

# GRS PERSPECTIVES

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## Understanding the Impact of Negative Cash Flow on a Public Pension Plan

*Lance Weiss, EA, FCA, MAAA*

Public-sector pension plans are designed to provide public employees with a pension upon their retirement. But where does the money come from to make the pension payments? Very simply stated, the goal is for employees and their employers to make periodic contributions to a pension fund, which together with investment returns on the invested contributions, will be sufficient to pay all promised benefits upon the members' retirement. This concept is illustrated by the following basic public pension plan financing equation:

$$B + E = I + C$$

where:

B = Benefits Paid

E = Administrative Expenses

I = Investment Return on Plan Assets

C = Contributions

In this equation, the benefits paid are determined by negotiated and/or legislated plan provisions. Administrative expenses are generally determined by system policies. Investment return is determined by investment policies (including liquidity issues). Contributions are generally shared by employees and their employer, with the amount of employee and employer contributions generally set by statute, plan document, or other contract.

Annual employee and employer contributions represent a systematic means of pre-funding the system's costs. The benefit of pre-funding is that investment return on the pre-funded plan assets reduces the employer's long-term contributions.

Retirement plans that have been in operation for a number of years generally have contributions coming in and benefits being paid out each year. The net (non-investment) cash flow is the difference between the contributions and benefits and expenses. These cash flows will vary for each plan since all plans have different demographics and maturities.

Using the same basic public pension plan financing equation, net (non-investment) cash flow is determined by:

$$\text{Net Cash Flow} = C - B - E$$

where:

C = Contributions

B = Benefits Paid

E = Administrative Expenses

Consequently, if  $C - B - E$  is negative, the plan has a negative cash flow and if  $C - B - E$  is positive, the plan has a positive cash flow. Younger plans tend to have positive cash flows, whereas more mature plans may have negative cash flows. There is nothing necessarily wrong with a plan having negative cash flows. In fact, it is expected that all plans will have negative cash flows over time, which is considered the normal cycle of a pension plan.

Further, when assessing the impact of cash flow on a pension plan, it is important to remember why a pension plan has assets - **to pay benefits**. Although a plan has negative cash flow, it does not necessarily imply it is in trouble. In fact, some would say that the primary purpose of pre-funding is so the investment return can pay a significant portion of the benefit payments.

## Understanding the Impact of Negative Cash Flow on a Public Pension Plan

For example, a mature plan with a one-to-one ratio of actives to retirees that is well funded may have negative cash flow, but be actuarially sound. On the other hand, a poorly funded plan that has negative cash flow may be indicative of a plan that is in need of significant (and potentially unaffordable) increases in annual employer contributions.

One potential warning sign for mature plans is if the amount of negative cash flow as a percentage of the plan assets starts to get excessive. For example, if the funded ratio of a plan is significantly below 100%, then negative cash flows now represent a much larger percentage of the assets. This can be an indicator that the plan may need to have a more aggressive funding policy.

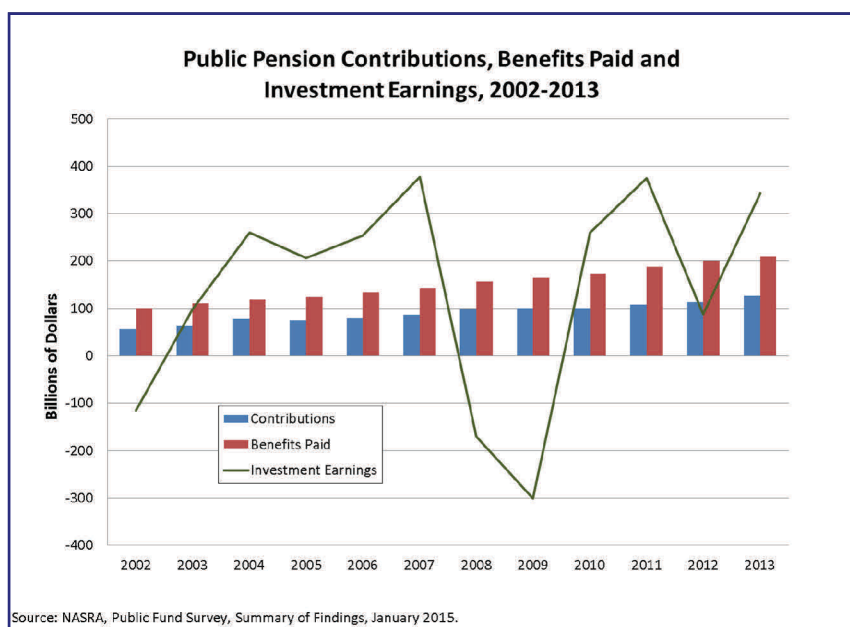
A plan in a negative cash flow situation that does not have enough liquidity to make all the required benefit payments may be forced to change its investment portfolio to one comprised of a larger percentage of short-term (cash generating) investments. Such a change in investment policy may result in the plan's actuary recommending a reduction in the investment return assumption. The direct result will be a significant increase in the annual contribution requirement of the plan

which, in turn, will reduce the amount of the negative cash flow.

As more and more baby boomers retire, the negative cash flow problem could potentially worsen. For example, according to an analysis by the Center for State & Local Government Excellence of the Current Population Survey, 50% of the U.S. public-sector workforce is age 45 or older.<sup>1</sup> This suggests that a large portion of the public-sector workforce will be eligible for retirement within 10 years.

In fact, it is typical for mature plans to experience negative cash flow. The chart below, reproduced from the 2015 Public Fund Survey, plots the combined revenues and expenditures of 100 large public retirement systems. The green line reflects investment gains and losses, which vacillate as investment markets fluctuate. The blue bars indicate total contributions from employees and employers and the red bars show benefit payments.

As this chart indicates, benefit payments exceeded contributions each year during the period from 2002 through 2013 for the plans included in the survey. The good news is that investment earnings were available in most years to offset the negative cash flows.



In summary, negative (non-investment) cash flow is not, by itself, an indication of financial or actuarial distress for a public pension plan.

However, a larger (i.e., more negative) cash flow may require the system's assets to be managed more conservatively, with a larger allocation to more liquid assets in order to meet current benefit payroll requirements. This is likely to result in the plan's actuary recommending a reduction in the investment return assumption and a significant increase in the annual contribution requirement of the plan.

<sup>1</sup> Joshua Franzel, Retirement Security: The Evolving Social Contract, Center for State & Local Government Excellence (SLGE), June 9, 2015. Presentation at the SLGE Retirement Security Summit.

## About the Author



Lance Weiss, EA, FCA, MAAA is a Senior Consultant with more than 30 years of actuarial and retirement consulting experience.

During his career, Lance has worked with large public-sector entities and private corporations, coordinating retirement benefits with other elements of total compensation programs.

Lance serves as a lead consultant to clients in Illinois, Maryland, and West Virginia. His expertise covers the design, funding, accounting, administration, and communication of defined benefit pension plans, post-retirement medical benefits, and § 529 pre-paid tuition programs.

Lance can be reached at [lance.weiss@gabrielroeder.com](mailto:lance.weiss@gabrielroeder.com).

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Corporate Office: One Towne Square, Suite 800  
Southfield, Michigan 48076-3723  
800-521-0498  
[www.gabrielroeder.com](http://www.gabrielroeder.com)

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