In Tranquility or Turmoil, Public Pensions Keep Calm and Carry On

Introduction

Annual income twenty pounds, annual expenditure nineteen and six, result happiness. Annual income twenty pounds, annual expenditure twenty pounds and six, result misery.

– Charles Dickens

Whether the currency is pounds, shillings, and pence or the U.S. dollar, looking at one side of a financial transaction is never enough to provide a full picture. Yet the debate over public pension sustainability consistently focuses on one element alone – debt – without regard to what is on the other side of the ledger.

The other side of the ledger, in the case of public pensions, is income – or, more precisely, the economic capacity of plan sponsors. And a careful analysis of both sides of the pension ledger demonstrates that public pension debt is sustainable despite the economic impact of the coronavirus (COVID-19) pandemic. Why? Because even as pension debt is rising, so is the economic capacity of employers – state and local governments – to handle it. Pension funds are designed to operate under a long time horizon. For example, pension debt or liabilities are amortized over 30 years. The economic capacity of state and local governments is likely to suffer during the COVID-19 crisis, but in the following 30 years GDP is likely to resume its growth path.

The purpose of this Research Series article is to examine whether public pension debt is sustainable despite the negative impact of the current coronavirus pandemic on financial markets.

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[1] Bang for the Buck, "The Unsustainable Situation with State and Local Pension Liabilities." *Seeking Alpha*, Nov. 14, 2018. https://seekingalpha.com/article/4222167-unsustainable-situation-state-and-local-pension-liabilities

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First, with respect to the assertion in the literature and the media about the unsustainability of pension debt, a July 2019 article published in *Governing* counters these arguments. The article, entitled "What Crisis? The Case for Not Panicking over Pension Debt,"[2] features a study by researchers from the Bank of England, the Federal Reserve Board of Governors, and Brookings Institution.[3] To explain the rationale for the headline, the *Governing* article quotes Louise Sheiner of Brookings, who co-authored the study, as follows:

> … Most of the work in this [public pensions] area has been about calculating how unfunded these plans are [and] that's led to a lot of concern that these plans are in a huge crisis … When you approach the pension situation from a public finance [sustainability] angle there's less of a crisis than is typically portrayed.

Second, with respect to the negative impact of the coronavirus pandemic, the stock market had lost about one-third of its value by later part of March. For example, on March 23, 2020, S&P 500 dropped from 3257 on January 2, 2020, to 2237 – a decline of 31.3 percent. Although market has been volatile, in late May it has recovered more than two-thirds of its losses. For example, S&P 500 index on May 26, 2020, was 2991 – down only by about 8.2 percent from its January 2nd high of 3257. Yet, it is common sense to expect that market performance will fluctuate during corona economy and will have significant impact on public pensions.

A recent study by Center for Retirement Research at Boston College and Center for State and Local Government Excellence,[4] estimates that if markets remain at their current levels through June, the funding ratios will drop from 71 percent in 2019 to 69.5 percent in 2020 and the resulting actuarially determined contribution rates will rise from 18.8 percent to 19.7 percent of payroll. By 2025, under optimistic recovery scenario, the study estimates that funding ratio will drop to 62.7 percent and contribution rate will rise to 25.1 percent.

No one knows where we'll end up. But we know that the stewards of public pension funds are likely to do what they always do – diversify and rebalance their portfolios during market swings and economic ups and downs. We also know that looking at one-side of the equation (as the foregoing study does) paints a relatively bleak picture. Although the study notes that pension funds can pay benefits beyond 2025, some policy makers may think "sky is falling" and make hasty pension policy decisions. Unfortunately, the past experience shows that such hasty decisions have often undermined the retirement security of those who are on the front lines to protect us from crisis like coronavirus. That's why this Research Series proposes that instead of focusing just on pension debt side of the equation, policy makers need to examine the trends in the ratio between pension debt and GDP to get a realistic picture about sustainability of public pensions. Our analysis below shows that this ratio has been stable and is likely to be stable over the next 30 years with minimal adjustments.

For the purpose of our analysis, we assume the worst-case scenario. According to the Federal Reserve, about 60 percent ($2.9 trillion out of $4.8 trillion) of total public-sector pension fund assets, as of the fourth quarter of 2019, was invested in stocks.[5] Let's assume stocks are down by 40

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[2] Liz Farmer, "What Crisis? The Case for Not Panicking Over Pension Debt," *Governing*, July 19, 2019. www.governing.com/week-in-finance/gov-pension-debt-good.html

[3] Jamie Lenney, Byron Lutz, and Louise Sheiner, *The Sustainability of State and Local Government Pensions: A Public Finance Approach* (Washington, DC: Brookings Institution, 2019). www.brookings.edu/wp-content/uploads/2019/07/lenney_lutz_sheiner_MFC_Final.pdf

[4] https://publicplansdata.org/2020/05/12/2020-update-market-decline-worsens-the-outlook-for-public-plans/

[5] Board of Governors of the Federal Reserve System, *Z.1 Financial Accounts of the United States: Flow of Funds, Balance Sheets, and Integrated Macroeconomic Accounts, Fourth Quarter 2019* (Washington, DC: Board of Governors of the Federal Reserve System, 2020). www.federalreserve.gov/releases/z1/20200312/z1.pdf

percent at the end of the current COVID-19 health and economic crisis. This translates into a loss of $1.16 trillion. This is very close to what Moody's Investors Service has estimated.[6] Our analysis shows that even if this loss is added to the pension debt, the debt can still be sustained with minimal adjustments.

The Brookings study measures the sustainability or stability of pension debt by examining the relationship between pension debt and the economy, as measured by GDP. Pension debt is sustainable when the ratio of pension debt to GDP is stable over time. Pension debt is unsustainable when it rises faster than GDP.

The Brookings study looks at a sample of public pension plans. The purpose of this Research Series article is to conduct an aggregate analysis for the United States as a whole to examine whether public pensions have been sustainable over the last decade and a half. If not, how much additional money is needed to make them sustainable going forward, taking into account the impact of the coronavirus pandemic?

Methodology

The analysis in this article examines the sustainability of public pension debt in terms of the ratio of pension liability to GDP. By liability we mean total liability (not unfunded liability). Liability is measured over the working life of participants and usually amortized over 30 years. Please note that we use *pension liability* and *pension debt* interchangeably in this article. They mean the same thing for the purpose of our analysis.

The data on pension liability are drawn from the Federal Reserve Board's Enhanced Financial Accounts release on state pensions, *Financial Accounts of the United States*, or Z.1, formerly known as the "Flow of Funds" report.[7] The data cover 2002–2017. The data on state GDP come from the Bureau of Economic Analysis.[8] While GDP data are available for a much longer period, we've used data that align with the available pension liability data from the Federal Reserve. We also examine how much additional contribution may be needed to stabilize the ratio between pension liability and GDP.

Our analysis consists of the following five steps.

1. We first calculated the ratio of 30-year pension liabilities to 30-year GDP for each year from 2002 to 2017. Since liability is to be paid off in 30 years, it must be compared with 30-year GDP (instead of 1-year GDP). We calculated 30-year GDP by simply multiplying the annual GDP of each year from 2002 to 2017 by 30 (assuming no GDP growth).

2. Next, we determined the average liability-to-GDP ratio for this period.

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6 https://www.reuters.com/article/usa-pensions-moodys/update-1-us-public-pension-funds-face-nearly-1-trillion-in-losses-moodys-idUSL1N2BH1YE

7 Board of Governors of the Federal Reserve System, EFA: State Pensions, "State and Local Pension Funding Status and Ratios by State, 2002-2017," last updated December 20, 2019. www.federalreserve.gov/releases/z1/dataviz/pension/comparative_view/table/

8 Bureau of Economic Analysis, "Regional Data: GDP and Personal Income."
https://apps.bea.gov/itable/iTable.cfm?ReqID=70&step=1#reqid=70&step=1&isuri=1

3. We then estimated how much more money should have been contributed into pension funds to keep the ratio stable – at or below the average during the 16-year period (2002–2017). Additional money (*AM*) was estimated as follows:

$$AMi = (A - Ri) \times GDPa$$
where AMi = additional money needed for year i
A = average 30-year debt to 30-year GDP ratio
Ri = ratio of 30-year debt to 30-year GDP for year i
$GDPa$ = annual GDP

4. We then estimated the additional annual payment needed per year over the 8 years of above-average ratio to stabilize the pension debt. Why 8 years? We are using 16 years of data, of which 8 are below the average and 8 are above average. This indicates that during the 8 above-average years, additional contributions would have paid down the liability and kept the ratio stable over the 16-year period.
5. Finally, we estimated the additional amount needed to make public pensions sustainable taking into account the $1.16 trillion loss due to the current COVID-19 health and economic crisis.

Both liability and GDP are measured in millions of dollars for the purpose of this analysis.

Results

Even when we take the flawed comparison often made by opponents of public pensions – comparing 30-year pension liability to 1-year GDP – the sustainability picture is not a cause for concern. Figure 1 shows that 30-year liability and the annual GDP of the United States have been rising almost on a parallel path, indicating that the ratio between liability and GDP has been fairly stable during the study period.

Figure 1. Public pension liability and GDP, U.S., 2002-2017
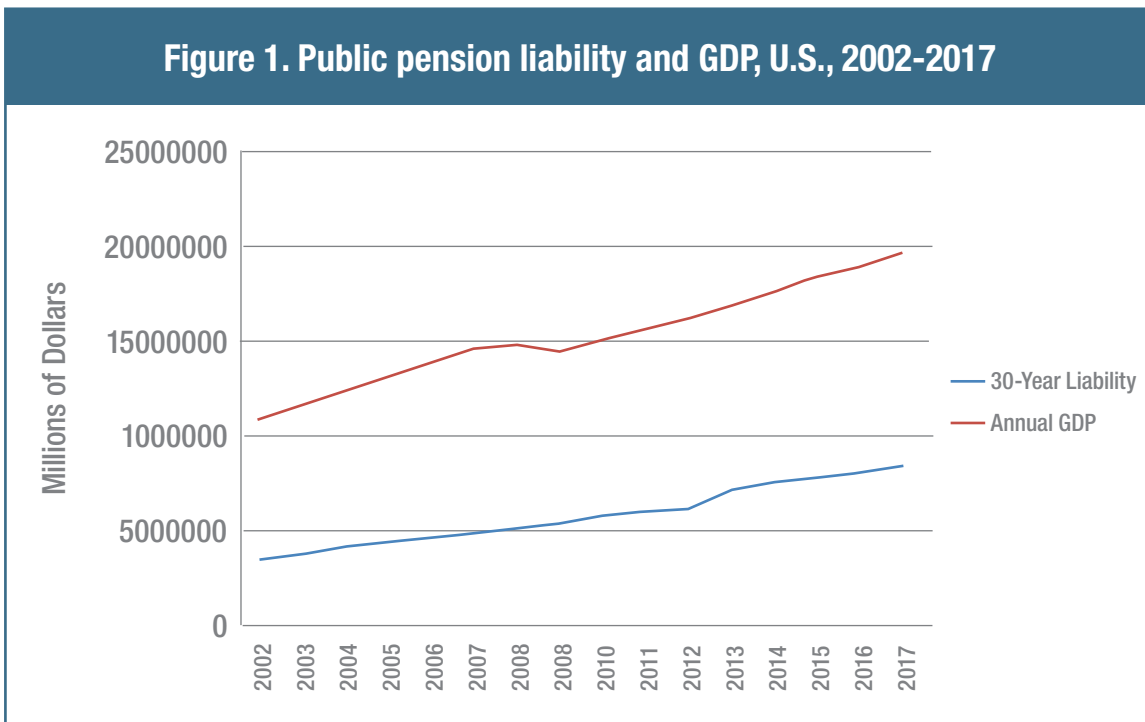
But when we make an apples-to-apples comparison we obtain clear evidence that sustainability is not a significant issue. Figure 2 compares 30-year liability with 30-year GDP. It shows that GDP growth far exceeds growth in pension liabilities.

Figure 2. Public pension liability and GDP, U.S., 2002-2017
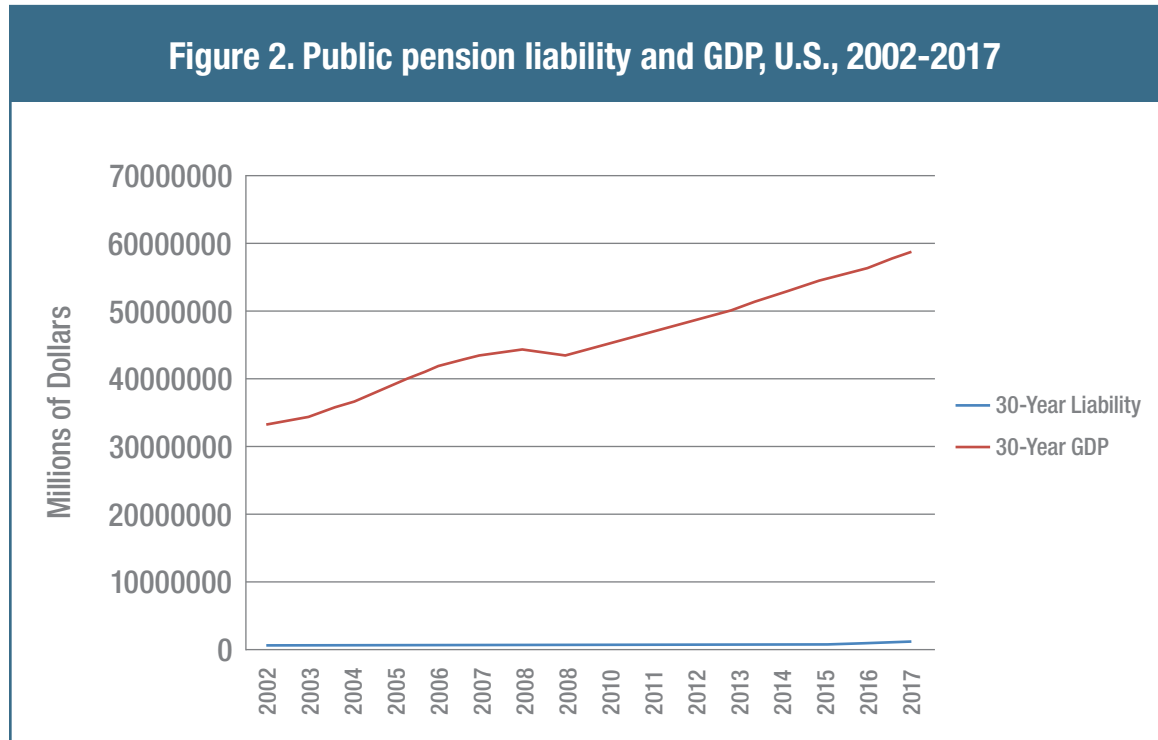
Although hard to detect in Figure 2 because of the magnitude of 30-year GDP compared to 30-year pension liability, the ratio has been rising, as shown in Figure 3. The ratio has been slightly above average in the latter half of the study period – 0.012 being average.

Figure 3. Ratio of 30-year pension liability to 30-year GDP, U.S., 2002-2017
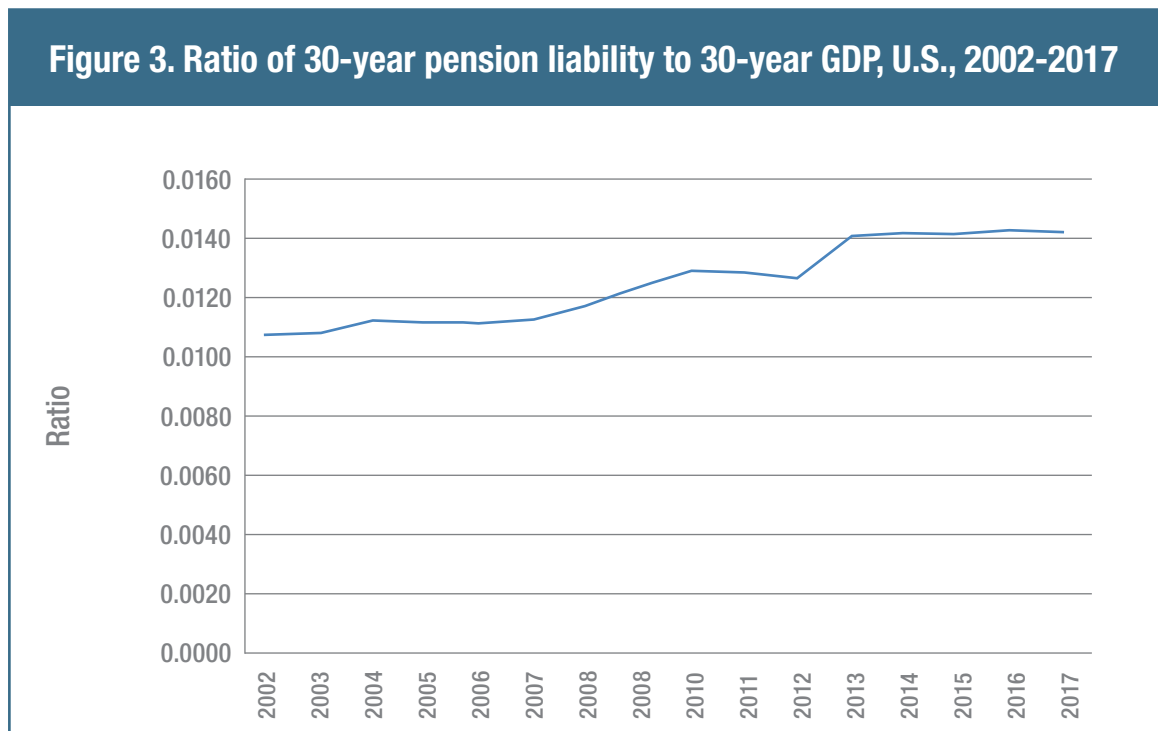
Table 1 shows how much additional money is needed to stabilize pension debt. We determine this by adding the amount needed to maintain the 2002–2017 ratios at the 16-year average. Column 2 shows pension liability to be paid in 30 years, Column 3 shows 30-year GDP (assuming no GDP growth), Column 4 shows the ratio of pension liability to GDP, and Column 5 shows the amount needed to stabilize the ratio at or below the average.

Year	30-Year Pension Debt ($millions)	30-Year GDP ($millions)	Ratio of Liability to GDP	Amount Needed to Stabilize Pension Debt ($millions)
2002	3,511,666	328,092,540	0.0107	
2003	3,708,280	343,747,380	0.0108	
2004	4,118,059	366,411,900	0.0112	
2005	4,357,751	391,099,110	0.0111	
2006	4,618,563	414,438,270	0.0111	
2007	4,893,701	433,555,800	0.0113	
2008	5,163,787	441,385,350	0.0117	
2009	5,362,184	433,467,960	0.0124	
2010	5,801,220	449,761,560	0.0129	6,193.49
2011	5,982,460	466,277,460	0.0128	5,361.29
2012	6,169,118	485,910,210	0.0127	3,412.52
2013	7,087,203	503,545,530	0.0141	26,675.93
2014	7,452,241	525,817,740	0.0142	29,574.68
2015	7,754,366	546,743,400	0.0142	30,936.73
2016	8,041,918	561,451,200	0.0143	34,400.74
2017	8,323,206	585,582,720	0.0142	33,734.02
Average/Total			**0.012**	**170,289.40**

Table 1. How Much Additional Money Is Needed to Stabilize Pension Debt in the U.S.?

The results presented in Table 1 show that the average ratio of 30-year pension liability to 30-year GDP during 2002–2017 is about 0.012 (or 1.2 percent). For the 8 years beginning in 2010, the ratio was above average. Column 5 shows the additional money that could have been contributed to public pensions to keep the ratio stable at the 16-year average. Going forward, all other things being equal, a one-time payment of $170.3 billion or an annual payment of $21.3 billion for the subsequent 8 years (2018–2025) could stabilize U.S. public pension debt by 2025. This is a relatively minuscule amount – 0.11 percent of annual GDP – to pay to sustain pension debt.

Impact of COVID-19: As mentioned above, the loss in the value of state and local pension funds as a result of the COVID-19 pandemic is estimated to be about $1.16 trillion. Even when taking an extremely conservative approach, and assuming this effect is not mitigated by growth in stocks in the next 30 years, we'll need to make up $3.86 billion per year over the next 30 years, or 0.2 % of annual GDP, to maintain a stable ratio of pension debt to GDP. This is the worst-case scenario. Most likely, the returns on investments in stocks during the next 30 years will recoup the losses suffered due to COVID-19.

Conclusion

The exclusive focus on rising public pension debt is analogous to looking at a single-entry bookkeeping system, that is, looking at one side of the ledger. The Brookings study expands this approach by looking at both liabilities and the economic capacity of plan sponsors. While public pension debt is rising, the data clearly demonstrate that public-sectors employers' economic capacity to handle that debt is also increasing. Our analysis shows that pension debt in the United States can be stabilized – and pensions can be sustained despite current losses due to the coronavirus pandemic – with minimal adjustments on an ongoing basis.

In a recent review and critique of the Brookings paper, Keith Brainard and Alex Brown of the National Association of State Retirement Administrators noted that the finding that pensions are sustainable in the context of employers' economic capacity is encouraging. The authors caution, this hopeful outlook, however, does not mean that we should overlook the well-accepted principles and discipline of pension funding and risk management policies and practices.

It also does not mean that state and local governments should pursue a path – a path some are already on – that makes their revenue systems regressive and volatile and increases reliance on risky revenues schemes such as casinos, lotteries, and excise taxes. Pursuing such a path will undermine their ability to effectively make use of their economic capacity.

In short, public pension debt is sustainable in perpetuity if a stable ratio of debt to GDP is maintained. This can be achieved by monitoring this ratio on a regular basis and making minor adjustments along the way. In the meantime, policy makers must continue to follow good pension funding policies and discipline and align their revenue systems with their economies to best exploit the economic capacity of their states.

When policy makers have a clear understanding of the resources available to fund pensions and make the commitment to align economic and fiscal priorities appropriately, the result of public pension policy can indeed be happiness for taxpayers and workers alike.