KEEPING PENSION FUNDING GOALS IN SIGHT
Executing a liability-driven investment strategy using exchange-traded funds (ETFs)

“The best way to measure your investing success is not by whether you’re beating the market but by whether you’ve put in place a financial plan and a behavioral discipline that are likely to get you where you want to go.”

Benjamin Graham

INTRODUCTION
Liability-driven investing (LDI) has been a hot topic since the financial crisis of 2007–2008. Defined benefit (DB) pension plan sponsor and investment committee members recognize that a nominal investment expected return assumption is not as meaningful if the funding of a plan’s liabilities are ignored. Despite this realization, few institutional portfolio managers have been able to combine the philosophy of liability goals-based investing with the world of portfolio construction.

In this paper we explore how a liability-driven investing strategy used in pension plans is executed with the liquidity and low-cost nature of exchange-traded funds (ETFs). This presents a thoughtful and suitable LDI portfolio solution for a plan sponsor’s objectives and priorities.
**DEFINED BENEFIT (DB) PENSION PLAN FUNDED RATIOS ARE AT THEIR LOWEST LEVELS**

DB pension plans are two-sided equations: assets and liabilities. Looking at only one side of the equation leads to misinterpreting pension fund dynamics. From 1999 to 2014, pension plan liabilities grew faster than stocks and bonds. This mismatch between assets and liabilities caused funded ratios to decline.

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The funded ratio is assets divided by liabilities. This ratio is the percentage of assets to cover liability. Similarly, funding status is the dollar value of assets minus the liability.

The funded ratio context can be illustrated by the annual report from S&P Dow Jones Indices, “S&P 500® Corporate Pensions and Other Post-Employment Benefits (OPEB): Heading Into the Sunset, a Half-Trillion Dollars Short,” on the state of S&P 500 company pension plans. The report spans over 15 years, ending with 2014. At the end of 2014, Standard & Poor’s 500 Index (S&P 500) company pension assets and liabilities were $1.7 trillion and $2.1 trillion respectively. This translates to a funded ratio of 81%, assets over liabilities. The reporting period saw two bull markets: one from 2003 to 2007, and the other from 2009 to 2014. Additionally, bond markets outperformed their historical long-term average. The S&P 500 and Barclays Capital U.S. Aggregate Bond Index (Barclays Aggregate) annual compound total returns were 4.2% and 5.7% respectively over the 15-year period. Although stocks typically outperform bonds over the long term, the Barclays Aggregate outperformed the S&P 500 during this time frame.


**EXHIBIT 1**

**FUNDED RATIO OF S&P 500 COMPANIES HAS DECLINED OVER THE LAST 15 YEARS**

Past performance is no guarantee of future results. Please refer to the Index Definitions section on page 14 and other disclosures at the end of this document for important information.
S&P 500 corporate-pension-funded ratios decreased from 128% to 81%, meaning that pension plans went from being well-funded to underfunded during this time. The decline was not linear. It began with a steep decline from 1999 to 2002. From 2002 to 2007, funded status of pension plans rallied as a result of a bull run in equities. Then the funded ratio dropped by 26% in the 2008 financial crisis. It was the largest one-year drop reported during this 15-year period. Despite an 11% jump in 2013, the highest one-year increase, funded ratios have not recovered and remain near their lowest levels.

At the end of 2014, the S&P 500 corporate-pension-funded ratio was 81%, down from 88% in 2013. In 2014, market benchmark total returns for the S&P 500 and Barclays Aggregate were 13.7% and 6.0% respectively. Despite outperformance against their respective long-term averages, pension-funded ratios declined by 7%. This decline demonstrates that asset performance alone does not completely determine how well pension funds meet their obligations. Even though the equity and bond indexes beat their historical long-term averages, that outperformance did not keep pace with the liability growth, and, as a result, the funded ratio declined in 2014.

While equity and bond indexes beat their historical long-term averages, they didn't keep pace with the liability growth. As a result, the funded ratio declined in 2014.

Along with the funded ratio, the S&P 500 Corporate Pension Report also highlights the average asset allocation of pension plans. Since 2004, asset allocations are trending toward increased fixed income allocation. In 2004, portfolios were invested 29% in fixed income, 65% in equity, 4% in real estate and 2% in other assets. At the end of 2014, portfolios were invested 44% in fixed income, 44% in equity, 2% in real estate and 10% in other assets.

PERFECT STORM
During the 2008 financial crisis, pension-funded ratios dropped by 26%. The perfect storm of events that led to the decline in funded ratios included the collapse in equity markets, declining interest rates, widening corporate yield spreads, and the tumbling of liability discount rates. As a result, portfolios returns were negative and liability values increased. Liability discount rates and pension liability values are tracked and measured by the Citigroup Pension Liability Index (CPLI).

The CPLI is a liability benchmark used by DB pension plan sponsors and pension actuaries to measure both the movement of the liability discount rate as well as the returns of a liability value for an average future pension benefit payment cash flow stream. In recent years, the benchmark has been gaining attention among LDI strategists. The construct of the CPLI discount rate is based on a universe of AA-rated corporate bonds from Citi’s U.S. Broad Investment-Grade Bond Index (USBIG) and Citi’s Treasury model yield curve.

To compound matters, in 2006/2007 (just prior to the financial crisis) regulation and accounting standards were updated to emphasize DB pension-plan-funded ratios and status. The Pension Protection Act (PPA) of 2006 introduced a more aggressive funding requirement (fully funded over seven years), and Financial Accounting Standard (FAS) 158 required companies to recognize the funded status on their balance sheets. Prior to FAS 158, funded status was reported as a note in a company’s financial report and did not affect shareholder equity. But as a result of the updated guidance, the unfunded dollar value is reported in the balance sheet, causing a decline in shareholder equity. This is a direct hit to the strength of the balance sheet, as well as to shareholder value. Furthermore, the Pension Benefit Guaranty Corporation (PBGC) has been increasing the variable rate premium for unfunded vested benefits, which increases the cost of maintaining a pension plan. Not only are plan sponsors still dealing with the market collapse, they are encountering complications due to more stringent accounting guidance and regulations. As a result, LDI has become increasingly important.
LIABILITY-DRIVEN INVESTING (LDI)

In DB pension plans, LDI is a risk-mitigating strategy used to reduce the volatility of the funded ratio. In an LDI portfolio, assets and liabilities are constructed to move in concert with one another when interest rates change. Besides mitigating the funded ratio volatility, the benefit of this strategy is that your pension plan remains fully funded, therefore reducing the probability of dipping below this critical threshold. While there is always a risk that the funded ratio will fall below 100%, maintaining the LDI strategy for the long term should ensure it stays fully funded. This is shown in Exhibit 2.

EXHIBIT 2
LDI FUNDED RATIO VOLATILITY: LDI STRATEGY MAINTAINS FULLY FUNDED IN THE LONG TERM

Sources: FactSet; Citigroup Pension Liability Index; U.S. Trust, Global Portfolio Solutions & Institutional Investments.
Data as of September 30, 2015.
Assumption: No rebalancing.
Past performance is no guarantee of future results.
Please refer to the Glossary section on page 13, the Index Definitions on page 14 and other disclosures at the end of this document for important information.
AN ALLOCATION TO RISK-SEEKING ASSETS

Key asset allocation decisions for DB plan sponsors depend on the status and funding strategy of the plan, as well as the client’s capital needs, risk tolerance, liability hedging allocation, risk-seeking asset allocation and more. Depending on a client’s goals and investment policy, exposure to a well-diversified risk-seeking asset portfolio may complement an LDI portfolio.

We will demonstrate the benefit by comparing a 60/40 portfolio with and without an LDI component. For the non-LDI strategy, we will use Barclays Aggregate as a proxy for the fixed income exposure, while the S&P 500 will serve as a proxy for a risk-seeking asset component. However, in practice, the true risk-seeking component would be a more fully diversified allocation than the S&P 500.

Exhibit 3 compares the funded ratio volatility of two hypothetical portfolios: one with 40% in LDI and the other with 40% in Barclays Aggregate. Additionally, a 100% LDI allocation is provided (same as Exhibit 2). Starting from the fourth quarter of 2003, the funded ratios between the 40% LDI and 40% Barclays Aggregate portfolios start to deviate. Prior to this point, the 60% allocation in the S&P 500 drives the volatility. During the 2008 financial crisis, the funded ratios collapsed from being well funded to being underfunded. Since the financial crisis, the 40% LDI portfolio has recovered back to pre-crisis level. This is because the 40% LDI allocation provided a partial hedge in the liability. As interest rates declined, liabilities increased, and the LDI portfolios’ returns were able to match the growth of the liability. This allowed the risk-seeking asset portfolio to influence the growth of the portfolio, which caused the funded ratio to increase. Conversely, the portfolio with 40% in Barclays Aggregate didn’t keep up with the liability growth. Therefore, the 60/40 Barclays Aggregate portfolio is struggling, and has only recovered halfway from its pre-crisis level.

EXHIBIT 3
RISK-SEEKING ALLOCATION INCREASES THE VOLATILITY OF THE FUNDED RATIO

The reason for hedging a portion of the plan’s liability with an LDI structure is so the funded ratio will not decline, therefore protecting on the downside risk. The volatility of the funded ratio will depend on the percentage of the hedge against the liability. On the other hand, the risk-seeking asset allocation will provide upside potential for the pension fund. As the percent allocation to the risk-seeking asset increases, the volatility of the funded ratio will also increase, due to the inherent risk of equities vs. bonds.

Sources: FactSet; Citigroup Pension Liability Index; U.S. Trust, Global Portfolio Solutions & Institutional Investments.
Data as of September 30, 2015.
Assumption: 100% LDI portfolio assumes no rebalancing, 60/40 portfolio assumes monthly rebalancing.
Past performance is no guarantee of future results.
Please refer to the Index Definitions section on page 14 and other disclosures at the end of this document for important information.
**RISING RATES FOR LDI**

Interest rates as of September 2015 were near their lowest levels in 20 years. Exhibit 4 shows rates of the 10-year Treasury, Citigroup USBIG® Corporate 10+, and CPLI. As we prepare for the 10-year Treasury to rise from all-time lows, we need to understand how this will affect the overall funded ratio of pension plans. We’ll do this by investigating the corporate long duration market, the liability discount rate movement, and then the equity markets.

From September 1995 to September 2015, rates rose in one period: from May 2003 to June 2006. The 10-year Treasury rose from 3.37% to 5.15%. During this rising rate environment, corporate 10+ yield spreads tightened, causing the Citigroup USBIG Corporate 10+ index yields to increase from 5.89% to 6.72%. CPLI also increased from 5.29% to 6.38%. Along with rates rising, equities rallied as the S&P 500 index increased from 964 to 1270.

In summary: **10-year Treasury yields increased** by 178 basis points (bps); **spreads tightened against the long duration corporate bond market**, which resulted in the yield to increase by 83 bps; the **liability discount rate increased** by 109 bps; and the S&P 500 increased 31.7% (39.3% with dividends).

**EXHIBIT 4**

**YIELD AND DISCOUNT RATES ARE AT THEIR LOWEST LEVELS: 10-YEAR TREASURY, CITIGROUP USBIG CORPORATE 10+, AND CPLI**

Sources: FactSet; Citigroup USBIG Corporate Index; U.S. Department of the Treasury.

Data as of September 30, 2015.

Past performance is no guarantee of future results. Please refer to the Index Definitions section on page 14 and other disclosures at the end of this document for important information.

Exhibit 3 showed that a 60/40 portfolio with LDI improved its funding ratio by 32%, which was 5% better than the 60/40 Barclays Aggregate portfolio. The 100% LDI-funded ratio improved by 8%. For the 60/40 allocation, S&P 500 total return of 39.3% drove the funded ratio improvement. This strong performance during a rising-rate period illustrates that such an environment does not undermine an LDI strategy. This is because in an LDI strategy the portfolio and liability returns move in concert, providing a hedge against interest rate changes and essentially cancelling out movement.
GLIDE PATH SCENARIO
During the May 2003 to June 2006 rate rise, the funded ratio in our example kept tracking toward planned targets, increasing from 81% to 89%. We avoided a negative impact by implementing a glide path approach.

The glide path is a systematic approach to get a pension plan from today’s unfunded status to fully funded status. It uses the funded ratio to trigger asset allocation moves to a more conservative LDI allocation. As the plan’s funded ratio increases, so does the LDI allocation. Exhibit 5 provides an illustration of a glide path. The table shows an ending target allocation of 20/80 LDI (20% risk-seeking portfolio and 80% LDI) at a funded ratio of 100%. The illustrative plan is an ongoing active pension plan where benefits are still accruing; however, this approach can be applied to other types of plans as well (e.g., closed, frozen, or a planned termination). Determining the ending target allocation and funded ratio is required. Once the ending targets are determined, the glide path table must be completed to get from today’s allocation and funded ratio to the target end state. Linear interpolation may be used for this last step.

EXHIBIT 5
GLIDE PATH ILLUSTRATION

<table>
<thead>
<tr>
<th>TARGET FUNDED RATIO: 60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>TARGET LDI ALLOCATION:</td>
<td>40%</td>
<td>50%</td>
<td>60%</td>
<td>70%</td>
</tr>
<tr>
<td>RISK-SEEKING ASSET ALLOCATION:</td>
<td>60%</td>
<td>50%</td>
<td>40%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Source: U.S. Trust, Global Portfolio Solutions & Institutional Investments. For illustrative purposes only.

Past performance is no guarantee of future results.
Please refer to the Portfolio Allocations section on page 15 and other disclosures at the end of this document for important information.
IMPLEMENTATION AND PERFORMANCE

We’ve demonstrated the benefits of having an LDI allocation in your total portfolio, including mitigation of funded ratio volatility. Now let’s investigate implementing an LDI strategy with exchange-traded funds (ETFs).

We will look at an actual LDI portfolio’s performance relative to a liability benchmark. Again, this portfolio’s goal is to limit the funded ratio volatility by matching the duration of the assets and liabilities.

As liabilities move due to interest rate changes, the LDI strategy moves in the same direction as the liability. To properly manage the strategy, the portfolio must be monitored for duration mismatches that may occur due to the interest rate dynamics of the markets. When mismatches occur, rebalancing the LDI portfolio back to match asset and liability durations will help minimize tracking error.

Exhibit 7 shows a growth chart of an LDI ETF portfolio and a liability benchmark. The portfolio is rebalanced to match the liability duration, therefore managing the funded ratio volatility risk. This requires revisiting the ETF allocation and rebalancing the portfolio on a monthly basis when necessary.

From the inception date of January 2009, there were three periods when the portfolio and liability growth did not move perfectly in parallel and the liability exceeded the asset value: Q4 2010 to Q3 2011, Q3 2012 to Q1 2013, and Q3 2013 to Q3 2014.

For the remaining periods, the portfolio and the liability moved in parallel or the asset outperformed the liability. According to data as of Q3 2015, the portfolio is outperforming the liability.
The annualized performance in Exhibit 8 shows that the LDI portfolio approach slightly outperformed the liability benchmark over a longer period. This is evident over three years, five years, and since inception. A tight tracking of the portfolio and the liability benchmark can be seen by looking at the annualized performance since inception, during which the portfolio and liability returns are 10.90% and 10.33% respectively.

IMPLEMENTATION FOR A SPECIFIC DURATION

We recognize that all pension plans are subject to unique risk profiles, and that all plans are in different stages of their respective life cycles. Whether a pension plan is currently open and active, closed, frozen or awaiting termination, managing the plan’s funded ratio is part of managing overall risk.

Acknowledging that there are plan differences, we offer different levels of durations. Exhibit 9, on the following page, shows the different allocations of the LDI portfolios of short, intermediate and long durations. Current durations are approximately 11, 15, and 18 respectively. In order to construct an allocation to manage a specific duration, a combination of the three LDI portfolios is used.
Defined benefit pension plans have defined future obligations. Their liabilities are future pension benefit promises that the corporation made to their plan participants.

With the ultimate goal of being fully funded, their investment goals cannot be arbitrary; they should reflect actual cash flow needs. An LDI strategy helps ensure that a plan can reach its goal by managing funded ratio volatility risk, with the primary purpose of hedging all or a portion of a liability.

In the past, the LDI strategy focused only on the large client segment due to the custom nature of creating an LDI fixed income portfolio. LDI managers typically require a large minimum investment of tens of millions of dollars to execute the strategy. As a result, smaller pension plans have been neglected by many, even though they face the same issues as larger plans in managing their funded ratio, with the only difference being the dollar amount of the liability.

Smaller pension plans now have the option to help match their liability with the U.S. Trust LDI ETF solution, a duration-matched strategy where the LDI portfolio will match the duration of the plan’s liability. It will mitigate the interest rate risk on a mark-to-market basis of the asset and liability of the pension plan, therefore mitigating the risk of the funded ratio volatility. This solution may also be utilized by larger pension plans seeking a low-cost solution. U.S. Trust offers short, intermediate and long duration LDI portfolios that can also be used in combination to allow investors to match their duration to a specified time horizon, execute their glide path strategy, and help meet their long-term defined goal. Because LDI allocation is just one component of your total portfolio, all equity U.S. Trust portfolios provide three options for the risk-seeking allocation: passive, hybrid and active. Our LDI portfolios and risk-seeking asset portfolios allow pension plans to think about their goals in a disciplined way, and to manage their asset base so that it mimics the trajectory of their liability’s value over time.

EXHIBIT 9

LDI ALLOCATION GRID FOR DIFFERENT LEVELS OF LIABILITY DURATIONS

<table>
<thead>
<tr>
<th>PLAN LIABILITY DURATION</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS LDI</td>
<td>100%</td>
<td>75%</td>
<td>50%</td>
<td>25%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>SHORT</td>
<td>11.44</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTERMEDIATE</td>
<td>0%</td>
<td>25%</td>
<td>50%</td>
<td>75%</td>
<td>100%</td>
<td>66%</td>
<td>33%</td>
<td>0%</td>
</tr>
<tr>
<td>LONG</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>33%</td>
<td>66%</td>
<td>100%</td>
</tr>
<tr>
<td>TOTAL FI DURATION</td>
<td>11.44</td>
<td>12.43</td>
<td>13.42</td>
<td>14.41</td>
<td>15.40</td>
<td>16.17</td>
<td>17.09</td>
<td>18.20</td>
</tr>
</tbody>
</table>

Sources: U.S. Trust, Global Portfolio Solutions & Institutional Investments; Vanguard.
Data as of September 30, 2015.
Past performance is no guarantee of future results. Please refer to the Portfolio Allocations section on page 15 and other disclosures at the end of this document for important information.

CONCLUSION

For more information, please contact your Institutional Investments representative, or email dg.portfolio_construction@bankofamerica.com.
IMPORTANT DISCLOSURES

Asset allocation: Asset allocation cannot eliminate the risk of fluctuating prices and uncertain returns.

Diversification: Diversification does not ensure a profit or protect against loss in declining markets.
ASSET CLASS DISCLOSURES

**Equities:** Equity securities are subject to stock market fluctuations that occur in response to economic and business developments.

**Fixed income securities:** Investing in fixed income securities may involve certain risks, including the credit quality of individual issuers, possible prepayments, market or economic developments and yields and share price fluctuations due to changes in interest rates. When interest rates go up, bond prices typically drop, and vice versa.

**Global:** Global investing poses special risks, including foreign taxation, currency fluctuation, risks associated with possible differences in financial standards, and other monetary and political risks.

**Exchange-traded funds:** Exchange-traded funds are subject to risks similar to those of stocks. Investment returns may fluctuate and are subject to market volatility, so that an investor's shares, when redeemed or sold, may be worth more or less than their original cost.

You should carefully consider the investment objectives, risks, charges and expenses before investing in this product. This and other important information is included in the prospectus, which should be read carefully before investing. Prospectuses can be obtained from your investment professional or through the investor's sign-in area of bankofamerica.com/investments.
GLOSSARY

Citigroup Treasury model yield curve: A developed spot yield curve that best fits the market prices of “off-the-run” Treasury securities. “Off-the-run” securities are used, instead of “on-the-run”, because “off-the-run” avoids creating irregularities in the modeled yield curve.

Citigroup Pension Discount Curve (CPDC): A set of yields on hypothetical AA zero coupon bonds whose maturities range from 6 months up to 30 years. The yields of the CPDC are used to discount pension liabilities. The CPDC is calculated based on a universe of AA rated corporate bonds from Citigroup U.S. Broad Investment Grade Bond Index (USBIG) and the yields of Citigroup Treasury model curve.

Exchange-traded fund (ETF): An investment fund traded on stock exchanges. ETF trades like a common stock on a stock exchange. It holds assets such as stocks, commodities, bonds, or a basket of assets.

Financial Accounting Standard (FAS) 158: This Statement improves financial reporting by requiring an employer to recognize the overfunded or underfunded status of a defined benefit postretirement plan (other than a multiemployer plan) as an asset or liability in its statement of financial position and to recognize changes in that funded status in the year in which the changes occur through comprehensive income of a business entity or changes in unrestricted net assets of a not-for-profit organization. This Statement also improves financial reporting by requiring an employer to measure the funded status of a plan as of the date of its year-end statement of financial position, with limited exceptions.

Glide path: Refers to a systematic approach that defines the asset allocation mix of a pension fund based on the funded ratio of the pension plan. The glide path creates an asset allocation that becomes more conservative (i.e., includes more LDI fixed-income assets and fewer equities) the closer a fund becomes fully funded.

LDI portfolio: A long duration fixed income portfolio to match the duration of the pension plan’s liability duration. The portfolio consists of intermediate corporate bonds, long corporate bonds and long STRIPs.

Liability discount rate: Interest rate used to bring future pension benefit cash flows to the present.

Pension Benefit Guaranty Corporation (PBGC): An independent agency of the United States government. It was established by the Employee Retirement Income Security Act (ERISA) of 1974 to encourage the continuation and maintenance of defined benefit pension plans. The agency falls under the jurisdiction of the Department of Labor. PBGC guarantees basic benefits in the event that employer sponsored defined benefit pension plans become insolvent. PBGC is financed by premiums paid by defined benefit plan sponsors, investment income, assets of plans where PBGC is a trustee, and recoveries of unfunded pension. PBGC premiums are based on number of participants and the funded status of the plan.

Pension Protection Act (PPA) of 2006: An act of legislation that made a large number of reforms to U.S. pension plan laws and regulations. This law made several pension provisions from the Economic Growth and Tax Relief Reconciliation Act of 2001 permanent, including the increased IRA contribution limits and the increased salary deferral contribution limits to a 401(k). It also attempts to strengthen the overall pension system and reduce the reliance on the federal pension system and the Pension Benefit Guaranty Corporation. The act requires that pension plans provide more accurate assessments of their pension obligation. In addition, the act established new and more aggressive minimum funding standards for defined benefit pension plans.

Plan liability duration: It is the plan’s liability value sensitivity due to changes in interest rate. For example, for a plan with a duration of 12, the liability increases 12% when the discount rate drops by 1%. 
INDEX DEFINITIONS

Securities indexes assume reinvestment of all distributions and interest payments. Unlike mutual funds, Indexes are unmanaged and do not take into account fees or expenses. It is not possible to invest directly in an index.

Indexes are all based in U.S. dollars.

**Barclays Capital U.S. Aggregate Bond Index** (Barclays Aggregate) represents securities that are U.S. domestic, taxable, and dollar-denominated. The index covers the U.S. investment-grade fixed-rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. These major sectors are subdivided into more specific indexes that are calculated and reported on a regular basis.

**Citigroup 25+ Year STRIPs Index** The index includes U.S. Treasury STRIPs derived from bonds in the U.S. Treasury Index with remaining maturity of 25 years or more.

**Citigroup Pension Liability Index** (CPLI) represents the single discount rate that would produce the same present value as calculated by discounting a standardized set of liabilities using the CPDC. Along with the rate, monthly returns and durations for the CPLI liabilities are also made available.

**Citigroup U.S. Broad Investment-Grade Bond Index** (USBIG) tracks the performance of U.S. Dollar-denominated bonds issued in the U.S. investment-grade bond market. Introduced in 1985, the index includes U.S. Treasury, government sponsored, collateralized, and corporate debt providing a reliable representation of the U.S. investment-grade bond market. Sub-indices are available in any combination of asset class, maturity, and rating.

**Citigroup U.S. Treasury Index** The Treasury index is a component of the U.S. Broad Investment-Grade (USBIG) Bond Index and includes U.S. Treasury issues with at least U.S. $ 5 billion public amount outstanding and maturity of at least 1 year. The intermediate and long subsectors are based on maturity and include all underlying issues with remaining average life at least equal to the lower bound, but less than the upper bound of the particular category.

**Citigroup USBIG Corporate Index** The Corporate index is a component of the U.S. Broad Investment-Grade (BIG) Bond Index and includes U.S. and non-U.S. corporate securities (excluding U.S. Government Guaranteed and non-U.S. sovereign and provincial securities) issues with at least US$ 250 million public amount outstanding with maturity of at least 1 year and credit rating of at least BBB-/Baa3. The intermediate and long subsectors are based on maturity and include all underlying issues with remaining average life at least equal to the lower bound, but less than the upper bound of the particular category.

**Corporate bonds** are represented by Citigroup U.S. Corporate Index.

**Investment-grade bonds** are represented by Barclays Aggregate and Citigroup U.S. Broad Investment-Grade Bond Index (USBIG).

**Standard & Poor's (S&P) 500 Index** tracks the performance of 500 widely held, large-capitalization U.S. stocks.

**STRIPs** are represented by Citigroup 25+ Year STRIPs Index.

**STRIPs** The index includes U.S. Treasury STRIPs derived from bonds in the U.S. Treasury Index with remaining maturity of 25 years or more.

**U.S. Large Cap stocks** are represented by the S&P 500.
HYPOTHETICAL PORTFOLIO ALLOCATIONS

60/40 portfolio = 60% allocation in the S&P 500 and 40% allocation in the fixed income portfolio.

60/40 Agg = 60% allocation in the S&P 500 and 40% allocation in the Barclays Aggregate

60/40 LDI = 60% allocation in the S&P 500 and 40% allocation in an LDI portfolio

50/50 LDI = 50% allocation in the S&P 500 and 50% allocation in an LDI portfolio

40/60 LDI = 40% allocation in the S&P 500 and 60% allocation in an LDI portfolio

30/70 LDI = 30% allocation in the S&P 500 and 70% allocation in an LDI portfolio

20/80 LDI = 20% allocation in the S&P 500 and 80% allocation in an LDI portfolio

100 LDI = 0% allocation in the S&P 500 and 100% allocation in an LDI portfolio

Past performance is no guarantee of future results. Hypothetical portfolios do not reflect the performance of any specific investment. Actual rates of return cannot be predicted and will fluctuate. Your results may be more or less.

For Hypothetical LDI portfolios
As of September 30, 2015

Short
29% — Corporate 1-10
71% — Corporate 10+

Intermediate
17% — Corporate 1-10
83% — Corporate 10+

Long
42% — Corporate 10+
58% — STRIPS 25+

The LDI portfolios consisted of a combination of U.S. Trust Fiduciary Approved ETFs representing a broad selection of asset classes corresponding to tactical asset allocation guidelines at that particular time.