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**DYNAMIC ASSET ALLOCATION:  
HEALTH AND WELFARE PLANS**

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## OVERVIEW

Trustees of health and welfare plans are faced with the task of balancing conservative investment postures, to ensure that short-term liabilities are covered, and more aggressive postures, to enable the plans' longer-term assets to keep pace with medical inflation. Because most plans' assets, recommended reserves, and cash flow positions are constantly changing, a fixed asset allocation may not meet their needs. In addition, other types of plans such as VEBA's, OPEB plans, and even some traditional pension plans with shorter-term horizons may benefit from adopting a dynamic asset allocation strategy.

A *Dynamic Asset Allocation* (DAA) structure potentially improves a plan's ability to meet all benefit obligations (short- and long-term) by matching the horizons of the plan's assets and its liabilities. When the plan's short- or intermediate-term liabilities increase relative to total assets (e.g., through higher claims, or fewer hours and contributions), DAA moves the plan to a more conservative posture. This move ensures that the plan's assets are invested less aggressively to match the shorter-term horizon of the plan's liabilities. On the other hand, when the plan's short-term liabilities decrease relative to total assets, DAA moves the plan toward a more aggressive posture.

## DYNAMIC ASSET ALLOCATION DETAILS

DAA uses up to three pools of assets within the plan: cash flow reserves, recommended reserves, and surplus reserves. The pools vary in size, and are usually determined with the help of a plan's actuary. Rebalancing of these ranges generally takes place yearly, or in light of any material changes to the plan. Total assets are invested more conservatively than a typical pension plan, due to the greater uncertainty of cash flows. *Cash flow reserves* represent those assets required to meet projected net cash outflows in the short-term, typically over the next two years. Cash flow reserves are consequently invested very conservatively so as to preserve principal. *Recommended reserves* represent those assets required to meet projected cash outflows in the intermediate-term, typically years three through seven.<sup>1</sup> Recommended reserves are thus allocated slightly less conservatively, and with some exposure to equity and equity-like assets. Investing in riskier assets *should* increase the expected return of the recommended reserve pool, although it is by no means guaranteed. Finally, *surplus reserves* represent those assets that are in excess of the cash flow and recommended reserves. Surplus reserves are therefore allocated in a more aggressive manner, reflecting the longer investment horizon of the surplus assets' liabilities.

The allocation of the overall plan will therefore change as both (1) asset values change and (2) cash flow projections change. For example, if asset values increase at the same time that cash flow projections stay constant (i.e., the cash flow and recommended reserves stay constant), then the surplus reserve pool will represent a larger portion of the plan's assets. Consequently, the overall plan will be invested more aggressively. If, however, cash flow needs increase while asset prices stay constant, then the cash flow or recommended reserves

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<sup>1</sup> A benefits consultant might define these recommended reserves as the combination of economic reserves, claim fluctuations reserves, and incurred but not reported claims (IBNR).

pool will represent a larger portion of the plan's assets. In that case, the overall plan will be invested more conservatively.<sup>2</sup> This dynamism helps ensure that the plan's assets are invested appropriately in changing economic and market environments.

### POOL COMPONENTS

A plan that uses the Dynamic Asset Allocation model would invest in multiple asset classes, including – but not limited to – investment grade bonds, TIPS, emerging market bonds, bank loans, high yield bonds, and public equities.

Short-term bonds provide downside protection and offer high liquidity. They are often used to match a plan's near-term liabilities. Intermediate-term investment grade bonds provide consistent income while also providing stability to the plan. Investment grade bonds usually offer downside protection during equity bear markets.

TIPS (Treasury Inflation Protected Securities) offer similar attributes to nominal Treasuries, with one key exception: TIPS protect investors from inflation by paying a stated coupon plus an adjustment based on the current rate of inflation (unlike nominal Treasuries, which pay a fixed coupon). This attribute may benefit a health plan by providing a hedge against rising inflation. It is worth noting that healthcare inflation often varies from general inflation, so there will never be a perfect hedge. General inflation is measured through CPI, which measures the prices of all products, while healthcare-related inflation is concerned with prices of healthcare-related products and services. TIPS may also provide downside protection, as they tend to be negatively correlated with equities during market downturns. The table below highlights the benefits of TIPS in market environments with increasing inflation.

Period	Market Environment	TIPS	Bonds	Stocks
January 2011 - September 2011	Increasing Inflation/ Low Growth	10.6%	6.6%	-8.7%
December 2015 - June 2016	Increasing Inflation/ Low Growth	5.4%	5.0%	2.2%

Emerging market bonds, bank loans, and high yield bonds represent riskier fixed income instruments that offer a diversification benefit to equities. For the added risk, high yield bonds and bank loans generally offer higher long-term returns, which help to increase the assets of the plan. Emerging market debt also offers higher yields while decreasing exposure to the risk of rising U.S. interest rates. It does introduce foreign currency risk when utilizing local currency bonds.

Core open-end real estate is another potential component used by some health and welfare plans with less strict liquidity constraints. "Core" means that the property meets several criteria including ownership or control by an institutional investor and occupancy rates of at

<sup>2</sup> In cases in which cash flow projections and asset values move the same amount in the same direction, the overall plan posture will not change. In cases in which cash flow projections and asset values move in the opposite direction, the movement to more conservative or more aggressive allocations will be amplified.

least 60%. Offices, apartments, industrial and retail properties are all recognized as core. Real estate offers several benefits including a hedge against inflation and a large diversification benefit with stocks and bonds, but disadvantages include less liquidity than stocks and bonds.

Equities—the riskiest of the potential components—are used to augment long-term performance. While the majority of the equity allocation is usually composed of U.S. stocks, the inclusion of foreign developed and emerging market stocks provides additional diversification benefits, as well as risks.

Certain other asset classes (e.g., closed-end private market partnerships) do not generally provide sufficient liquidity to (1) conform to the frequent rebalancing likely required by the Dynamic Asset Allocation model or (2) satisfy the liquidity needs of most welfare plans. Therefore, they are generally excluded.

#### DYNAMIC ASSET ALLOCATION POLICY OPTIONS

As with any asset allocation decision, there is no one perfect asset mix for all investors. Some Trustees seek a relatively conservative allocation for each of the cash flow, recommended, and surplus reserve pools, while others prefer more aggressive allocations. In the following tables, we have outlined three illustrative asset mixes (conservative, moderate, and aggressive) that should meet the risk preferences of most Boards of Trustees.

It is worth noting that the more conservative the DAA policy is, the less sensitive the plan is to asset value fluctuations. This is important because cash flow projections and asset values are likely to be negatively correlated: when the economy is in recession, contributions decrease, interest rates decline (thereby raising liabilities), and demand for payments may increase. Thus, when assets go down, cash flow projections are likely to go up—and vice versa. Therefore, the swings in the plan's risk posture are likely to be more severe with a more aggressive DAA policy.

The following tables present the target allocations for an example conservative option:

#### Conservative DAA Policy

	Cash Flow Reserves	Recommended Reserves	Surplus Reserves
Fixed Income	100%	85%	70%
Equities	0	15	30
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

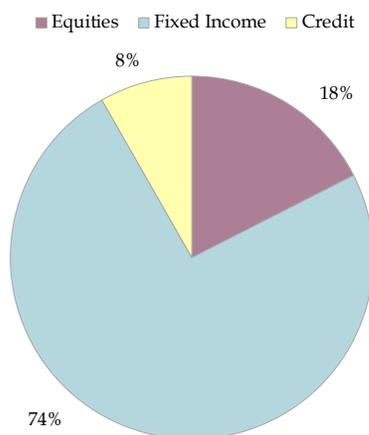
Asset Mix of the Fixed Income Portfolio	
Short-Term Bonds	30%
Investment Grade Bonds	30
TIPS	30
High Yield Bonds	10
<b>Total</b>	<b>100</b>

Asset Mix of the Public Equity Portfolio	
U.S.	80%
EAFE	10
Emerging Markets	10
<b>Total</b>	<b>100</b>

Here, bonds account for the entirety of the cash flow reserve pool, while even in the surplus reserves, equities are capped at 30% of plan assets. Furthermore, given that surplus reserves are usually a small portion of plan assets, it is likely that equities will make up a smaller portion of total assets – probably between 10% and 25%.

A sample allocation in a conservative portfolio may look like the below:

**Asset Mix - Conservative Portfolio**



The next set of tables present the target allocations for an example moderate option:

**Moderate DAA Policy**

	Cash Flow Reserves	Recommended Reserves	Surplus Reserves
Fixed Income	100%	75%	60%
Equities	0	25	40
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

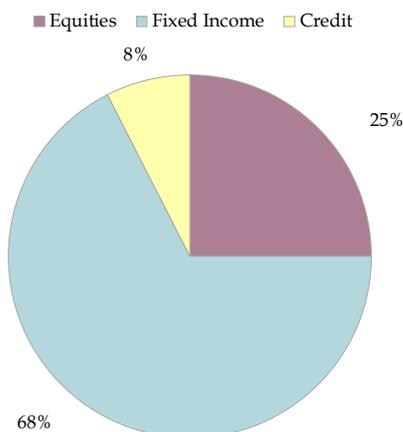
Asset Mix of the Fixed Income Portfolio	
Investment Grade Bonds	45%
TIPS	35
Emerging Market Bonds	10
High Yield Bonds	10
<b>Total</b>	<b>100</b>

Asset Mix of the Public Equity Portfolio	
U.S.	70%
EAFE	15
Emerging Markets	15
<b>Total</b>	<b>100</b>

In this policy, bonds still account for the entire cash flow reserve pool. However, equities are now capped at 40% of the surplus reserves pool. It is likely that equities will now constitute a slightly larger portion of total assets, probably between 15% and 35%. However, this shift towards equities should translate into a higher expected return. Of course, this higher expected return has a trade-off in the form of increased risk to the plan’s short-term value.

A sample allocation in a moderate portfolio may look like the below:

Asset Mix - Moderate Portfolio



The third set of tables present the target allocations for an example aggressive option:

Aggressive DAA Policy

	Cash Flow Reserves	Recommended Reserves	Surplus Reserves
Fixed Income	90%	65%	50%
Equities	10	35	50
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

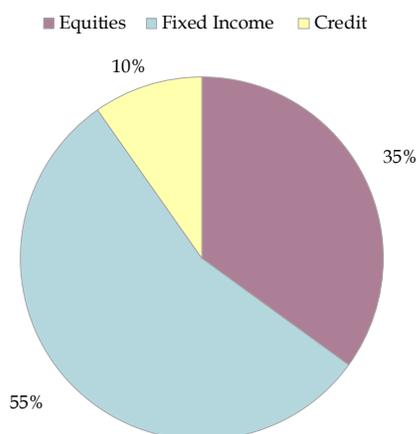
Asset Mix of the Fixed Income Portfolio	
Investment Grade Bonds	40%
TIPS	35
Emerging Market Bonds	10
High Yield Bonds	15
<b>Total</b>	<b>100</b>

Asset Mix of the Public Equity Portfolio	
U.S.	60%
EAFE	20
Emerging Markets	20
<b>Total</b>	<b>100</b>

In the aggressive policy, bonds constitute the vast majority – but not the entirety – of the cash flow reserve pool. Furthermore, equities are now capped at 50% of the surplus reserve pool. In this case, it is likely that equities will now comprise between 25% and 45% of total assets. The expected return increases again compared to the previous example, though risk has also increased.

A sample allocation in an aggressive portfolio may look like the below:

#### Asset Mix - Aggressive Portfolio



#### PORTFOLIO RISK COMPARISON

To confirm the logic of how DAA structures the conservative, moderate, and aggressive portfolios, we tested each example portfolio against various risk factors and historical scenarios. By stress testing each portfolio, we can determine the likely impact of periods of stressed or even extreme conditions. This helps determine if each portfolio is appropriately structured to weather these environments, while also helping Trustees determine with which pool (conservative, moderate, or aggressive) they would be the most comfortable.

Unsurprisingly, an analysis of historical scenarios shows that the conservative model would have provided the best hedge against the major market downturns of the past forty years (see the following table).

#### Historical Scenario Analysis<sup>3</sup>

(Cumulative Return)

Scenario:	Conservative (%)	Moderate (%)	Aggressive (%)
Global Financial Crisis (4Q07 thru 1Q09)	-4.9	-9.0	-15.3
Popping of the dot.com Bubble (2Q00 thru 3Q02)	10.0	8.8	0.7
Interest Rate Spike (1994)	-0.7	-3.1	-2.1
Crash of 1987 (September thru November 1987)	-3.0	-5.6	-7.8
Strong U.S. Dollar (1Q81 through 3Q82)	9.7	7.2	5.0
Volcker Recession (January thru March 1980)	-4.6	-7.3	-7.1
Stagflation (1Q73 thru 3Q74)	-1.8	-10.5	-15.4

<sup>3</sup> See the Appendix for our scenario inputs. In periods where the ideal benchmark was not yet available we used the next closest benchmark(s) as a proxy.

Likewise, a stress test analysis shows that the conservative model also is structured to provide the most protection against a variety of capital market risks (see the following table).

**Stress Testing: Impact of Market Movements<sup>4</sup>**  
**(Expected Return under Stressed Conditions)<sup>5</sup>**

<b>What happens if (over a 12-month period):</b>	<b>Conservative (%)</b>	<b>Moderate (%)</b>	<b>Aggressive (%)</b>
10-Year T-Bond rates rise 100 bp	0.1%	0.3%	1.5%
10-Year T-Bond rates rise 200 bp	-4.8%	-4.5%	-2.8%
10-Year T-Bond rates rise 300 bp	-8.4%	-8.3%	-6.3%
Baa Spreads widen by 50 bps, High Yield by 200 bps	0.8%	1.2%	0.4%
Baa Spreads widen by 300 bps, High Yield by 1000 bps	-12.2%	-11.3%	-15.1%
Trade-weighted US\$ gains 10%	1.0%	1.2%	0.1%
Trade-weighted US\$ gains 20%	-1.2%	-0.7%	-1.7%
Equities decline 10%	-1.6%	-1.7%	-3.0%
Equities decline 25%	-7.6%	-7.8%	-10.6%
Equities decline 40%	-15.0%	-15.4%	-19.8%

### LIQUIDITY

Liquidity is a primary concern for welfare plans. The Dynamic Asset Allocation model seeks to structure the investments that make up the Cash Flow Reserve pool such that they best match anticipated near-term liabilities. Only highly liquid instruments such as investment grade bond and TIPS should be selected for this portion of the portfolio, as these are the assets most likely to be called on to fund cash outflows in a pinch. Commingled vehicles or mutual funds with daily liquidity are ideal for this purpose.

The remaining portions of a plan have more flexibility, and their structure will depend on the nature of a plan's obligations. For example, a plan making weekly payments may require more liquidity than a plan whose obligations are paid less frequently. In any situation, the worst-case scenario should be determined, and the assets structured such that the necessary liquidity is built into the overall portfolio.

<sup>4</sup> Stress testing based upon market conditions at the beginning of 2019.

<sup>5</sup> The model assumes that assets not directly exposed to the factor are affected nonetheless. See the Appendix for further details.

**SUMMARY**

Because a welfare plan's assets, recommended reserves, and cash flow positions are constantly changing, a fixed asset allocation may not meet its needs. A Dynamic Asset Allocation structure seeks to maximize a plan's ability to meet all benefit obligations (short- and long-term) by matching the horizons of a plan's assets and liabilities. It does this by conservatively investing shorter-term funds (i.e., cash flow and recommended reserves) and more aggressively investing longer-term funds (i.e., surplus reserves). As cash flow projections or asset values change, the DAA policy will adjust the plan's risk posture appropriately. Furthermore, within each pool and across the entire plan, there is scope to increase or decrease the riskiness of the DAA policy. We believe that Dynamic Asset Allocation can provide Trustees a powerful tool to help them balance shorter- and longer-term objectives.

## Appendix: Scenario Return Inputs

Asset Class	Benchmark Used
Investment Grade Bonds	Barclays Aggregate
TIPS	Barclays U.S. TIPS
Intermediate-term Government Bonds	Ibbotson U.S. Intermediate Government
Long-term Government Bonds	Barclays Long Term Treasury
EM Bonds	JPM GBI-EM Global Diversified
Bank Loans	CSFB Leveraged Loan
High Yield Bonds	Barclays High Yield
Core Real Estate	NCREIF Property
Value-Added RE	NCREIF Townsend Value Added
Opportunistic RE	NCREIF Townsend Opportunistic
REITs	NAREIT Equity
Infrastructure (private)	S&P Global Infrastructure
Natural Resources (private)	S&P Global Natural Resources
Timber	NCREIF Timberland
Commodities	Summer Haven Commodity
U.S. Equity	Russell 3000
Public Foreign Equity (Developed)	MSCI EAFE
Public Foreign Equity (Emerging)	MSCI Emerging Markets
Private Equity	Venture Economics Private Equity Composite
Long-short Equity	HFRI Equity Hedge
Global Macro	HFRI Macro
Hedge Funds	HFRI Fund of Funds Composite

**Appendix: Additional Bond Asset Classes****Short-Term TIPS:**

Short-Term TIPS offer similar inflation protection as TIPS but at reduced duration. This reduced duration creates less interest rate risk than longer duration instruments, all else equal. For Health and Welfare plans with lower liability duration, using short-term TIPS as a way to reduce asset duration can be effective in matching liability duration, a strategy used to decrease interest rate risk and help the portfolio meet its liability obligations.

**Cash / Cash Equivalents:**

Cash and cash equivalents offer greater liquidity to a portfolio, which can be helpful for Health and Welfare plans with more stringent liability constraints (lower duration liabilities). Cash is also a good hedge against rising short-term interest rates.

**Bank Loans:**

Similar to cash, bank loans protect against rising short-term interest rates. Bank loans also generally pay higher yields than investment grade bonds. They also have seniority in capital structure. Because bank loans are callable, meaning the issuer can redeem the bond before maturity, there is added risk that the bond does not stay in the portfolio for its entire maturity.

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