

Mitigating the impact of turbulent markets for public plans

We are continuing our journey related to steps public pension plans should consider in relation to risk management in preparation for, or during, volatile markets. After addressing liquidity challenges, we now shift the focus to downside protection. For public pension plans, the volatility in capital markets can offer a unique set of obstacles. With no crystal ball and myriad uncertainties, investors should always have a plan for the possibility of a sustained period of volatility and market stress.

Markets can certainly rebound over the long haul. However, if the volatile environment extends, and/or a plan's fiscal year is closed at a date when the market has not recovered, plans may be facing various investment concerns. For public plan portfolios specifically, which according to our internal database range from a ~60-80% allocation to return-seeking assets (riskier), these concerns are quite pertinent. How can plans continue to meet obligations after meaningful drawdowns in funding levels? What if the market conditions worsen? Can plans earn their way out of this?

In this piece, we explain why plans should anticipate these events while providing concise answers and illustrations to some client questions regarding the navigation of equity market drawdowns. Portfolio insurance, along with a strong liquidity framework, has the potential to help public pension plans increase their readiness for long-term success.

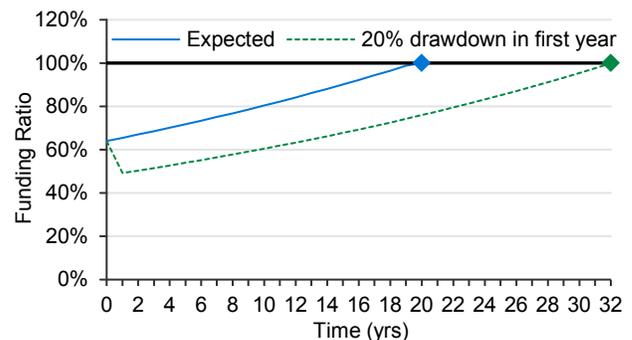
Portfolio drawdowns can impact financial planning and increase the required asset growth

When plans' investments do not achieve their expected asset growth rate, their long-term goals are at risk. We can think about risk along a couple of dimensions: time and asset growth rate.

Significant drawdowns can impact the time it would take for plans to reach sustainable funding and cause meaningful disruption to plan sponsors' initial funding schedules. In Figure 1, we picked 100% funding as the sustainable objective to attain after 20 years for illustrative purposes. Assuming a significant drawdown in the first year, and no change in expected asset return or contribution levels, we show the impact on the time required to reach the funding objective. In our example, it resulted in extending the time to get to 100% by about 12 years. In other words, assuming a constant long-term return on assets, all else equal the drawdown would result in extending the time required to achieve the plan's objective.

Each public pension plan is unique, so 100% funding in 20 years is not a suitable objective for all plans. However, it illustrates the primary point: an unexpected severe drawdown will disrupt the plan's financial planning. In the previous example, it resulted lengthening the time to the funding objective which might be an important concern.

Figure 1: Drawdown impact on funding time horizon



Source: LGIMA. For illustrative purposes only.

If time horizon is very important for a plan sponsor, then there is a significant impact on required asset growth. In Figure 1, we kept expected return constant and let time vary; this time, we keep time constant and let the return vary. In line with our previous example, a simple model can show the additional return needed for a sample plan to reach full funding over a 20-year period, assuming a 20% drawdown occurs in a given year. For example, having a drawdown of 20% in year 3 (of 20) implies the plan assets would need to grow an additional 1.6% each year to reach their funding objective. If the drawdown is in year 15, the plan would need an additional 6.0% each year if the time horizon remained unchanged at 20 years.

Assuming a fixed time horizon, all else equal, this illustrates how a drawdown would affect the asset growth rate required to reach the initial objective. In practice, most plans would likely adjust their

contribution schedule or extend their time horizon, if feasible. This, however, emphasizes the need to more seriously consider the possibility of drawdowns, given their potential impact.

Whether we look at time or required asset growth, a significant market drawdown can have profound implications. For plans familiar with the hurdle rate framework we discussed in previous publications, an expected drawdown translates into a higher hurdle rate given the decrease in funding level. How might a plan generate the necessary additional asset growth or mitigate the chance of a large drawdown to meet long-term goals? Will the plan need to re-risk the portfolio? What additional contributions might be required? These are example questions that can significantly disrupt plan financial projections and potentially the safety of the benefits owed to plan participants. For these reasons, and prudent risk management considerations, it makes sense to evaluate ways to help mitigate the impact of market downturns on equity portfolios.

Reducing the impact of drawdowns by buying insurance

A disciplined risk management approach is crucial

Asset allocation decisions are the primary drivers of risk and return. In volatile environments, it can be tempting to second guess the strategic asset allocations clients have adopted: What if equities fall further? Should the benchmark be modified? Should the plan reallocate as planned?

The cost of overreacting can sometimes exceed the cost of not doing anything. It is important to remember the long-term objectives of the plan and implement a framework that can be used both in volatile and less volatile environments. In practice, we work with our clients to understand and model different risk factors present in their portfolio and communicate our ongoing risk assessment.

We believe a disciplined risk management approach ensures the current investment strategies remain aligned with the most appropriate risk/reward relative to a portfolio's objectives.

Insurance considerations

Buying equity protection is similar to buying insurance to protect a house or car from an adverse event. In the case of equity protection, this insurance can be obtained in several ways, such as paying for the protection upfront,

selling the right to future market returns above a certain threshold or a combination thereof.

When to implement equity protection

Timing depends on the degree of conviction a plan sponsor might have that increased volatility is on the horizon, and on how that protection is funded. For example, if the plan is buying the protection outright, ideally the insurance premium should be cheap and/or the investment committee should have a strong view that equities will continue to fall.

If there is no immediate market view or if protection is not cheap, it is possible to reduce the amount of capital protected or sell potential equity upside to fund the protection. However, selling away potential return gains to buy downside insurance implies that the value of what is being sold should be relatively high.

Implementing equity protection

Since it is comparable to standard insurance, the consideration of equity protection often comes with similar questions around costs, and often risk of regret. The following figures illustrate a couple of important points our clients have historically cared about:

1. Protection can be obtained for no upfront cost
2. It can even be done during a volatile market (and in some cases, on better terms!)

Zero deposit down

An existing client was looking to reduce the exposure of their portfolio to adverse market conditions and were looking to do so without using any cash, so without paying any insurance premium upfront. As we know from our previous section, this can only be applied by giving up some upside potential above a certain threshold.

At inception, the plan sponsor could obtain such protection by insuring the plan against more than a 15% drop in equities, in exchange for giving up returns should equity markets return more than 7%. From an implementation perspective, this involves buying and selling financial options (put and call options); the insurance premium is funded by the sale of a 107% call option.

As shown in *Figure 2* on the following page, this structure was close to neutral as it only cost the plan about \$53,000 on an equity exposure of around \$120 mil.¹

¹ LGIMA, Bloomberg as of 03/19/2020. Example chosen because it shows the earliest client to implement equity protection in 2020 prior to coronavirus market disruption, thereby highlighting outcome experienced by an early mover. Outcomes of all investors who adopted equity protection during this time is available upon request.

Figure 2: Trade outcomes

Equities Fall		Equities Rise	
More than 15%	Less than 15%	More than 15%	Less than 15%
Loss remains at -15%	Full participation	Loss remains at -15%	Full participation

Figure 3: Trade details

Trade date: 01/16/2020	S&P 500 index options
Protection level	Past -15%
Maximum equity gains	7%
Notional	\$117mm
Cost to implement	\$53,200

For some plans, it would have been a good trade-off if they did not anticipate equity markets returning more than 7% by the expiration of the contract. Some other clients with a more opportunistic equity market forecast might have been more challenged by the market conditions to make this cost neutral. In that case, reducing the amount of the downside insurance (for example from -15% to -20%) might have helped raise the threshold above which equity gains would be foregone.

The relationship between the amount of downside protected (past -15% in our example) and the maximum upside potential to keep it cost neutral (7% in our example) is not static. As an example, one month after implementation for this client, cost neutrality could be achieved for losses past -9% protection (vs. -15% initially) and 5% maximum upside (vs. 7% previously). This was the result of higher volatility in the market.

It is important to monitor market conditions to assess the trade-offs. The good news is that zero upfront cost structures are always possible but the attractiveness of these will be plan-specific.

It can be done in a volatile market (and in some cases, at improved conditions)

After big moves in the market, investors often express regret about “missing” or “being late” to the trade. Therefore, one may think the same applies to equity protection – some investors wouldn’t expect to enter

favorable hedging structures *during* the high volatility event. However, this is not always the case.

When implied volatility is very high, protection structures that buy and sell pairs of options can still be used to produce favorable outcomes. As illustrated in *Figure 4*, sometimes the outcomes are more favorable than one might have anticipated.²

Figure 4: Normal vs. heightened volatility environment

Normal volatility	Market movement
Protect	Past -15%
Cap on potential gains	7%
Heightened volatility	
Protect	Past -15%
Cap on potential gains	13%

Despite the significantly elevated volatility in the second quarter of 2020, investors were offered opportunities to protect the same amount of downside, while raising the cap on their maximum gains. In our illustration, the retained equity upside rose from 7% to 13%. This provided the investor an additional 6% upside when compared to a more normal volatility environment.

We don’t contend that this will always be the case, so the emphasis should be on defining the objectives ahead of time and monitoring the market conditions to assess the relevant action to take as market conditions evolve.

Continuing the conversation

In this piece, we sought to remind our readers that adverse market events could have a stronger impact than they anticipate and that they should investigate investment ideas to help navigate volatile times. Buying insurance against drawdowns can better position the plan to deliver on its long-term objectives. While the ideas were presented conceptually for brevity, not all implementation options are equal and details should be discussed with experienced market professionals. We welcome the opportunity to explore ways to customize downside insurance based on your plan’s specific requirements.

2 LGIMA, Bloomberg as of 04/07/20; Illustrative purposes only – above values are subject to change and may not reflect current market conditions

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