

Pension Plan Maturity— Why Big Plans Mean Big Risk

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Key Points

- Increasing plan maturity has become a significant issue for many pension plans, making it harder to recover from current and future deficits. Once mature, plans often have difficulty reducing their current level of investment risk.
- Measuring and monitoring risk-related indicators is critical, but the crucial role for actuaries is to help plan sponsors anticipate and mitigate risks, with the goal of assuring full payment of the intended pensions.
- However measured, a plan's level of maturity affects its ability to recover from a negative shock, so different levels of funding and investment risk may be appropriate.

Introduction

Mature pension plans can become a burden on plan sponsors. As a plan matures, benefits accumulate, and the plan population ages, the plan's obligations become large relative to its source of contributions. A decline in the sponsor's finances can exacerbate economic shocks to an older, bigger plan. The key dynamic is the pension plan's size compared to its contribution or revenue base, which is highly correlated with plan population statistics. This issue brief reviews measures of plan maturity, examines the resulting challenges, addresses potential strategies to ensure benefit security, and provides a framework to mitigate the risks associated with a mature plan.

Measuring Maturity

"Pension plan maturity" does not have a precise definition. The most commonly cited measures use various plan population metrics. However, measures that compare a plan's size to its sponsor's financial resources are more directly related to risk and outcomes. Some typical measures of maturity are:

RATIOS

- Retirees to active members
- Plan liability to revenue
- Assets to payroll
- Retiree liability to total plan liability
- Liabilities to contributions

OTHERS

- Benefit cash outflows less non-investment cash inflows as a percentage of assets
- Duration of the actuarial liability



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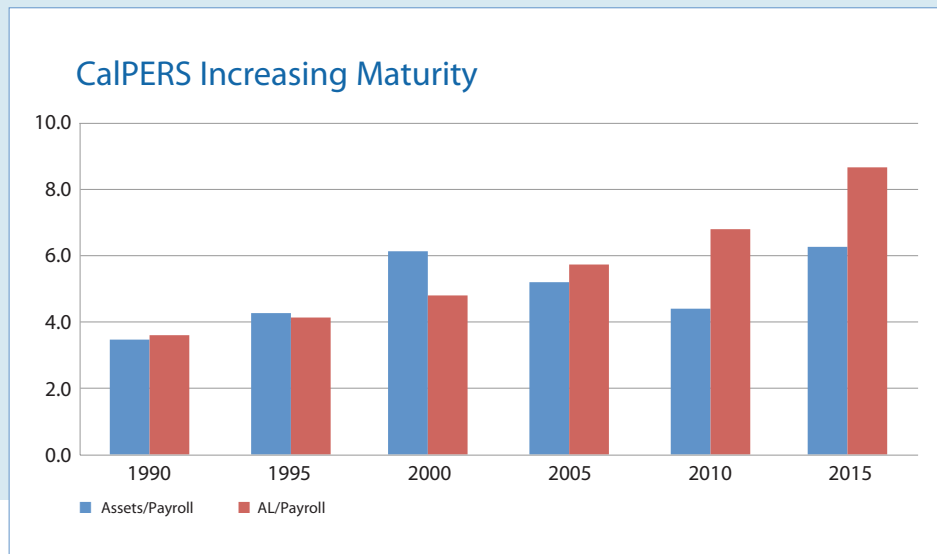
However measured, a plan’s level of maturity affects its ability to recover from a negative shock, so different levels of funding and investment risk may be appropriate. The California Public Employees’ Retirement System (CalPERS) has matured (see inset), which has led it to adopt a plan to reduce investment risk over time.

CalPERS Leverage or Volatility Ratios

As a measure of maturity, CalPERS tracks the ratio of assets to payroll and the ratio of actuarial liability (AL) to payroll (sometimes referred to as leverage or volatility ratios).

In 1990, the asset leverage ratio was about 3.6, meaning a 10% investment loss was equivalent to 36% of payroll. By 2015, this ratio—which fluctuates with investment returns—had grown to 6.4, making a 10% investment loss equivalent to 64% of payroll. So the same investment loss became significantly more costly over those 25 years.

The liability leverage ratio also grew steadily from 3.7 in 1990 to 8.7 in 2015. An assumption change (e.g., a discount rate reduction) increasing liability by 5% would have been equivalent to about 8% of payroll in 1990. In 2015, the impact of the same change would have been about 43% of payroll.



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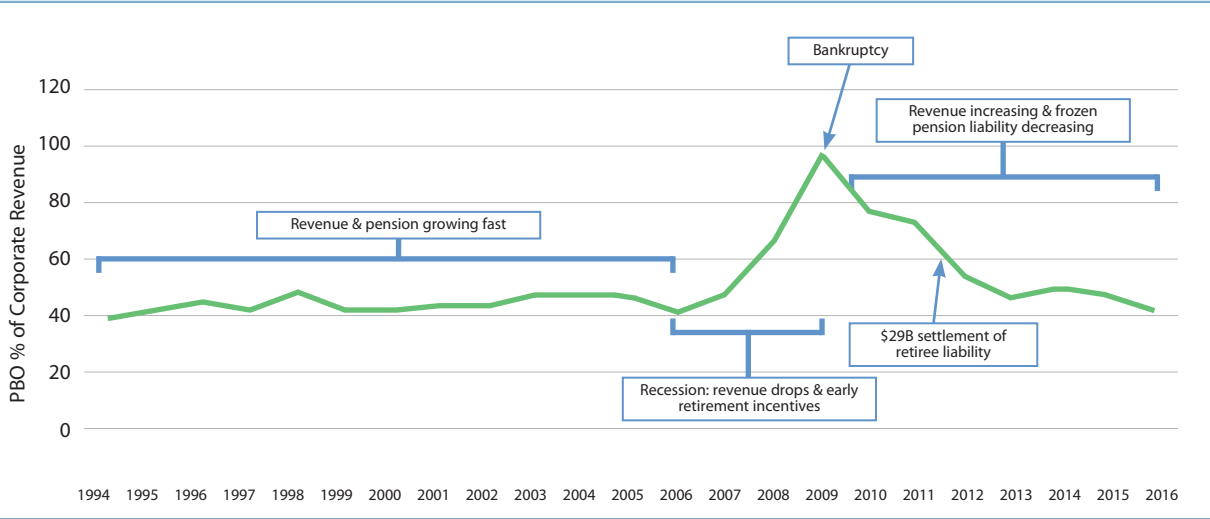
Key challenges for mature pension plans

Greater maturity creates greater sensitivity to gains and losses and bigger challenges from underfunding. A plan’s time horizon—as defined, for example, by duration or the weighted average maturity of its cash flows—becomes shorter as it matures. As a result, mature plans have less time to recover from low investment returns or other losses. As benefit payments increase, net cash flow becomes negative, and near-term investment returns have a greater impact on the smaller asset base.

Plans become more mature as participants age and retire, but a downsizing of the active population—possibly associated with the sponsor’s decreasing revenue—can contribute significantly to maturity. Early retirement programs designed to reduce long-term costs may increase the retiree population at a time when the sponsor’s revenue might not be growing. Increasingly volatile pension costs could exacerbate an already challenging situation.

General Motors’ Rapid Change

From the mid-1990s through about 2005, GM’s pension benefit obligation (PBO) was equal to about 40% of corporate revenue, which made the pension a significant, but not overwhelming, financial issue. Around 2006, however, the economy, the car industry, and GM started into a downturn. Corporate revenue dropped just as the PBO increased due to early retirement incentives and lower interest rates. As measured by the ratio of PBO to corporate revenue, the plan matured rapidly and became a very significant source of risk for the company. Although some pension assets were matched with the liability, very large investment losses in 2008 made the situation worse and might have contributed to the company’s need to file for bankruptcy. The rapid increase in plan maturity shows that waiting to reduce risk until it becomes an obvious problem may mean waiting too long.



As the plan grows relative to the plan sponsor's size, financial impacts are leveraged, just as a company's financial position may be leveraged by taking on more debt. Any existing deficits become bigger challenges when the plan sponsor's revenue doesn't grow as anticipated. A moderate plan deficit can quickly become a huge issue when the sponsor's revenue decreases over a short time span. General Motors Company (GM) is an example of how this can happen.

A common misunderstanding is that negative cash flow by itself is a warning sign. While plans with older populations and more retirees are more likely to have negative cash flow, better-funded plans can also have negative cash flows because lower contributions are needed.

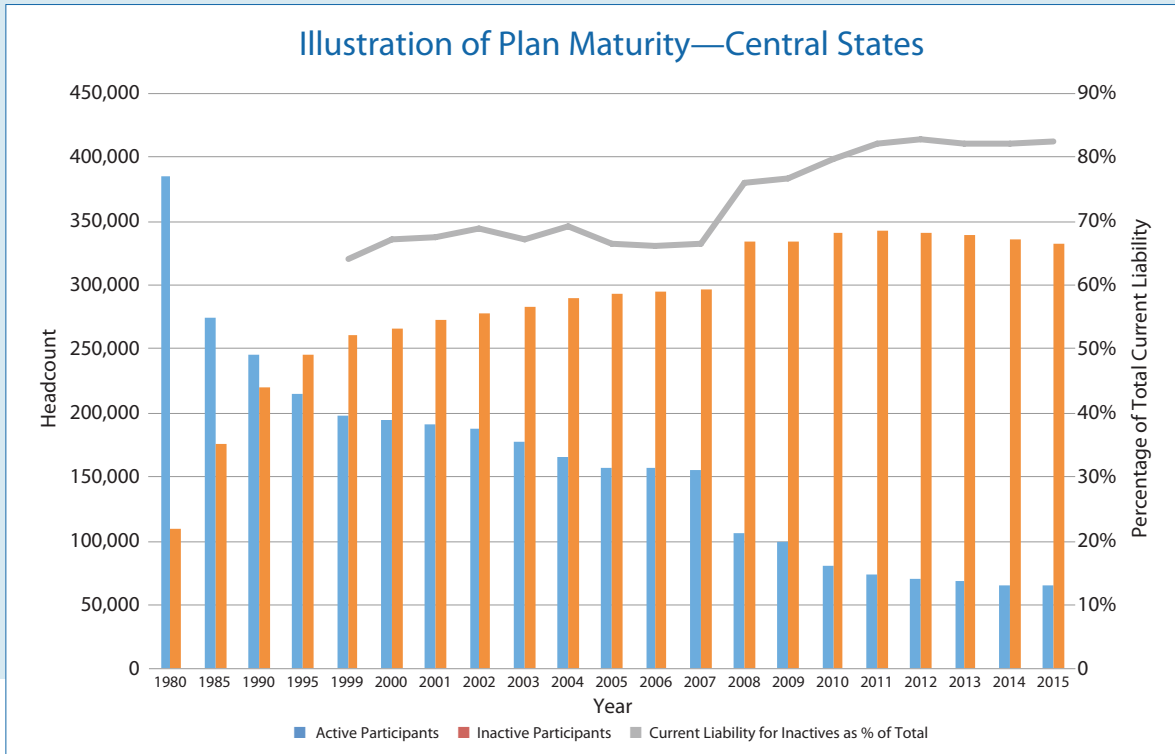
Mitigating the impact of plan maturity and maturing plans

Addressing plan maturity is most effective when it starts before a plan becomes mature. Ideally, funding and investment strategies evolve with plan maturity, keeping risk manageable. As a plan matures, the investment horizon shortens, so more conservative strategies may be appropriate. Downturns have a bigger impact when the asset base is bigger, and the plan has less time to recover. Sequencing risk (where early returns are more important than later returns) becomes an issue. When determining expected returns, the importance of current market conditions, such as interest rates and equity valuations, grows.

Any signs that a company, an industry, or a workforce could decline in the future should raise questions about how to manage the potential consequences for the pension plan. One well-publicized case illustrating this point is the Central States, Southeast and Southwest Areas Pension Plan, which saw its covered population change dramatically as the trucking industry changed over time (see inset).

Central States' Teamsters Demographic Evolution

The Central States, Southeast and Southwest Areas Pension Plan matured gradually through 1990s and then rapidly in the 2000s as deregulation of the trucking industry reduced the number of union truck drivers. The withdrawal of UPS from the plan in 2008 further reduced the active workforce. In 1980, the plan had 3.5 active workers for every inactive participant, but by 2015, the ratio reversed to five inactives for every active participant. In a multiemployer plan, fewer active members reduces employers' capacity to make contributions, making any deficits harder to overcome. The 2008 market downturn added to the negative cash flow. Liabilities for inactives grew to more than 80% of the total by 2010, so deficits became virtually impossible to make up.



Managing such an extreme, unanticipated change is very difficult, but a strategy that automatically adjusts as the plan matures can help manage emerging risks before their costs become unaffordable. One key to developing a sound strategy is to track plan maturity statistics. See sections 3.7 and 3.8 of Actuarial Standard of Practice No. 51, [Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions](#).

While reporting is a first step, stakeholders need to understand the significance of these statistics and how to use them. Looking at current levels is helpful, but projecting these indicators under various scenarios to look for potential future financial distress may enhance the risk-management process.

One basic approach is to immunize the plan's liability for inactive participants. Such an approach allows for a higher level of investment risk when a plan is young, with few retirees and a long time horizon, but automatically reduces the risk level as a plan ages and the retiree population grows.

Immunization is a very low-risk approach, but other variations partially implement this concept. For example, the retiree payments over a fixed period of time can be immunized, or a portion of retiree payments might be immunized as a function of funded status. Another approach would be to limit the size of the retiree liability exposed to investment risk to some percentage of the active liability by immunizing, purchasing annuities, or offering lump sums.

Amortization methods are an important part of the risk-management process, because they determine the length of time over which the plan sponsor will fund the liabilities, as well as the pattern of the funding payments. Liabilities that are relatively small compared to the funding source early in the amortization period can become far more challenging at the end of the period as plan maturity evolves and the funding source gets smaller. Reducing amortization periods and avoiding backloaded approaches to amortizing deficits can help minimize this problem. Linking amortization periods to the size or remaining working life of the active workforce can allow funding to gradually adjust to an aging population.

Conclusion

Increasing plan maturity has become a significant issue for many pension plans, making it harder to recover from current and future deficits. Once mature, plans often have difficulty reducing their current level of investment risk. Plans can monitor and anticipate maturity levels and use risk-management strategies that adapt as plans change to keep risks affordable. Experience has shown that when the risks become unaffordable, the plan may not be able to pay the promised benefits and the sponsor may have to restructure its operations.

Measuring and monitoring risk-related indicators is critical, but the critical role for actuaries is to help plan sponsors anticipate and mitigate risks, with the goal of assuring full payment of the intended pensions.

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