



## **Macro Environment**



Jason Shoup
CIO, Co-head of Global Fixed Income

"If a labor market in motion stays in motion, what appears today as a modest decline in growth may be the start of a more serious contraction."

Four years after the pandemic, getting an accurate picture of the US economy remains surprisingly difficult. Recent data gives the impression of slowing economic growth, but few are willing to extrapolate this into a serious downturn. Many typical leading indicators, like the inversion of the Treasury curve, seem less useful post-pandemic. Consequently, investors rely on real-time or lagging measures of economic strength, such as the labor market. This makes judging any growth slowdown more challenging and may leave investors and the Fed behind the curve.

From a labor market perspective, some may find it hard to believe that trouble could be brewing. As Chair Powell recently noted, the job market is starting to resemble its pre-pandemic state. Job vacancies have decreased, normalizing the Beveridge curve, and workers are no longer quitting at elevated rates. Sectors previously suffering from worker shortages, such as restaurants, hotels and healthcare, have either recovered or become more productive. Meanwhile, the pandemic-driven growth in transportation and warehouse jobs has slowed. The result is a "strong, but not overheated" job market, similar to late 2019.<sup>1</sup>

Job creation shows further evidence of anticipated normalization. In the most recent quarter, payroll growth averaged 177,000 per month, while the previous year's average was over 240,000, even after downward revisions. In comparison, the average payroll growth in 2019 was 165,000 per month.<sup>2</sup> For the Fed, the current pace of job growth suggests that while conditions are still tight, the labor market is not tightening further. If this pace continues, it is reasonable to expect growth to stabilize near trend rather than collapse.

For those concerned with building downside risks, the argument centers on momentum and inertia. While the job market may appear normalized, point-in-time comparisons fail to capture the risk that the ongoing weakening could continue beyond normalization and proves difficult to counter with monetary policy.

Some concerning signs suggest the labor market's weakness may be picking up momentum. The household survey of employment does not confirm the payroll increases seen in the establishment survey, likely due to difficulties in accurately counting immigration. Nevertheless, the survey shows a rising unemployment rate that may trigger the Sahm rule recession indicator before year end (essentially, a 0.5% increase in the unemployment rate over the last 12 months)—admittedly, a rule of dubious value.

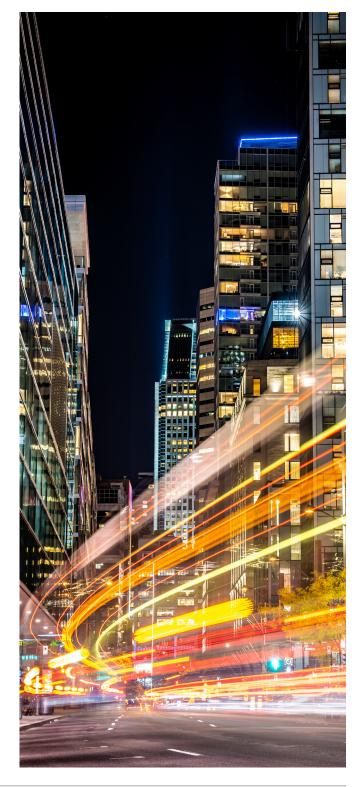
Even if one dismisses the household survey, there are reasons to doubt the robustness of payroll growth in the establishment survey. There has been a prevailing downward revision bias, likely related to overestimations of business formation post-pandemic. New businesses are no longer rapidly forming in response to pandemic-driven economic changes. Some estimates suggest this "birth-death" adjustment may overstate payroll growth by more than 200,000 workers per year.<sup>3</sup>

More concerning is that recent job gains have been exceptionally narrow. Employment growth has turned negative after excluding jobs created in government and healthcare sectors and the birth-death adjustment. In other words, only non-cyclical sectors continue to hire. Meanwhile, highly cyclical sectors like construction, which proved surprisingly resilient to higher interest rates, are starting to show signs of weakness. Temporary employment and the length of the workweek are also declining, both historically reliable leading indicators of a weakening labor market. Without the presumed positive impact of immigration better captured in the establishment survey, payroll growth in the second quarter would likely have fallen well below the 2019 average.

Should the downward momentum in the labor market persist, markets will quickly debate its inertia, or the Fed's ability to stop the deterioration. Market pricing reflects the assumption that a series of 25 basis point cuts will suffice. Yet there are reasons for skepticism. First, relative to past tightening cycles, the monetary policy lag to the real economy have been exceptionally long this time. It is possible that easing will also have a delayed impact. Second, the labor market slowdown is gradual so far, which is unusual by historical standards where self-reinforcing dynamics often lead to a non-linear profile of job losses. There is no guarantee that will continue.

After a prolonged period of restrictive monetary policy, the Fed finally sees its impact on the economy as the tight labor market loosens, inflation moderates more quickly towards target and growth no longer runs above trend. Risk markets

are likely to perform well if recent downward momentum, which aligns with the Fed's objectives, remains modest and easily countered by a few interest rate cuts when appropriate. However, elevated valuations suggest that markets will be ill-prepared if the downward momentum proves more persistent or resistant to rate cuts. If a labor market in motion stays in motion, what appears today as a modest decline in growth may be the start of a more serious contraction.



# **Pension Solutions Monitor**<sup>4</sup>



**Chris Wroblewski, CFA**Co-head of Solutions Strategy

# "US pension funding ratios increased over the second quarter of 2024."

Our analysis of market movements impacting US corporate defined benefit pension plans leads us to estimate that pension funding ratios increased over the second quarter of 2024. Based on market movements, the average funding ratio is estimated to have increased from 108.2% to 109.9%.

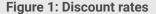
Equity markets experienced strong performance over the quarter with both Global Equities<sup>5</sup> increasing 3.1% and the S&P 500 up 4.3%. Plan discount rates<sup>6</sup> were estimated to have increased approximately 8 basis points over the quarter, driven primarily from higher Treasury yields. Plan assets with a traditional "50/50" asset allocation increased 0.7% while liabilities decreased 0.9%. The solid asset performance and corresponding decrease in liability values resulted in a 1.7% increase to funding ratios over the second quarter of 2024.

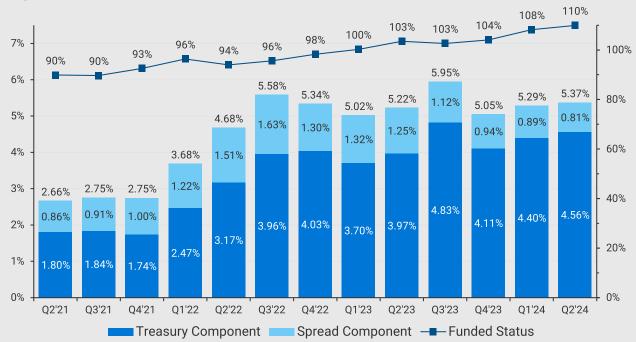
Average funding ratios reached recent highs in Q2 following another rally in equities and a slight increase in plan discount rates. Specifically, global market equities and the S&P 500 saw modest gains, contributing to the rise in funding ratios. As we enter Q3, investors continue to express interest for custom hedging strategies to lock in funded status gains. Many plans are adopting custom completion strategies to improve their governance framework and reduce funded status volatility. Additionally, plan sponsors are increasingly looking for ways to diversify their fixed income portfolio as allocations to the asset class grow. Among strategies discussed are intermediate credit, investment grade private placements and shorter duration fixed income mandates.

The Pension Solutions Monitor assumes a typical liability profile using an approximate duration of 12 years and a 50% MSCI AC World Total Gross Index / 50% Bloomberg US Long Government/Credit Index investment strategy. Our analysis incorporates data from LGIM America research, ICE indices and Bloomberg.

## **Pension funded status market summary:**

- Equity markets delivered strong performance with Global Equities and the S&P 500 up throughout the guarter.
- Plan liabilities decreased due to slightly higher discount rates.
- Funding ratio levels increased with the rise in assets and drop in liabilities.





Sources: LGIM America, ICE indices and Bloomberg. Data as of June 28, 2024.

## **Fixed Income Markets**



**Anthony Woodside, CFA, FRM**Head of Multi-Sector Fixed Income & Investment Strategy

"Ahead of a likely uptick in volatility in the coming months, we advocate for a more tactical approach to investing as late cycle dynamics can often shift from one stage to another with little warning."

Cycles are all about transition. The presence of different phases is fundamental to their definition, such as the journey from inception to maturity, or growth to deceleration. As we prepare to navigate an increasingly uncertain second half of the year, it is reasonable to ask whether we may be on the precipice of an inflection point in the business cycle. In the first quarter, economic releases consistently surprised to the upside, sparking debates around the prospect of a no landing outcome despite less accommodative monetary policy. However, data cooled meaningfully in the second quarter, providing support for the notion that monetary policy lags may have simply been longer this time around (see Figure 2). If this argument holds merit, the critical question going forward is whether the US economy is merely downshifting from a regime of above-trend to goldilocks, trend-like growth. Or rather are we on the verge of a non-linear deterioration that increases the likelihood of a sharp correction in risk assets?

Despite slowing momentum, the rates complex remained hostage to the higher for longer narrative in the second quarter. Specifically, easing expectations for 2024 continued to be pared back, although expectations have started to rebound early in third quarter (see Figure 3). Moreover, the selloff in Treasuries continued, with 2-year yields increasing 13 basis points, while 10- and 30-year yields increased by 20 and 22 basis points respectively over the quarter.<sup>7</sup>

In corporate credit, spread compression screeched to a halt, meeting resistance with risk premiums near the tighter end of the historical spectrum. In investment grade, both market and

Figure 2: US economic surprises at lowest levels in over a year

Year-to-date

50
40
30
20
10
10
-20
-30
-40
-50

Jan-24 Feb-24 Mar-24 Apr-24 May-24 Jun-24 Jul-24

Citi US Economic Surprise Index

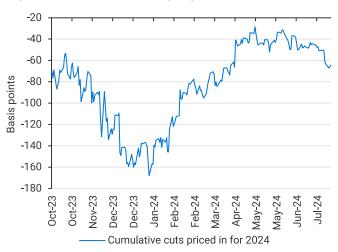
250 200 150 100 50 -100 -150

December 2019 - current

Source: LGIM America and Bloomberg. Data as of July 15, 2024.

Citi US Economic Surprise Index

Figure 3: Cumulative easing expectations for 2024



Source: LGIM America and Bloomberg. Data as of July 15, 2024.

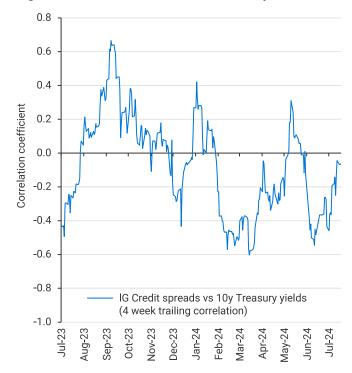
long credit registered positive excess returns in April and May before volatility re-emerged in June. Overall, total returns were negative for the quarter (US Credit -0.05%, Long Credit -1.68%) while spreads were four and six basis points wider, respectively. Conversely, high yield credit spreads widened modestly over the quarter, but the asset class still generated positive total returns (+1.09%) due to its attractive carry and lower duration profile.<sup>7</sup>

In rates, we believe there is compelling evidence that the peak in yields for this cycle is in the rear-view mirror. First, the last three CPI prints suggest that the upside surprise in inflation during the first quarter was merely a temporary interruption along the disinflationary path. Additionally, softer economic data will likely encourage the Fed to start easing policy sooner rather than later to preserve a soft landing. However, we acknowledge that a risk to this view is escalating concerns around outsized fiscal deficits. Treasury issuance will remain elevated for the foreseeable future, and with ongoing quantitative tightening shrinking the footprint of a price insensitive buyer, market participants may demand additional compensation to take down supply. This backdrop dovetails nicely with our call for a gradual normalization of the yield curve in the coming quarters, particularly considering rising odds of sweep scenarios in the US election later this year where fiscal restraint is likely to be an afterthought.

In corporate credit, the path ahead appears to be a little less clear. Over the last eighteen months, the dichotomy between attractive all-in yields and compressed spreads has been the source of much debate. In June, we saw evidence of yieldfocused buyers moving to the sidelines amidst downward pressure in yields. The relationship between rates and spreads has been predominantly negative this year (see Figure 4), which suggests that there is potential for spreads to move wider if yields continue to drift lower. However, we believe the Fed's cutting cycle will be shallower this time around, and we continue to expect solid, if moderating demand, from yield sensitive buyers like pension funds and insurance companies. In addition, total return focused investors may also look to allocate more to corporate credit to lock in attractive levels of income at the peak of the interest rate cycle.

In terms of portfolio positioning, we have reduced our overweight in credit in recent weeks, leaving us modestly positive in our shorter duration and full market mandates, and closer to neutral in our longer duration strategies. We have also been opportunistically trimming BBB exposures in favor of A-rated issuers given the notable outperformance of lower-rated cohorts this year. In terms of sectors, we are constructive on Utilities, Cable Media, and Food and Beverage, while we are defensively positioned in Technology and Sovereigns.

Figure 4: Correlation between rates and spreads



Source: LGIM America and Bloomberg. Data as of July 15, 2024.

The post-pandemic cycle has certainly been characterized by unpredictable twists and turns. However, the recent evolution of data suggests that the economy may be finally moving towards normalization. The labor market appears to be cooling (although the data remains noisy per the macro section), while inflationary pressures are gradually subsiding. History has taught us that the path to a hard landing goes through a soft one, so does recent slowing foreshadow a recession around the corner? In our view a disorderly slowdown is unlikely in the near term as macro indicators remain firm. More specifically, the fiscal backdrop remains supportive while there is little sign of financial imbalances at the aggregate level. However, we do note that there is considerable divergence within corporate and household balance sheets, and weaker cohorts appear to be buckling under the pressure of restrictive monetary policy.

On the positive side, relief is likely on the way with the Fed inching closer to cutting rates in a non-recessionary economy, which should also pave the way for other developed market central banks to ease policy. While we don't expect a fixed income rally similar in magnitude to past cycles, the asset class screens as attractive given ample carry opportunities on offer and the potential to serve as a ballast should growth meaningfully deteriorate from here. However, we caution that risk asset valuations largely reflect a high conviction in a goldilocks outcome. Ahead of a likely uptick in volatility in the coming months, we advocate for a more tactical approach to investing as late cycle dynamics can often shift from one stage to another with little warning.

# **Equity Markets**



**Dave Chapman, CFA** Head of Multi-asset

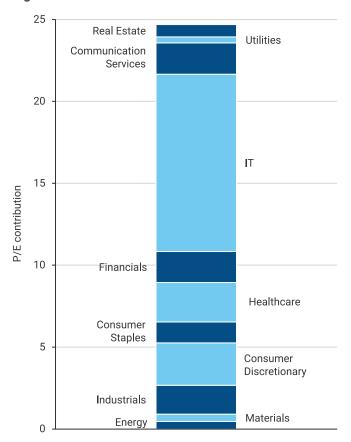
"The risk-reward of equities is very poor, while the attractiveness of various hedges remains very high on an outright and relative basis."

Closing out the second guarter of 2024, we saw the S&P 500 Index level form 5500 (we all love a good pension pun...). bringing its year-to-date return over 15%.7 Performance continues to outpace anxiety but only by a bit. The relentless advance of large cap tech has focused investors' attention on equity index concentration. Accordingly, client conversations have recently centered on this theme, although from a variety of perspectives. Investors who were already worried about valuations have been understandably underweight some of these highflyers, to the detriment of performance. They are exploring ways to reduce tracking error in their equity portfolios without locking in losses. Many others who hadn't been concerned before are becoming increasingly so, more frequently asking about both equity allocation and direct hedging. Over the quarter, we explored some fascinating dynamics that we will summarize and share in our outlook. Overall, our view is consistent with previous quarters, though. Namely, the risk-reward of equities is very poor, while the attractiveness of various hedges remains very high on an outright and relative basis.

We are sympathetic to the argument that some of the current valuations are justified, given the genuinely transformative potential of Al. However, in previous outlooks (see <u>Investment Outlook Q4 2023</u>), we highlighted how high valuations are daunting for investors' longer-term prospective returns. Technology alone carries an eye-watering 34x P/E, contributing 11 points to the S&P 500's forward multiple (see Figure 5), which, on a cyclically adjusted basis, stands at the 97th percentile of its full history. The market is already priced for robust growth. It is sensible, then, to ask what we should expect from equities to continue justifying these levels.

Interestingly, one of our colleagues came across a recent Journal of Portfolio Management article that outlines a concept of "indifference curves." It is a clever reengineering

Figure 5: S&P 500 sector P/E contribution

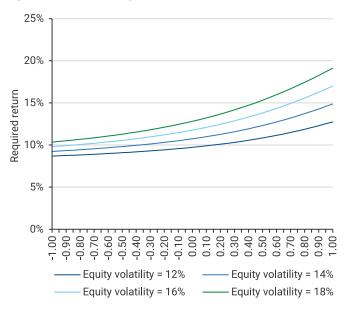


Source: Bloomberg. LGIM America. Data as of June 30, 2024.

of standard mean-variance optimization where the output is a required return for adding a new asset to a portfolio given that asset's covariance to the portfolio.8 More simply, for an asset with a given volatility and correlation, what return would make you indifferent to including it in the portfolio? We reduced the model to two assets—fixed income and equities. This simplification relates also to our previous writing about the tension many of our clients feel between the allure of persistently high equity returns (which carry significant tail risk) against the relative certainty of attractive all-in yields on high quality fixed income, as well as the angst caused by shifting stock/bond correlations.

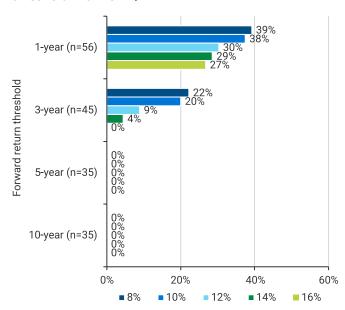
Starting with Treasury yields of approximately 4.25% and our assumption of 4% annualized volatility, Figure 6 illustrates the return required by equities for a variety of equity volatility and stock/bond correlation assumptions. These returns are indeed daunting on an unconditional basis. Starting from current valuations, they seem absurd (see Figure 7). For context, altering the model inputs for fixed income to a more modest 2.75% return and 2.5% volatility (i.e., consistent with the period from the GFC to the pandemic) gives required equity returns of a much more reasonable 6-8%. Our interpretation of these results is that, right now, a defensive fixed income allocation is an undeniably attractive risk management tool, given current yields.

Figure 6: Required equity return for a variety of optimization assumptions



Source: Bloomberg and LGIM America. For illustrative purposes only.

Figure 7: Frequency of exceeding forward return threshold with 20+ P/E



Source: Bloomberg and LGIM America - monthly observations. Data from Jan. 1971 – Jun. 2024.



# **Equity Solutions: MSCI Rebalance Predictions**



**Dave Barron, CFA, CAIA** Head of US Equity Solutions

# "This predictive capability allows us to optimize portfolio adjustments before official index announcements, potentially enhancing returns."

Passive investing continues to grow at a fervent pace and for good reason. Index returns have been strong, and fees continue to come down; naturally, allocations have increased. But, despite the growth, benchmarks continue to be inefficient which can expose index investors to uncompensated risks.

We have designed and implemented a low active risk approach to capture outperformance created by these index micro inefficiencies. In our investment approach, we target a variety of opportunities, one being rebalance predictions, where we model widely followed methodologies to predict index additions and deletions. This predictive capability allows us to optimize portfolio

adjustments before official index announcements, potentially enhancing returns.

To put our money where our mouth is, so to speak, we are publishing our list of MSCI predictions for the upcoming index rebalance. Here's how this works:

- On a quarterly basis, MSCI will re-establish its market cap weighted index series using a publicly available methodology, which means it can be independently modeled with reasonable certainty.
- We identify which companies we believe will be reclassified between the Standard (Large + Mid Cap) indices and Small Cap indices.
- MSCI selects one of ten days at the end of the month prior to the actual rebalance to crystalize sizing classifications.
- A public notification of the changes happens approximately two weeks before the rebalance, with the rebalance happening at the end of the month (February, May, August, November cycle).

Accurately predicting this information in advance is knowing what trillions of dollars are likely to do before they do it.

Below are our predictions for the August 2024 MSCI rebalance. The key dates for this cycle are the following:

- 10 business day window: July 18th-July 31st.
- Announcement: August 12th.
- Implementation point: Close of August 30th, but may be different for some markets (e.g., market holiday, exchange closures).

Figure 8: Our MSCI predictions for July 2024

Benchmark	Country	Name	Prediction
World ex USA	Australia	AURIZON HOLDINGS LTD	Delete
World ex USA	Australia	DEXUS/AU	Delete
World ex USA	Belgium	UMICORE	Delete
World ex USA	Canada	RIOCAN REAL ESTATE INVST TR	Delete
World ex USA	Canada	NORTHLAND POWER INC	Delete
World ex USA	Denmark	ZEALAND PHARMA A/S	Add
World ex USA	France	REMY COINTREAU	Delete
World ex USA	Germany	VOLKSWAGEN AG (ORD)	Delete
World ex USA	Hong Kong	SWIRE PROPERTIES LTD	Delete
World ex USA	Japan	NIPPON EXPRESS HOLDINGS INC	Delete
World ex USA	Japan	KINTETSU GROUP HOLDINGS CO L	Delete
World ex USA	Japan	YAMATO HOLDINGS CO LTD	Delete
World ex USA	Japan	NOMURA REAL ESTATE MASTER FU	Delete
World ex USA	Japan	NISSAN CHEMICAL CORP	Delete
World ex USA	Japan	KOITO MANUFACTURING CO LTD	Delete
World ex USA	Spain	PUIG BRANDS SA-B	Add
World ex USA	Sweden	ADDTECH AB-B SHARES	Add
World ex USA	Switzerland	GALDERMA GROUP AG	Add
World ex USA	United Kingdom	BURBERRY GROUP PLC	Delete
USA	United States	UNITY SOFTWARE INC	Delete
USA	United States	CLEVELAND-CLIFFS INC	Delete
USA	United States	UIPATH INC - CLASS A	Delete
USA	United States	REPLIGEN CORP	Delete
USA	United States	ETSY INC	Delete
USA	United States	CONFLUENT INC-CLASS A	Delete
USA	United States	PAYLOCITY HOLDING CORP	Delete
USA	United States	CAESARS ENTERTAINMENT INC	Delete

Source: LGIM America. Data as of July 2024. For illustrative purposes only.

## **Solutions**



**Dan Dreher** Solutions Strategist

"Plans are recognizing the need for liquidity as fulfilling private market capital calls, quarterly rebalancing activity and benefit payments are essential to their operations."

Pension plans have traditionally had to balance three competing priorities in their investment strategies: diversification, enhanced return and liquidity. However, achieving these objectives is increasingly challenging in today's financial landscape. Diversification has become more difficult as a smaller percentage of issuers now make up a larger portion of most standard public indices – i.e., top ten holdings make up 35% of S&P 500. Liquidity has also become a challenge amidst growing allocations to less liquid private market asset classes in exchange for higher expected returns – broad category has seen over \$11 trillion in AUM growth in last 10 years. 10,11

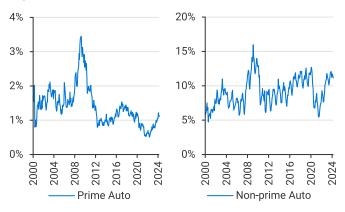
Some plans have identified the need for a strategy that helps balance these pillars. Corporate plans may implement a prescribed glidepath while some public pension plans have constructed portfolios oftentimes called "Risk Mitigating" or "Crisis Risk Offset." Nonetheless, these strategies are designed with the hope to better protect the plan's investment objectives during deep and extended market declines. In each case, plans recognize the need for liquidity as fulfilling private market capital calls, quarterly rebalancing activity and benefit payments are essential to fulfilling their mandate.

## Securitized products: the sweet spot

These optimization efforts frequently include an allocation to securitized products – and in the face of modern financial challenges, securitized assets stand out as a compelling solution. Unlike some public indices, which are concentrated in a smaller percentage of issuers, securitized assets encompass a wide range of underlying asset classes and market sectors. They also offer a level of liquidity typically higher than private market assets, while still providing the potential for enhanced returns relative to other public fixed income investments.

However, at first glance, certain risk metrics can screen concerning – for example, the time series in Figure 9 of auto loan defaults prime and non-prime loans increasing to 2% and 12%, respectively. But a deeper look reveals a different story.

Figure 9: ABS - Auto loan, constant default rate



Source: LGIM America. Data as of April 30, 2024. For illustrative purposes only.

Securitized transactions are unique in that they are structured into multiple tranches, each with its own credit rating, rather than having a single rating for an individual bond. Tranches are arranged in a hierarchy based on seniority and risk. Senior tranches have higher credit ratings and are paid out first, while junior tranches, which are first to absorb losses, have lower ratings and higher yields. Additionally, "default rates" are not always as concerning as it sounds – many transactions are structured with built-in mechanisms for workouts and recoveries.

#### **Customization and credit enhancements**

Structuring within transactions is a key aspect of securitization that allows for the creation of securities with varying risk profiles to cater to different investor appetites. Credit enhancements are a primary customization tool and act as protection in the form of financial support against losses on securitized assets in adverse circumstances. From the investor's perspective, so long as the pool of assets does not experience losses above the enhancement level, the investor will receive full economic benefit. The level of credit enhancement, which aligns with the rating of each tranche, varies across asset class. Said differently, an investor with a credit enhancement at 40% would be insulated from the first 40% of losses in the transaction.

Figure 10 shows the same time series for auto loan defaults but this time we've overlaid recent credit enhancement levels for a given rating. We've also done the same with other securitized sectors (see Figures 11 and 12).

The default rates of securitized products can be misleading if not viewed in the context of tranche hierarchy. While lower tranches might experience higher defaults, this does not necessarily reflect the overall quality of the entire asset class. By concentrating on the higher-rated tranches, investors

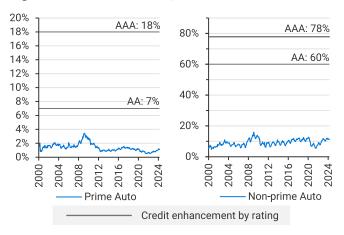
can benefit from strong credit enhancements and lower default risks, which can make the asset class more attractive than it might appear when considering risk metrics at the transaction level.

## Securitized in pension portfolios

Currently, many public plans are using securitized products with a policy allocation between 15-20%. Others, both public and private, have recently signaled intentions to increase their allocation to a similar level.

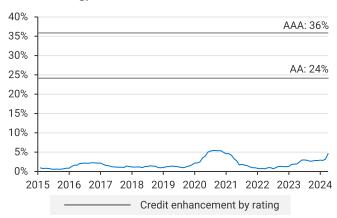
Plans recognize the ability of securitized products to balance out the competing interests of diversification, enhanced return and liquidity. The diversity of exposures – asset-type, sector, geography, liquidity, cash flow profile, discount margin, etc. – point to securitized products as a means of obtaining customized exposure without sacrificing any of the three pillars. And notably, the use of credit enhancement may offer an outlet for meaningful downside protection in adverse market conditions.

Figure 10: ABS – Auto loan, constant default rate



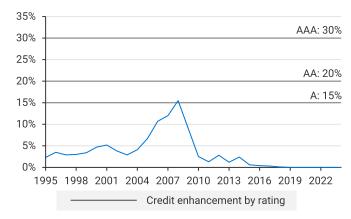
Source: LGIM America, Bank of America. Data as of April 30, 2024. For illustrative purposes only.

Figure 11: CLO – 12-month trailing (including restructuring) over time



Source: LGIM America, Bank of America. Data as of April 30, 2024. For illustrative purposes only.

Figure 12: CMBS (conduit) - Historical loss %



Source: LGIM America, Bank of America. Data as of April 30, 2024. There is no data for 2009 as the CMBS new issuance market was closed post GFC and re-opened 2010.





- 1. The Federal Reserve.
- 2. Bloomberg.
- 3. US Bureau of Labor Statistic.
- 4. For illustrative purposes only. LGIM America prepares the Pension Solutions Monitor data assuming a typical liability profile using an approximate duration of 12 years and a 50% MSCI AC World Total Gross Index / 50% Bloomberg US Long Government/Credit Index investment strategy, incorporating data sourced from LGIM America, ICE, MSCI and Bloomberg. Prior to January 2023 the funded ratio of a typical US corporate defined benefit plan was calculated using an approximate duration of 12 years and a 60% MSCI AC World Total Gross Index / 40% Bloomberg US Aggregate Index ("60/40") investment allocation strategy incorporating data from LGIM America research, ICE indices and Bloomberg. The change to a "50/50" asset allocation reflects our understanding that most US corporate defined benefit plans have extended the duration of their fixed income as funded status has improved for the broader market. Furthermore, we believe that the duration of a typical plan's fixed income portfolio is better represented by the Bloomberg US Long Government/Credit Index compared to the Bloomberg USAggregate Index. These results are based on simulated or hypothetical assumptions that have certain inherent limitations. Unlike the results in an actual performance record, these results do not represent actual trading. Because these trades have not actually been executed, these results may have under- or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity. Simulated or hypothetical trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. No representation is being made that any account will or is likely to achieve profits or losses similar to these being shown.
- 5. "Global equities" referred to here is represented by the MSCI AC World Total Gross Index.
- 6. Discount rates based on a blend of the Intercontinental Exchange Mature US Pension Plan AAA-A and Intercontinental Exchange Retired US Pension Plan AAA-A discount curves.
- 7. Bloomberg.
- 8. The quadratic nature of the solution does present some practical challenges and obvious questions about the intuitiveness of the model output. Regardless, the framework is straightforward and illuminating.
- Capstone JPM MAS24 Quantifying Portfolio Diversification Benefit. (n.d.). Eprints.pm-Research.com. Retrieved July 15, 2024, from https://eprints.pm-research.com/17511/103591/index.html?19758=&utm\_source=whitepaper&utm\_medium=linkedin&utm\_campaign=JPM+Social+Post
- 10. Bloomberg.
- 11. Pregin. Data from December 31, 2013 September 30, 2023.

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Reference to an index does not imply that an LGIM America portfolio will achieve returns, volatility or other results similar to the index. You cannot invest directly in an index, therefore, the composition of a benchmark index may not reflect the manner in which an LGIM America portfolio is constructed in relation to expected or achieved returns, investment holdings, portfolio guidelines, restrictions, sectors, correlations, concentrations, volatility, or tracking error targets, all of which are subject to change over time.

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