



Investment Outlook Brighter Days Ahead?

Q1 2023

Macro Environment



Jason Shoup
Chief Investment Officer

“There are good (and great) years for markets to come, but 2023 will likely fall well short.”

There is growing optimism that investors will fare better in 2023 than they did in 2022. The caveat is that better does not necessarily mean this year will be an especially good one for markets or that it will be easier to navigate. One headwind that could prevent the typical bounce back year often seen following bear markets is simply starting valuations. Following last quarter's rally, many markets appear mispriced for recession in the US and Europe, which looks increasingly unavoidable. Nonetheless, it is unlikely that all major asset

classes will end the year negative, as they did in 2022. It may not be a high bar, but 2023 should at least outperform 2022 in that regard.

Even before the fourth-quarter rally, it appeared that getting the math to work in favor of equities would be tall task. Analyst earnings estimates for 2023 are down only 5% from the peak, which means most of the equity underperformance last year was a result of a contraction in multiples. However, it is typical for earnings to fall by at least 20% in a recession, particularly one where labor costs are poised to remain stubbornly high. In 2022, companies navigated the rising cost environment remarkably well but did so against the backdrop of strong consumer demand underpinned by abundant savings, which have been depleted at a significantly faster rate than expected. As demand begins to weaken and inflation moderates, it is likely that margins contract as profits drop even faster than top line revenues.

On the other end of the risk spectrum, nowhere is the positive sentiment around a rebound more evident than in fixed income. After last year's sharp reset higher, fixed income yields are back to levels last seen more than a decade ago. On the surface, this should present a compelling investment opportunity, particularly with headline inflation appearing to have peaked, a recession looming on the horizon and the Fed

now hiking in smaller increments. Nevertheless, it is unlikely that trading rates will be as simple as buy and hold this year. Most investors expect the Fed to pause around 5-5.25%, but there is plenty of two-way risk remaining in Treasuries.

There is also the lingering question of how much hedge-value Treasuries will provide in a recession. With the exception of the most severe scenarios, it appears there is a high likelihood that the US 10-year does not dip much below 3% this year. If this is the case, the rally in government yields may disappoint some investors expecting even greater insurance value from risk-free assets. Indeed, one by-product of this being the most-telegraphed recession ever is that, with the Treasury curve already significantly inverted, a portion of the typical duration rally experienced during a recession may have been pulled forward into 2022.

As is often the case, credit as an asset class finds itself somewhere in-between the equity and risk-free markets. It was the rise in government yields that was almost entirely responsible for the negative double-digit total returns across credit last year. Meanwhile, the widening in credit spreads was relatively modest, particularly in investment grade credit. Consequently, one possible scenario for the year ahead is that credit spreads widen further as economic growth slows but total returns rebound to positive territory.

Of course, markets could perform significantly better than expected this year. Although the labor market still looks to be overheated, with services inflation running hot, a soft-landing outcome for the US economy where inflation falls rapidly back to target cannot be ruled out entirely. A peaceful conclusion to the Ukraine war and a smooth reopening of the Chinese economy could be additional tailwinds.

On the other hand, there is a real risk that the consensus regarding the recession's mildness is proven incorrect. If the recession takes longer to materialize, it could prove far deeper as the Fed holds the policy rate higher-for-longer and above-target inflation persists, eroding corporate and household balance sheets alike. Likewise, the tightening in bank lending standards could result in a far higher default rate and much wider credit spreads than investors expect as more sector vulnerabilities become visible.

More likely, markets will end the year somewhere in between the extremes, as they typically do. This would imply that markets will likely outperform last year, but the more significant upside will be reserved for 2024 and beyond, when the economy returns to a more stable footing. There are good (and great) years for markets to come, but 2023 will likely fall well short.



Pension Solutions Monitor¹



Chris Wroblewski, CFA
Solutions Strategist

“US pension funding ratios increased over the fourth quarter of 2022.”

Our analysis of market movements impacting US corporate defined benefit pension plan leads us to estimates that pension funding ratios increased over the fourth quarter of 2022. Based on market movements, the average funding ratio is estimated to have increased from 95.6% to 98.3%.

Equity markets experienced strong performance over the quarter with global equities² and the S&P 500 increasing 9.9% and 7.6%, respectively. Plan discount rates³ were estimated to have decreased roughly 25 basis points over the quarter with the Treasury component increasing 8 basis points and the credit component tightening 33 basis points. Plan assets with a traditional “60/40” asset allocation increased 6.7%. The strong asset performance outweighed the rise in liability values resulting in a 2.7% increase in funding ratios over the fourth quarter of 2022.

The dramatic rise in plan discount rates that have been a theme for much of the year has reversed in the fourth

quarter, primarily due to tightening credit spreads. This has caused liability values to increase; however, positive asset performance from fixed income and equity markets resulted in higher funding ratios for the average plan. We continue to see heightened demand for custom hedging strategies as a way to manage funded status gains or to better manage interest rate risk given the current market dynamics. One area that has gotten more attention is the precision of the interest rate hedge given the flat to inverted nature of the yield curve today. We’ve seen many plan sponsors elect to transition from a blunt hedging approach to a more refined hedge across the curve.

The Pension Solutions Monitor assumes a typical liability profile using an approximate duration of 12 years and 60% MSCI AC World Total Gross Index/40% Bloomberg Barclays US Aggregate Index (“60/40”) investment strategy, and incorporates data from LGIM America research, ICE indices and Bloomberg.

Pension funded status market summary:

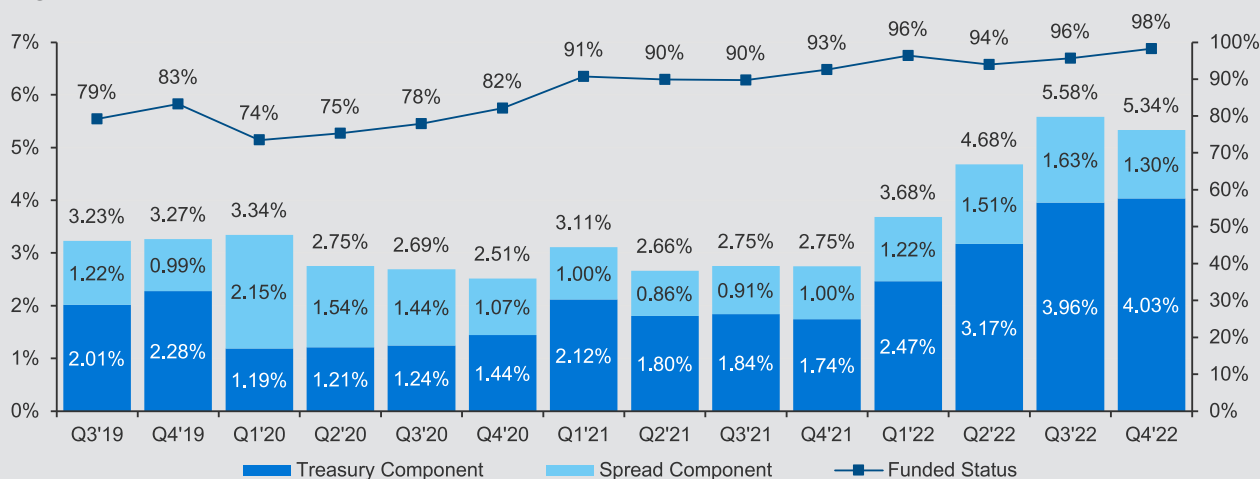
- Equity markets outperformed with global equities up roughly 9.9%.
- Plan liabilities increased due to lower discount rates.
- Funding ratio levels increased due to strong asset performance over the quarter.

Funded status risk - Q4 2022

Equities	↑
Interest rates	↑
Credit spreads	↓

Sources: LGIM America, ICE indices and Bloomberg. Data as of December 30, 2022.

Figure 1 – Discount rates



Sources: LGIM America, ICE indices and Bloomberg. Data as of December 30, 2022.

Fixed Income Markets



Anthony Woodside, CFA, FRM
Head of US Fixed Income Strategy

“As global central banks simultaneously retreat, it is finally time for relative value investors to answer the call to arms.”

As the adage goes, a picture can be worth a thousand words, and this transformative quality is certainly well represented in the world of finance. One merely needs to look at a time series of global negative yielding debt for an audible declaration of an end to free money and a return to an era where the cost of capital was more aligned with fundamentals (see Figure 2 and 3). The extinction of this financial abnormality comes on the heels of a tacit acknowledgment by central banks that their outsized interference in capital markets was incongruent with price stability. Unsurprisingly, this transition has been far from seamless, with the harmonized withdrawal of monetary stimulus engineering a historic rout across asset classes in 2022. As we crossover into 2023, fixed income investors are scrambling to find their bearings in this brave new world with one overarching inquiry top of mind: Will asset prices remain under duress or have valuations sufficiently baked in the new state of play?

The Fed frustrated market participants that were waiting on a pivot to exhale by delivering an additional 200 basis points of tightening in Q4. The central bank's policy rate ended 2022 in a range of 4.25%-4.5%, capping off the largest cumulative tightening for a calendar year in over four decades. In rates, 2-year yields rose 15 basis points in Q4 while 10- and 30-year yields rose 5 and 19 basis points, respectively.⁴ While the blitzkrieg against inflation left destruction in its wake for most of 2022, corporate credit staged a rebound in the fourth quarter on the back of growing optimism that a trinity of pinnacles had been eclipsed – peak inflation, peak rates and peak dollar. Not only did investment grade and high yield credit post positive excess returns, but they also registered positive total returns of over 3% and 4%, respectively.⁵

As we sift through the debris left behind from 2022's onslaught, we identify attractive opportunities and formidable

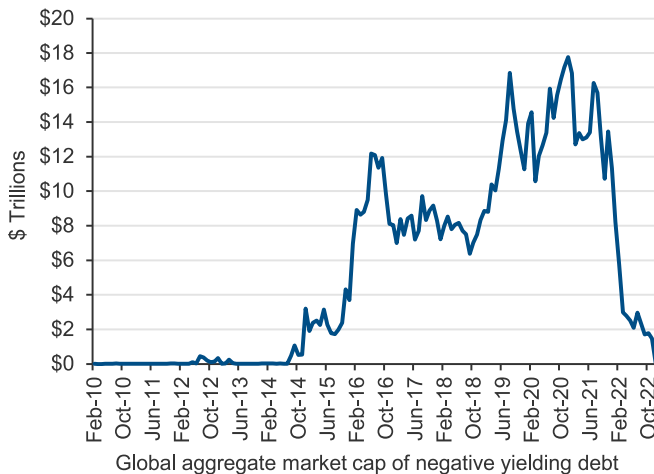
risks across the fixed income landscape. In the land of risk-free assets, we detect a glaring disconnect between the Fed's dots and the current term structure of rates. Specifically, 17 out of 19 FOMC participants expect the policy rate to be at 5.125% or higher by the end of 2023, in sharp contrast to the market pricing in cuts for the 2nd half of the year. Given the deeply inverted yield curve, we judge longer-dated maturities to be particularly susceptible to upward pressure on yields. Finally, the Bank of Japan's abrupt decision to widen the tolerable band for the 10-year yield to +/-0.5% at the end of the year provides a stark reminder that central banks may continue to be an amplifier, rather than suppressor, of volatility in 2023.

Within corporate credit, we continue to favor companies with strong balance sheets that can withstand a protracted period of sub-trend growth. In investment grade, we find ourselves confronted by a challenging dichotomy. On the one hand, all-in yields are at attractive levels compared to recent history. Alternatively, the rally over the final quarter of the year has left high grade spreads failing to price in a meaningful probability of recession in 2023. Consequently, we begin the year defensively, with sector overweights in midstream, food & beverage and utilities, and underweights in sovereigns and technology. Moving to high yield, we note that the quality mix is much improved today with BB names accounting for more than half of the index and the share of secured bonds hovering around record highs. However, given our expectation for a growth slowdown, we caution against chasing beta at current valuations as spreads are trading well below peaks even outside of downturns. Lastly, we are most cautious on leveraged loans given its lower average quality profile and the quicker transmission of higher rates (due to the floating nature of the debt) in an environment where earnings are likely to weaken.

Perhaps the distinction between this year and last is best illuminated through an appeal to simple math, numerators versus denominators. 2022 was largely about right sizing the denominator; aggressively moving rates higher to better align with the inflationary threat. Discount rates impact how much one is willing to pay for a given stream of cash flows, and with central banks achieving escape velocity from the zero-bound, investment portfolios had nowhere to hide. Now with the bulk of the rate adjustment arguably complete, this year will be more about the numerator, more specifically the magnitude and durability of future cash flows. Our recession forecast implies downside risks to earnings, yet as our macro section highlights, we do not expect a replay of last year's broad-based carnage on asset prices. Firstly, at worst, duration should be less of a headwind this year as central banks are nearing conclusion of their hiking cycles. At best, we can see the potential for duration to transform into a tailwind should growth concerns proliferate further and/or inflationary pressures recede. Additionally, we find little evidence of a

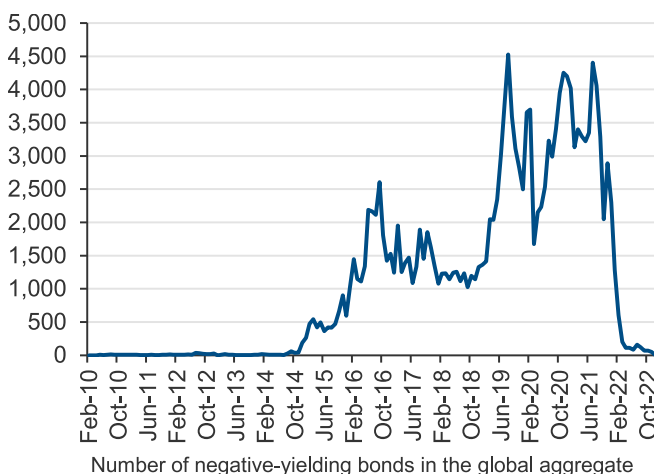
problem sector(s) that typically emerge ahead of downturns, suggesting that we may not see a dramatic spike in fallen angels this cycle. Accordingly, spreads may fail to balloon to levels consistent with typical recessions, and investors should stand ready to add risk on meaningful cheapening. Given this backdrop, we contend that sequencing and security selection will play a more integral role over the next 12 months than it has in the era of cheap money. As global central banks simultaneously retreat, it is finally time for relative value investors to answer the call to arms.

Figure 2 – Market cap of negative yielding debt in the global aggregate



Source: Bloomberg. Data as of December 30, 2022.

Figure 3 – Number of negative yielding bonds in the global aggregate



Source: Bloomberg. Data as of December 30, 2022.

Equity Markets



Dave Chapman, CFA
Head of Multi-Asset and LDI

“We maintain our slightly bearish tilt, as the balance of market dynamics shift the distribution of possible returns unfavorably, in our view.”

Jason’s depiction of the 2023 outlook as “better but not good” is like getting socks for Christmas — better than the old ones with holes in them but not as good as a new set of Legos. Equity markets, though, might prove even more disappointing — like a new toothbrush when all you want is candy. Given competing global dynamics, valuations and earnings outlooks, equities may need a lot of hygiene before we return to the sweet indulgences of higher returns.

The global picture is quite muddled. Europe appears to have been on the “nice” list. On a total return basis in local currency, Eurostoxx outperformed the S&P 500 by 8.4% in the fourth quarter, and the unseasonably warm weather kept households happy that they didn’t receive coal in their stockings. Warmer weather led to lower energy costs and some hope that relief to consumers from lower prices may help avoid recession there. By the time we reached Festivus, though, bulls would have aired their grievances against the European Central Bank (ECB) and China. The ECB’s hawkish pivot in mid-December is another headwind to further expansion, and China’s relaxation of its zero-COVID policy may release pent-up demand for energy that could offset the disinflationary tailwinds from better weather. Elsewhere, the Bank of Japan’s communication of changes to yield curve control policies surprised many investors (despite being largely priced into JPY swaps) and challenged the performance of our tactical overweight to Japan. And political turmoil in Latin America has created choppy price action and sideways returns, despite the decline in the US Dollar.

Since the global environment feels much like an extended family gathering at your in-laws, we return our focus home for the holidays. In the US, our view remains that we will enter recession in 2H23, and that the multiple contraction already experienced is only partway to the type of drawdown that

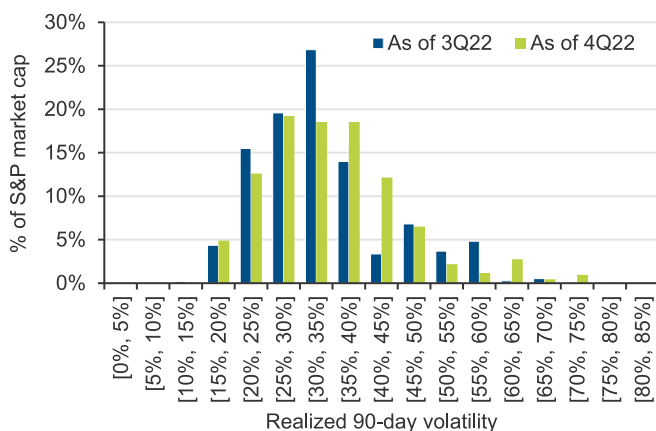
would be consistent with historical analogues. The other leg down in an equity contraction would come from earnings declines. Overall, we don't expect the forthcoming avalanche of earnings to meaningfully move the balance between bullish and bearish. Earnings are expected to remain reasonably positive, especially compared to low and falling estimates, but we also expect very cautious outlooks from management teams. Just prior to a recession and during its early phases, we would expect estimates and outlooks to be cut much more dramatically.

Finally, positioning and options markets are not elixirs to alleviate a post-holiday haze. Positioning (e.g., AAI Bulls vs. Bears, net futures positioning) remains cautious, and the contrarian nature of this signal is inhibiting us from taking a more bearish tactical view. Low positioning may be one reason that we are also witnessing higher realized volatility on positive days than on negative days, which is contributing to historically flat skew. Overall implied volatilities remain elevated, although they have declined markedly since the end of 3Q22 and particularly so after the December Consumer Price Index release. Interestingly, though, despite overall index realized and implied volatilities tracking each other closely, we are seeing greater dispersion in realized volatility of index constituents, particularly toward higher realized volatility (see Figure 4).

This implies two important things. First, for index-level volatility to have declined in this environment, correlation between individual names must have been lower, perhaps due to idiosyncratic events and/or more discerning stock pickers. Second, if implied correlation rises (as we would expect when the prospects of a recession become clearer), then overall volatility may increase markedly.

In summary, our general characterization of equity markets may be nothing more inspiring than, "uncertain." However, we maintain our slightly bearish tilt, as the balance of the aforementioned dynamics shift the distribution of possible returns unfavorably, in our view.

Figure 4 – Realized volatility of S&P market cap



Source: Bloomberg. Data as of December 31, 2022.



Solutions



Dillon Gusmano, CFA
Senior Strategy Associate



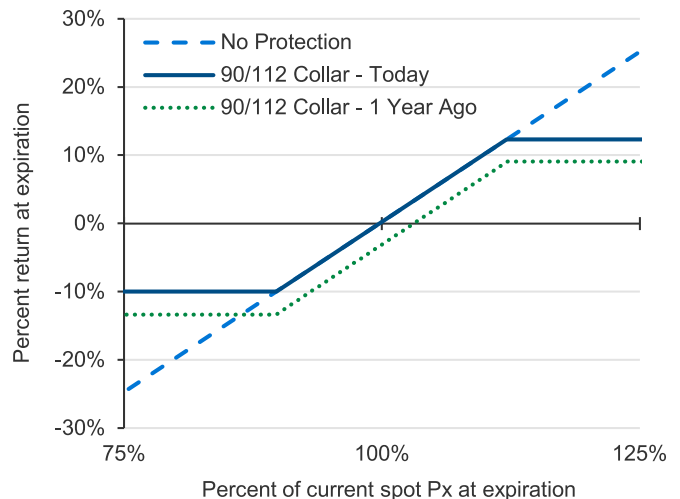
Neil Olympio, CFA, FIA, CMT
Senior Solutions Strategist

“Navigating the uncertain times ahead can be aided by the usage of equity collar strategies that narrow the range of possible outcomes.”

Despite the difficulties already experienced through 2022, we expect much of the world to enter a recession in 2023, creating a challenging backdrop for equities. We are most concerned about the most cyclically exposed sectors, but we believe the market will bottom before the recession ends. The path and potential returns from exposure to interest rates are equally uncertain, resulting in a very broad set of scenarios for asset allocation returns.

Fortunately, the market is currently offering favorable pricing on combinations of equity options that can be used to define compelling outcomes for well-funded pension plans. For example, an equity collar today can be structured to potentially provide positive incremental returns for a plan unless the market returns exceed 12% over the next year. In other words, investors who buy a 90% 1-year put option can fully offset the premium by selling a 112% 1-year call option, a structure which cost more than 3% a year ago. This means that, in 2023, a pension plan may be able to eliminate long left-tail equity losses while retaining the first 12% of equity returns without an upfront cost.⁶

Figure 5 – 90% put/112% call collar payoff at maturity

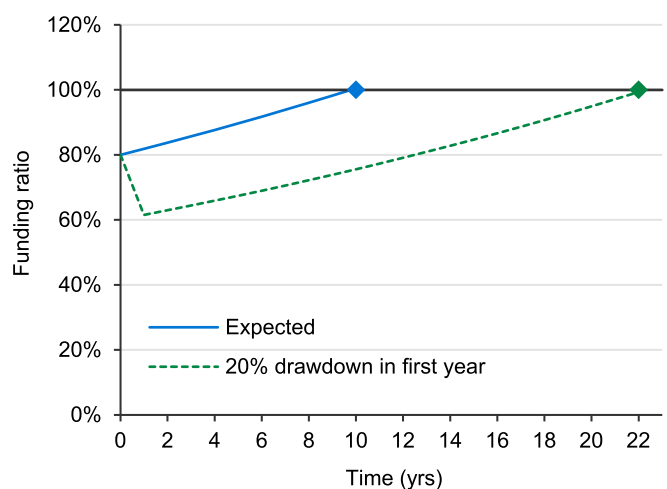


Source: Bloomberg. For illustrative purposes only. Assumes position is not liquidated or exercised prior to expiration.

Impact of volatility on pension plans

Due to recent events at the end of 2022 and the unusually uncertain outlook, volatility has been at the forefront of the minds of many investors. Pension plans, in particular, must achieve target returns over many periods to meet their objectives, but as volatility rises, this becomes more difficult. High volatility regimes, such as the one we expect to continue in 2023, increase the likelihood of outsized drawdowns, which, if they occur, can significantly lengthen the time horizon required to reach funding objectives.

Figure 6 – Drawdown impact on funding time horizon



Source: LGIM America. For illustrative purposes only.

This illustrates the concept of volatility drag, which we believe is a significant risk to pension plans, especially in the ongoing market environment. With that in mind, we believe it is a prudent time for plans to consider options strategies that limit the range of return outcomes, especially on their return-seeking asset allocation.

Collar structures

Prospective hedgers who wish to reduce the up-front cost of protection should consider the collar strategy. A collar is a simple structure that helps reduce the cost of downside protection by giving up a portion of the upside in equity markets. In practice, an investor who owns the underlying asset would buy a put option and sell an out-of-the-money call option simultaneously. The proceeds from the sold call option are used to offset the premium paid for the put option. This has the effect of narrowing the range of return outcomes to be between the two strike prices.

The funded status of the average pension plan has improved in recent years, and for plans seeking to de-risk from equities to fixed income, equity collar strategies may be especially constructive. Collars can capitalize on this by collecting a premium for selling the upside beyond the call strike, which is similar to reducing exposure in accordance with a glidepath. The premium is then exchanged for providing a level of downside protection which may be asymmetrically more important to a pension plan than having exposure to the full upside of equity returns.

Current market opportunity

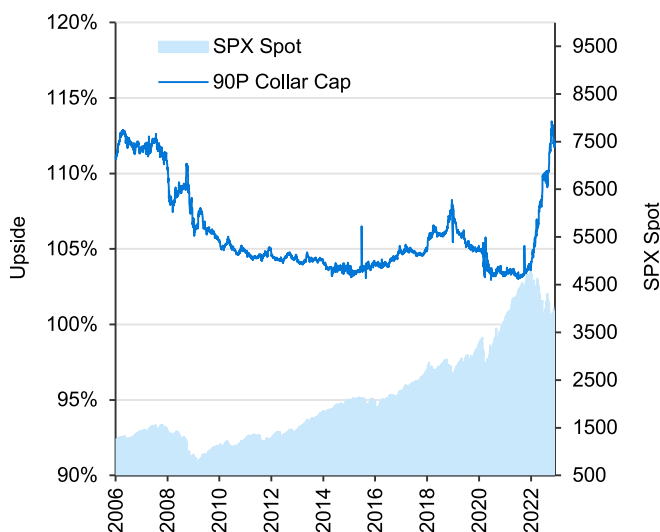
The current dynamics of the options market make it a historically advantageous time to invest in collar structures. While there are several factors influencing options prices, the current opportunity is due to the interplay between rising interest rates and the shape of the implied volatility structure ("the skew") which has flattened (i.e., implied volatility of calls has increased relative to the implied volatility of puts). This has influenced options prices in a way that has not been observed in over a decade.

The effect of these dynamics is most easily visualized by tracking the equity upside retained (i.e., the sold call option strike price) of a costless collar over time. In other words, should equity markets rise above this level, the plan's upside would be capped at that amount in exchange for a given level of downside protection. By definition, this structure has no premium (transaction costs are implicitly expressed by the call strike received), making it a potentially attractive consideration for pension plans. In Figure 7, a higher value is of greater benefit to the plan as it means less upside is forfeited. In the case of a 12-month 90% put option, the costless collar upside retained is around its highest level since before the Great Financial Crisis. This gives plans the opportunity to lock in a positively skewed asymmetric return profile.

Conclusion

Navigating the uncertain times ahead can be aided by the usage of equity collar strategies that narrow the range of possible outcomes. Backed by historically attractive options market dynamics, now may be the right time for pension plans to deploy these strategies to help mitigate the risks of volatility. If options usage is new to your plan, we at LGIM America welcome the opportunity to provide additional insight and education concerning these strategies.

Figure 7 – Upside retained for 90% put costless collar



Source: Bloomberg. Data as of December 5, 2022.

1. 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 traditional 60/40 portfolio of 60% MSCI AC World Total Gross Index/40% Bloomberg US Aggregate Index, incorporating data sourced from LGIM America, ICE, MSCI and Bloomberg. 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.
2. "Global equities" referred to here is represented by the MSCI AC World Total Gross Index.
3. 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.
4. Source: Bloomberg
5. Total returns based off Bloomberg US Credit Total Return Index and Bloomberg US Corporate High Yield Index.
6. Transaction costs will be incurred by investors in connection with the trade, unless those costs are implicitly expressed by the call strike received.

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