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controlling volatility of required employer contributions with synchronization

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The primary objective of every pension plan is to pay all pension benefits to retirees as they come due. Retirees depend on this money to pay for their living expenses, so benefit security is a must. Another important objective is volatility control (year to year stability of employer contribution requirements). If an employer's required contribution increases significantly from one year to the next, it can be disruptive to the budgeting process. The employer may need to cut expenditures in other areas, and may look for ways to lower required pension contributions, such as by reducing benefits (as evidenced by the wave of pension reforms that occurred in the wake of the 2008-2009 Great Financial Crisis).

Most governmental pension plan actuarial valuations already incorporate a few methods that help with volatility control. One of the primary ways of controlling volatility is through the use of an asset smoothing method, in which investment gains and losses on the market value of assets are smoothed over 3 to 5 years for valuation purposes (5 years is the maximum allowed under Florida Statutes). The use of the Entry Age Normal funding method also helps with volatility control, as the mechanics of this method result in a relatively stable Normal Cost as a percentage of covered payroll (the Normal Cost is one of the two main components of the required contribution and represents the cost of benefits earned each year). A third way of controlling volatility stems from amortizing the unfunded actuarial liability (UAL) over a number of years. Most pension plans in Florida use "layered amortization", in which new unfunded liability amortization bases (or layers) are established each year as a result of experience gains or losses, assumption changes, and plan amendments. Each positive layer is treated similarly to a new loan which the employer repays over a fixed number of years. The sum of amortization payments on all outstanding bases is the second main component of the required contribution (in addition to the Normal Cost).

Layered amortization is an excellent method of systematically paying down a plan's UAL over time, with a defined ending date for each "layer" of the unfunded liability. But what happens when there are large positive and negative amortization bases with different remaining periods? In the year immediately following the expiration of a large negative amortization base, the employer's contribution requirement will suddenly increase because the amortization payment on the negative base is no longer included. The opposite occurs in the year following the expiration of a large positive amortization base. This is often referred to as "tail volatility" – volatility resulting from the expiration of large positive or negative amortization bases in different, sometimes consecutive, years. Tail volatility presents a significant challenge to the overall objective of volatility control.

There is a solution though. Before they expire, amortization bases with different outstanding periods and different signs (positive/negative) can be combined. The combined base may result in a less volatile contribution pattern, while

keeping the total of amortization payments relatively unchanged. The downside of actually combining two or more amortization bases is the loss of history and original source of each base. An alternative to this practice has been identified as "Synchronization" in the new White Paper published by the Conference of Consulting Actuaries in August 2024 entitled "Actuarial Funding Policies and Practices for Public Pension Plans, Second Edition".[1] Synchronization involves maintaining all originally established amortization bases, but with adjustments to the number of years remaining so that they expire at the same time.

Consider the following unfunded liability amortization schedule which uses a level dollar amortization method:

UAL Amortization Schedule as of 10/1/2023

Date Established	Source	Current UAL Amount	Years Remaining	Annual Payment
10/1/05	Fresh Start	$ (1,029,204)	2	$ (532,004)
10/1/06	Experience (Gain)/Loss	3,992,414	3	1,421,791
10/1/07	Experience (Gain)/Loss	(2,885,720)	4	(796,211)
10/1/07	Plan Amendment	740,442	4	204,298
10/1/08	Experience (Gain)/Loss	1,524,479	5	347,482
:	:	:	:	:
10/1/22	Experience (Gain)/Loss	6,427,550	19	581,201
10/1/23	Assumption Changes	5,734,972	20	505,926
10/1/23	Experience (Gain)/Loss	4,882,472	20	430,720
		$ 40,266,676		$ 4,636,177

In two years, the amortization base established as of 10/1/2005 will expire, causing the contribution requirement to increase by $0.53 million. In the following year, the contribution requirement will decrease by $1.42 million due to the expiration of the 10/1/2006 base. In the year after that, the contribution requirement will increase by $0.59 million due to the expiration of the two 10/1/2007 bases. This scheduled tail volatility can be smoothed out by combining the five highlighted amortization bases into one base, which would have a weighted average remaining amortization period of about 4 years. Alternatively, the history and original sources of the unfunded liability bases can be maintained using Synchronization (by changing the remaining amortization period of the highlighted bases to the weighted average of 4 years). This is illustrated in the revised amortization schedule shown at the top of the next column:

UAL Amortization Schedule as of 10/1/2023 - After Synchronization

Date Established	Source	Current UAL Amount	Years Remaining	Annual Payment
10/1/05	Fresh Start	$ (1,029,204)	4	$ (283,972)
10/1/06	Experience (Gain)/Loss	3,992,414	4	1,101,563
10/1/07	Experience (Gain)/Loss	(2,885,720)	4	(796,211)
10/1/07	Plan Amendment	740,442	4	204,298
10/1/08	Experience (Gain)/Loss	1,524,479	4	420,625
:	:	:	:	:
10/1/22	Experience (Gain)/Loss	6,427,550	19	581,201
10/1/23	Assumption Changes	5,734,972	20	505,926
10/1/23	Experience (Gain)/Loss	4,882,472	20	430,720
		$ 40,266,676		$ 4,637,124

Synchronization removes near-term volatility by aligning the expiration dates of individual positive and negative amortization bases. While the employer's contribution requirement will still decrease after four years once the five highlighted bases have expired, the scheduled volatility over the next five years will have been reduced from alternating increases and decreases to one single decrease after four years. If there are additional large positive and negative bases established after 10/1/2008 (the full amortization schedule is not shown here to save space), then Synchronization can be applied once again before those bases expire. Although this example involves the five oldest amortization bases (with the fewest remaining years), Synchronization can also be applied to more recently established and/or non-consecutive amortization bases.

Synchronization should not be used to manipulate or artificially reduce the contribution requirement, as this would go against the intent of the approach (which is to control volatility). Maintaining the same weighted average amortization period among the synchronized bases should result in a minimal impact on the employer's contribution requirement in the year of Synchronization. The office of the State actuary has provided preliminary guidance that the use of Synchronization is acceptable as long as the UAL payment does not decrease immediately following the application of Synchronization. Additionally, Florida Statutes Chapter 112.64 requires UAL change bases established after 1980 to be fully amortized within 30 years. Synchronization cannot be used to extend the amortization period of any such base beyond the 30-year maximum. This is one of many good reasons to initially use an amortization period of less than 30 years.

If you would like to smooth out upcoming required contribution volatility in your plan, start by discussing whether Synchronization is a good option with your actuary. Ideally, the decision to synchronize should be incorporated into a well-thought-out funding policy document. Such a document would promote sound governance and eliminate subjectivity for the actuary and for the Board by outlining why, when, and how Synchronization will be used. Since Synchronization is currently an uncommon practice among Florida municipal pension plans, it's best to seek comments from the office of the State actuary in advance of implementation.

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[1] https://www.ccactuaries.org/docs/default-source/papers/CCA-Actuarial-Funding-Policies-for-Public-Plans-2-Final-8-2024.pdf