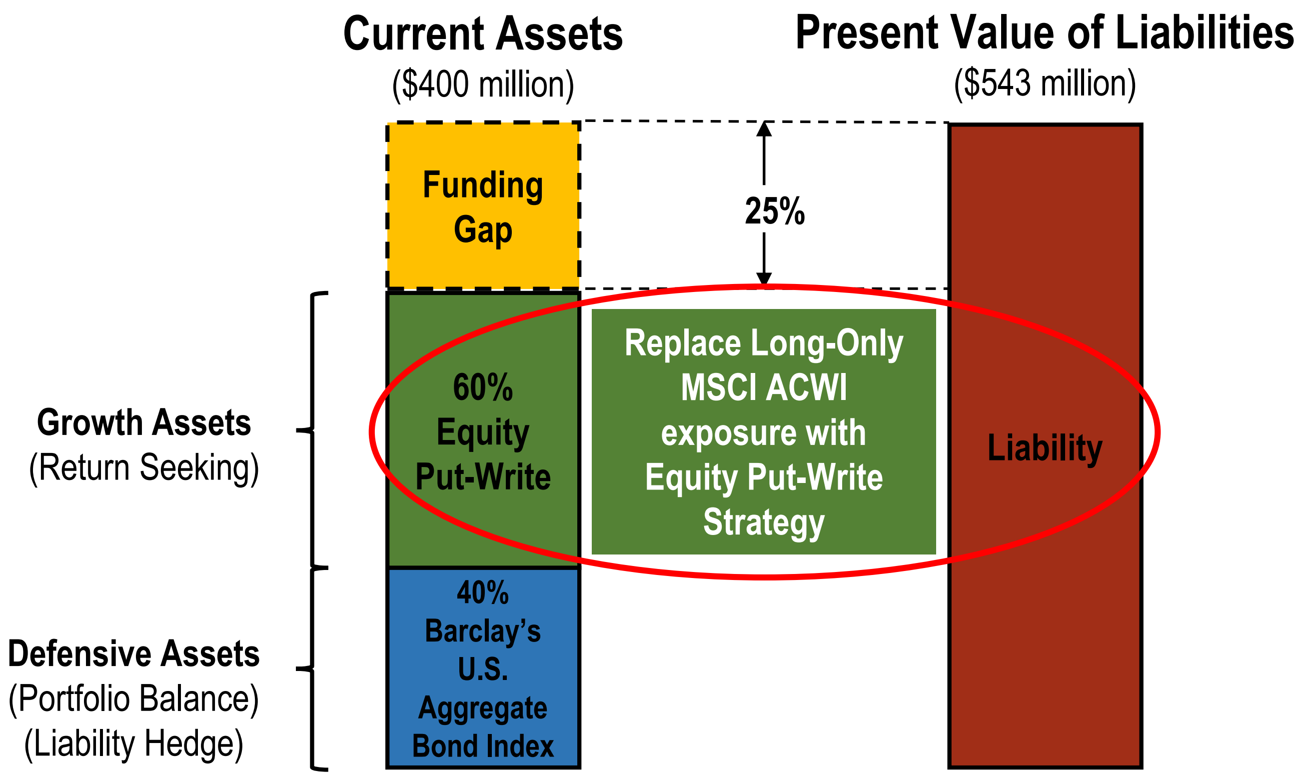
- In calendar years when the S&P 500 has returned less than +10% (including negative return years) the CBOE Put-Write Index has **<u>outperformed by an average of 7.8% annually</u>**.

S&P 500 Calendar Year Return Regime (1989-2015)				
	<0%	0%-5%	5%-10%	>10%
S&P 500 Index (Observations)	-16.64% (5/27)	2.43% (4/27)	6.56% (2/27)	23.42% (16/27)
CBOE Put-Write Index	-4.81%	6.60%	11.65%	17.14%
Over/Under Performance	**11.83%**	**4.16%**	**5.09%**	**-6.28%**

Source: Bloomberg; DGV

Past performance relates to the referenced index(es), not any DGV fund or strategy, and does not guarantee, and is not necessarily indicative of, future results.

New Asset Allocation

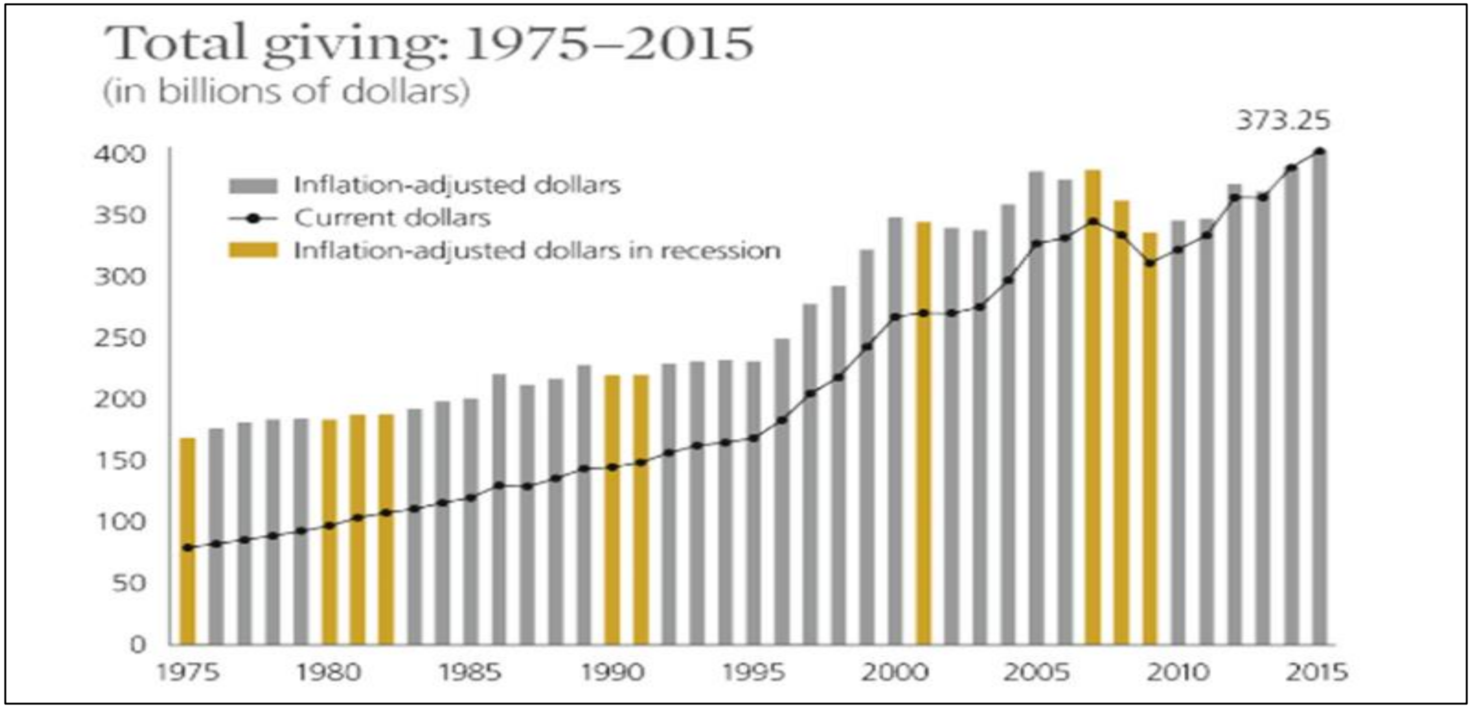


- Replace Global Equities in the portfolio with an Equity Put-Write strategy.

DGV Solutions

Institutional Liabilities

U.S. Charitable Giving



Source: Giving USA Foundation

- **It is not just pensions that face return challenges and "Enterprise Beta" that is greater than the market beta of their assets. Charitable giving also declines in periods of recession and market declines.**

Conclusion

- Funded Status ratios are geared to interest rates and growth assets – factors that tend to be positively correlated
- Non-Profits face high return hurdles to meet spending goals combined with new gifts that are correlated with risk assets
- It is critical to maintain equity allocations to have any chance of meeting liabilities
- Option strategies that reduce downside exposure – even at the expense of upside participation – without reducing return expectations, better align assets with the overall enterprise risk/liabilities of the institution