$100 3941 $100

United States of America.

THE STATE OF TEXAS,

WILL PAY

ONE HUNDRED DOLLARS

TO

Jefferson Reed or bearer, Twenty years after date hereof, but redeemable at the pleasure of the State, after five years from date, with interest at the rate of ten per cent. per annum, payable semi-annually, at Austin, on the First day of January, and the First day of July of each year, upon surrender of the proper coupon hereto attached.

$100

This Bond is Issued under authority of an Act approved April 21st, 1874, entitled "An Act Granting Pensions to the surviving Veterans of the Revolution which separated Texas from Mexico, including the Santa Fe and Mier prisoners; the survivors of the Company of Captain Dawson, who was massacred near San Antonio in the year 1842; the survivors of those who were captured at the city of San Antonio in the fall of the year 1842 and taken to the Castle of Perote and confined therein; and the survivors of Deaf Smith's Spy Company; and to provide for the liquidation and settlement of all arrearages due said veterans under an Act of the thirteenth August, 1870, previous to the first of July, 1874."

Done at the City of Austin, in the State of Texas, the first day of July, 1874.

Andrew J. Dorn, TREASURER.

Richd Coke, GOVERNOR.

Registered: Comptroller.

MARCH 2018, ISSUE 6

The Municipal Pension Crisis

Public pension plans in the United States are facing a combined estimated $4 trillion funding shortfall as a result of the promises made to their employees in the form of pension benefits.[1] This shortfall, or "net pension liability", for cities, states, and local municipalities will need to be paid for through:

- Increased contributions from employers (i.e. tax payers) and employees
- Higher investment returns on assets (on a sustainable basis)
- A reduction in promised benefits to retirees
- Some combination of the above options

There are hundreds of different public pension plans in the United States and not all of these plans are created equal. On one end of the spectrum, South Dakota has the best funded status with a pension funding ratio of 96.9%. At the other end of the spectrum, New Jersey's funding ratio is 30.9%, well below the median 71.1% funding

Cover Image: Bond, text, [c.1874 - 1876]; (texashistory.unt.edu/ark:/67531/metapth31777/m1/1/: accessed January 31, 2018), University of North Texas Libraries, The Portal to Texas History, texashistory.unt.edu; crediting Star of the Republic Museum.

[1] Mooney, Attracta, "US Faces Crisis as Pension Funding Hole hits $3.85tn", Financial Times, May 14, 2017

ratio for all state plans. The situation becomes comparatively worse at the city and local municipal level. As reported by Joshua Rauh, a finance professor at Stanford University's Graduate School of Business, in a Financial Times article, "The situation is especially difficult for cities such as Chicago, which Mr. Rauh estimates has unfunded pension liabilities that equal 19 years of the city's [total] tax revenues."[2]

As investors, this looming pension crisis is top of mind for us as we navigate the municipal bond market and evaluate the current and future bond holdings for our clients. In this paper, we will discuss the current state of public pensions, some of the primary causes of the pension crisis, and how we, as Texas municipal bond investors, have adjusted our investment strategy to reduce the associated pension risks in the municipal bonds that we choose for our client accounts.

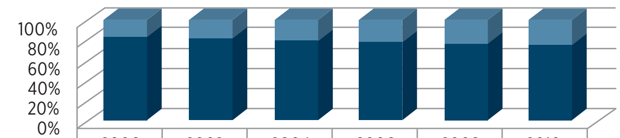
Overview of Municipal Pensions and How They Work

While there are several different types of pensions in the United States, the most prevalent form of pensions for public sector employees is the defined benefit plan.[3] A defined benefit pension uses a formula generally based on an employee's years of service and average pay (over a pre-specified period of time) to arrive at a monthly benefit that will be paid to the employee (and in some cases, to the employee's spouse upon the death of the employee) during retirement. In order to fund the collective retirement benefits for a public pension, the municipality determines (through the use of an actuary) the estimated lifespans of its current and future retirees. The municipality then makes annual contributions into a pension plan for the benefit of its retired workers, which is based upon the expected rate of return on the plan's assets, investment horizon (determined from the aforementioned actuarial assumptions), and the difference ("gap") between the present value of the projected growth of plan assets and the projected future payments from the plan. In general, a higher assumed rate of return on the plan's assets and a longer investment horizon will lower the municipality's annual required contribution into the plan, and vice-versa. It is important to note that, in the case of defined benefit pension plans, all of the investment risk and much of the funding are borne by the employers (i.e. states and municipalities). Thus, during periods of time characterized by low market returns, any funding shortfall resulting from market declines must be absorbed by the municipality in the form of higher contributions (from either current tax revenues or borrowings) into the plan or reduced benefits to current and future workers.

How We Got Here

The pension crisis did not arise overnight, but rather has "snowballed" over the course of many years due to a combination of factors, several of which are long-term in nature. For instance, mortality rates in the United States have been steadily improving over the years due to advances in medicine, which has led to people living longer, healthier lives. While this trend is undoubtedly great news for all Americans, it does pose a burden to the funded status of public pensions as retirees are projected to live longer. An increase in the number of retirees, coupled with the demographic shifts occurring due to the aging workforce, further exacerbates the strain on pension plan assets. Using Texas as an example, the chart below is reflective of the increasing proportion of retired workers to active workers across the Texas pension systems:

Increasing Retiree Ratio for Texas Pension Plans[4]



	2000	2002	2004	2006	2008	2010
Retired	19%	20%	23%	24%	25%	26%
Active	81%	80%	77%	76%	75%	74%

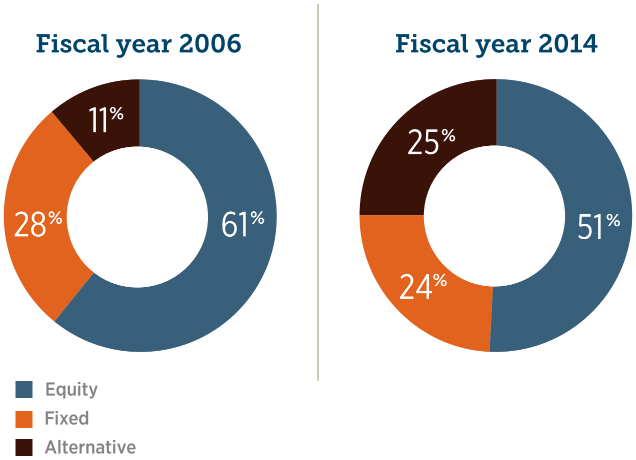
[2] Mooney, "US Faces Crisis as Pension Funding Hole hits $3.85tn"

[3] Due to the expense and unsustainability of defined benefit plans, the private sector has, over the past 35 years, moved almost entirely to defined contribution plans, whereby the individual worker is responsible for bearing essentially all of the investment risk and much of the funding for his or her own retirement.

[4] "Retirement Benefits in the Public and Private Sectors – A Study of Trends, Regulatory Environments, and Related Issues", Research Paper No. 13-002, Pension Review Board, August 2013

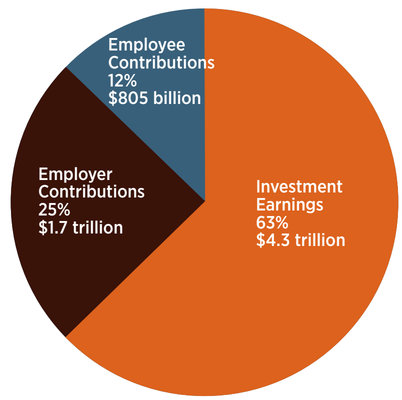
This trend in the composition of retired/active workers is not isolated to Texas. On the contrary, this demographic shift is occurring across both the public and private sectors of the U.S. economy. As older workers continue to exit the workforce and begin to collect benefit payments in retirement, the relatively smaller pool of active workers making payroll contributions into a pension plan is reduced. This demographic trend appears to be secular in nature and is expected to continue for the foreseeable future, acting as a headwind for pension funding ratios.

In addition, the realized investment returns for pension plans have consistently fallen short of expectations over the past several years for many plans, further exacerbating the funding shortfall. A pension plan's return is driven primarily by its overall asset allocation to stocks, bonds, and "alternatives" (such as hedge funds, private equity and real estate). The two charts below reflect the increasing shift to alternative investments for public pension plans since 2006:[5]



Alternative investments, as a group, have been characterized recently as a high fee, poor performing asset class relative to traditional liquid stocks and bonds. The Pew Charitable Trusts issued a report stating, "State funds reported paying more than $10 billion in fees and investment-related costs in 2014, which amounted to their largest expense. Those fees, as a percentage of assets, have increased by about 30 percent over the past decade, a boost closely correlated with the rising use of alternative assets, which has more than doubled since 2006."[6] These complex, high fee investment products have acted as a drag on the overall blended performance for public pension plans with large allocations to this asset class. As the chart below shows, investment performance makes up nearly two-thirds of the typical public pension plan's total revenue:

Figure 1: Public Pension Sources of Revenue, 1986-2015[7]



Source: Compiled by NASRA based on U.S. Census Bureau

Given the critical role that investment performance, net-of-fees, carries with respect to a pension plan's revenue stream, we view this typical heavy weighting to alternatives as a risk to the sustainability of pension plans meeting their required long term obligations.

Poor realized returns and demographic headwinds are certainly not the only sources of the current pension crisis. State and local governments have consistently, and over the course of many years, made promises to workers that they are unable to ultimately fulfill. Legendary investor and Berkshire Hathaway Chairman Warren Buffett put it best in a CNBC interview stating, "[State and local governments] used unrealistic assumptions in determining how much they had to put in the pension funds to meet the obligations. The pension fund assumptions of most municipalities, in my view, are nuts. But there's no incentive to change them. It's much easier to get a friendly actuary than to face an unhappy public."[8] And therein lies the root of the problem. Realizing that there is a pension problem is one thing; having the

[5] "State Public Pension Funds Increase Use of Complex Investments", The Pew Charitable Trusts, April 2017

[6] The Pew Charitable Trusts, April 2017

[7] "Public Pension Plan Investment Return Assumptions", NASRA Issue Brief, February 2017

[8] Summers, Adam, "Warren Buffett on Public Pensions", March 26, 2011

political will to change what has been (and continues to be) promised is quite another. Politicians and government officials would be committing political suicide if they tried to restructure the unrealistic promises made to pensioners and retirees. Given the relatively short (in the comparison to the duration of pension liabilities) term limits of

Pension Bureau, Washington D.C., postcard,
Date Unknown, New York, New York.
(texas history.unt.edu/ark:/67531/metapth35754/m1/1?q=Texas%20pension: accessed February 7, 2018), University of North Texas Libraries, *The Portal to Texas History*, texashistory.unt.edu; crediting Private Collection of Joe E. Haynes.

government officials, most would prefer to kick the proverbial can down the road than to face the expected political backlash associated with pension cuts. Generally, pension negotiations between governments and pensioners only occur once the pension liabilities snowball out of control, ultimately reaching the point of headline grabbing proportions. So how does the looming pension crisis affect our strategy when investing in municipal bonds for our clients?

Investment Strategy Implications

At Houston Trust Company, we focus on constructing high quality Texas municipal bond ladders for our client accounts, in part because Texas' public finances generally remain strong relative to those in other large states.[9] However, given that pension funding ratios across most municipal entities, including Texas, are trending in the wrong direction, we have taken steps to mitigate our clients' exposure to these very real, but often times obscure, pension obligations; while at the same time preserving our high quality, low turnover approach to bond investing.

MUD Bonds

We tend to favor large, developed municipal utility districts ("MUDs") located in and around established metropolitan areas that are experiencing strong population growth. MUD bonds have sometimes been characterized as "higher risk" municipal bonds since these districts are generally relatively new developments and tend to carry higher debt burdens than most fully developed cities and local municipalities. This characterization holds true for some lesser quality MUDs. However, as with pensions, not all MUDs are created equal. We search for and invest in the higher quality MUDs with large and growing tax bases. Our preference for these types of aforementioned MUDs arises from the fact that most MUDs do not have full time employees, and as a result, do not have pension obligations or any associated post-employment liabilities (i.e. healthcare costs) on or off of their balance sheets.

Essential Service Revenue Bonds:

We also tend to favor owning essential service revenue bonds over most general obligation ("GO") bonds for a similar reason. Essential service revenue bonds are backed by a secured revenue stream generated from dependable, stable revenue sources such as water, sewer and electric services, particularly when these services are offered solely by the municipality in a particular geographic area. Some of these essential service revenue bonds do carry pension liabilities; however, the secured nature of the revenue pledge reduces the risk of negative credit events arising from any associated pension funding shortfalls.

As a recent case study, we can look to the city of Detroit bankruptcy case. In Detroit, the pension obligation and general obligation bonds of the city fell into default, while the city's water and sewer revenue bonds continued to make timely principal and interest payments to their bondholders. Payments continued to be made on these bonds because the source of the revenue stream in question was secured, and therefore separate from the city's general fund or pension claims. This secured revenue pledge has proven to be critically important to bondholders when a municipality faces financial distress, especially when the source of distress arises from pension liabilities.

[9] ***Viewpoints #1: "Our Approach to Bond Investing"*** contains a detailed overview of our approach to investing in the municipal bond market.

As noted by Barron's regarding the Detroit bankruptcy, "City pensioners were minimally impaired, with cuts of no more than 4.5% and the elimination of annual COLA [cost of living adjustment] increases. In comparison, unlimited tax GO bondholders experienced 26% haircuts and limited tax GO bondholders experienced a 66% haircut. Pensions account for a seven times larger liability for the city at $4 [billion], compared to $538 [million] in GO bonds."[10]

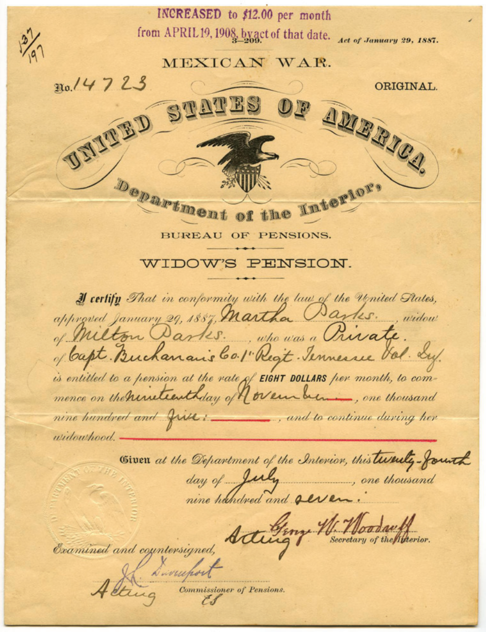
When push comes to shove, bankruptcy judges have tended to favor pensioners over GO bondholders, as reflected in the Detroit bankruptcy ruling. For this reason, Houston Trust Company views certain essential service revenue bonds as stronger and more secure credits than most similarly rated GO bonds.

Finally, given the long term nature of this problem and the unlikelihood of its timely resolution, we prefer investing in bonds with shorter maturity dates. The magnitude of these liabilities and the compounding effect of recurring pension shortfalls can turn good municipal credits into problem credits in a relatively short timeframe. As a result, we rarely purchase bonds with maturity dates longer than 10 years because the long term visibility of future pension liabilities is quite low.

Conclusion

The pension funding crisis ultimately has manifested itself through several decades of governments making (and continuing to make) promises to retirees that they will not be able to keep in their agreed-upon form. Several cities and states across the United States already have been forced to address the status of their pension plans due to the severity of their funding shortfalls. Dallas and Houston, the two largest cities in our great state of Texas, have grappled with their respective pension issues in the news headlines and are taking steps to close the gap going forward on a sustainable basis, but the success of these steps is uncertain at best.

Ultimately, we expect that a reduction in benefits, either in the form of reduced or eliminated COLA increases, higher minimum retirement ages or outright cuts in pension payments, must be a part of the holistic solution for many of the pension plans across the country. States and local municipalities also will need to (or be forced to) make higher annual required contributions into their respective pension plans in order to close, or begin to reduce, their pension funding gaps. Such an occurrence likely will lead to higher tax rates across many municipalities, and in some cases, ratings downgrades due to the increased fiscal pressure associated with addressing these pension funding shortfalls.


INCREASED to $12.00 per month from APRIL 19, 1908, by act of that date.
3—209.
Act of January 29, 1887.
137/197
MEXICAN WAR.
No. 14723
ORIGINAL.
UNITED STATES OF AMERICA,
Department of the Interior,
BUREAU OF PENSIONS.
WIDOW'S PENSION.

I certify That in conformity with the law of the United States, approved January 29, 1887, Martha Parks., widow of Milton Parks., who was a Private. of Capt. Buchanan's Co. 1st Regt. Tennessee Vol. Inf. is entitled to a pension at the rate of EIGHT DOLLARS per month, to commence on the nineteenth day of November, one thousand nine hundred and five:, and to continue during her widowhood.

Given at the Department of the Interior, this twenty-fourth day of July, one thousand nine hundred and seven.

Acting Geo. W. Woodruff
Secretary of the Interior.

Examined and countersigned,
J. L. Davenport
Acting Commissioner of Pensions.
ES

United States of America, Department of the Interior, Bureau of Pensions [Widow's Pension for Mrs. Martha Parks, 24 July 1907], text, Date Unknown; (texashistory.unt.edu/ark:/67531/metapth38885/m1/1/?q=pension: accessed February 7, 2018), University of North Texas Libraries, *The Portal of Texas History*, texashistory.unt.edu; crediting Log Cabin Village.

Municipalities also need to address the high allocation to alternative investments in order to move towards a lower cost allocation that is able to generate sustainable and better long-term returns.

In essence, both sides of the table (i.e. pensioners and tax payers) will need to work together to resolve this growing pension crisis. Given the heavy political and emotional frictions involved, we recognize and do not discount the difficulty in reaching a sustainable and timely solution to the crisis. While having no control over the eventual outcome of the pension crisis, we as fiduciaries and stewards of our clients' capital have taken the steps outlined above to mitigate the pension exposure in the municipal bonds in which we choose to invest.

[10] Aneiro, Michael, "Seven Lessons From Detroit's Bankruptcy For Muni Investors", Barron's, October 24, 2014