# Memorandum

CITY OF DALLAS

DATE September 27, 2019

TO Honorable Mayor and Members of the City Council

SUBJECT **Standard and Poor's Global Ratings Reviews Survey of Fifteen Largest U.S. City Pension Systems - INFORMATION**

On September 23, 2019, Standard and Poor's Global Ratings (S&P) released an article reviewing the fifteen (15) largest U.S. city pension systems, including the Employees' Retirement Fund (ERF), the Dallas Police and Fire Pension System (DPFP), and the Supplemental Police and Fire Pension Plan of the City of Dallas.

According to S&P's report, "primary fixed costs—covering pensions and OPEB as well as debt service payments—are generally high and in many cases poised to rise considerably in the coming years," while "other key risks include the rising risk of recession and increasing medical costs and aging demographics." A key takeaway from the report states that overall, "pension funding levels improved for most of the 15 largest U.S. cities in fiscal 2018 and the median funded ratio aligns with the U.S. median."

The City of Dallas is highlighted in the report as the city with the largest funded ratio gain in fiscal year 2018, with 21 percent improvement in the DPFP System, following significant pension reform in 2017. As it relates to the City, S&P explains, "in April 2019, we affirmed our 'AA-' rating (with a stable outlook) on the city's general obligation (GO) debt, noting that upside potential depends partly on moderation in pension liabilities and citing carrying charges as a potential source of downside pressure."

A key takeaway from the report warns that "the risks of increasing medical costs and aging demographics […] will expose cities to higher OPEB payments." Fortunately, Dallas adopted a policy discontinuing subsidies for retiree health care for employees hired after 2010. Therefore, while we have an OPEB liability which will continue to grow in the near term, it will begin to decline and ultimately will be eliminated, which ratings agencies consider credit positive.

With consistent economic growth and prudent fiscal management of the pension systems and OPEB liability, the City's efforts continue to support strong analysis of the City's credit components, including general obligation bonds and enterprise systems.

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Please let me know if you need additional information.

M. Elizabeth Reich
Chief Financial Officer

[Attachment]

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# Fifteen Largest U.S. City Pensions See Modest Gains In 2018, But Recession Risk And Rising OPEB Cost Challenges Persist

**September 23, 2019**


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Since the Great Recession, municipal defined-benefit pension plans have taken center stage as one of the key sources of long-term credit risk in what has historically been a remarkably stable, low-risk asset class. The 2008 financial crisis and subsequent economic downturn led to steep declines in asset values for U.S. municipal pension funds, followed by a period of inconsistent and often below-target investment performance. S&P Global Ratings believes that these issues have frequently been exacerbated by underfunding, where many municipalities continue to contribute less than actuarially recommended rates to their pension funds and where states have often failed to update statutory formulas in a timely manner to better align with actuarial recommendations. As funding levels have consequently been pressured, so too has the post-recession economic recovery been among the weakest in history, creating more acute budgetary pressure directly related to pension and other postemployment benefits (OPEBs) for many local governments, while focusing market attention ever more sharply on the risks that postretirement obligations pose for local government budgets and credit quality.

## Key Takeaways

- Fixed costs remain elevated for most of the largest cities and in most cases will likely grow over time, pressuring infrastructure investment, and in some cases, priority service provision.
- Pension funding levels improved for most of the 15 largest U.S. cities in fiscal 2018 and the median funded ratio aligns with the U.S. median.
- Despite elevated costs, most of the largest cities are not making what we consider adequate funding progress in their plans, and a handful are not even making the payments necessary to preserve their current funding status.
- Other key risks include the rising risk of recession and increasing medical costs and aging demographics that will expose cities to higher other postemployment benefit (OPEB) payments.

In this year's annual survey of the 15 largest American cities, S&P Global Ratings continues to see a picture that is decidedly mixed in terms of where the largest cities stand with respect to their pension and OPEB liabilities. Primary fixed costs—covering pensions and OPEB as well as debt service payments—are generally high and in many cases poised to rise considerably in the coming years due to poor pension funding levels, actuarial assumptions and methods that defer meaningful funding progress into the future, and movement toward the adoption of more conservative actuarial assumptions that revise funding levels downward and require higher employer contributions. We expect that cities with poorly funded pension plans will continue to struggle with cost pressures, as rising pension payments compete for the dollars needed to fund priority services and infrastructure investment. On the other hand, we continue to observe many cities that are proactively addressing their pension and OPEB liabilities through meaningful reforms that, though often more costly in the short term, will better position them in the long run to meet their obligations without impairing their fiscal health.

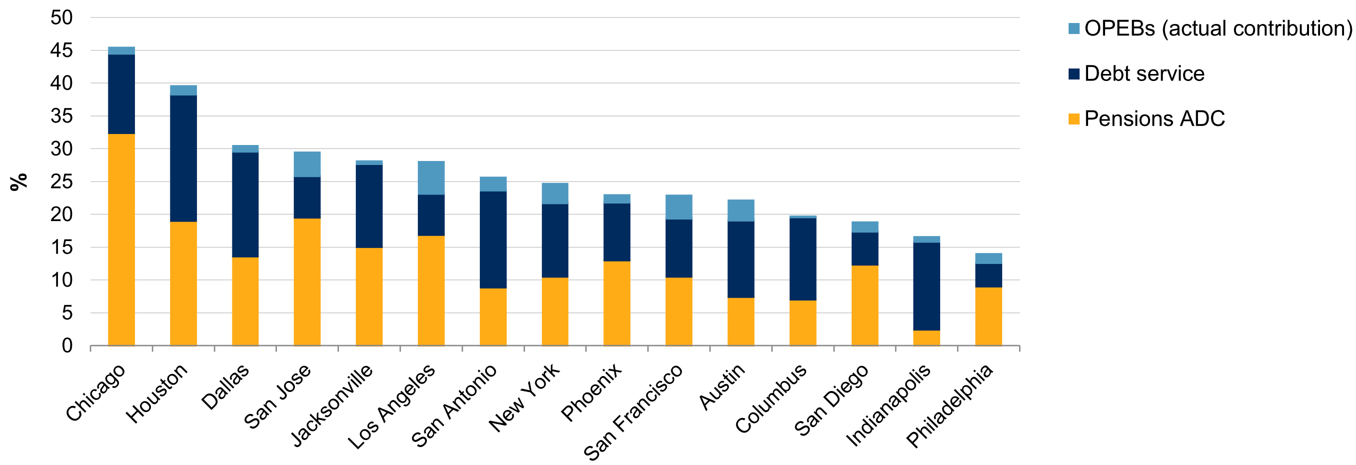
This year, we take stock of some of the key trends we have traditionally focused on in our survey of the largest U.S. cities' pensions—cost trends and affordability, funding levels, and ongoing pension reform efforts—while highlighting some new themes that we think deserve emphasis, including what we expect will be greater focus on OPEB obligations; the potential effects of a recession on funding levels and costs; and the quantitative measurement of funding progress, enabling a more precise pinpointing of funding shortfalls and the risk of cost acceleration.

## High Fixed Costs Are Set To Crowd Out Other Spending Priorities

Pension, OPEB, and debt service spending is high among the 15 largest U.S. cities, exceeding 25% of governmental expenditures on average in the most recent fiscal year. Six of the cities in our sample—Chicago (BBB+/Stable), Dallas (AA-/Stable), Houston (AA/Stable), Jacksonville, Fla. (AA/Stable), Los Angeles (AA/Stable), and San Antonio (AAA/Stable)—dedicated more than one-quarter of their 2018 budgets to fixed costs. We expect spending on pensions and OPEBs to continue to rise well into the future for the largest U.S. cities, as many pension plans are poorly funded or employ funding practices that defer costs into the future (see, for example, the "Measuring Static Funding And Minimum Funding Progress" section below). Further, we expect that changing demographics—an increasing number of retirees relative to active employees—along with rapidly rising medical costs will create greater cost pressure from government OPEB plans. We expect higher fixed costs to increase pressure on other priority services such as public safety and public works, absent tax base growth, tax rate hikes, or new revenue streams, and indeed we are already observing the effects of this trend in some of the cities facing the greatest cost pressures.

Chart 1

**Primary Fixed Costs – Pensions, Debt Service, And OPEBs**
(Fiscal 2018 % of governmental expenditures)




OPEB--Other postemployment benefit. ADC--Actuarially determined contribution. San Diego pension ADC excludes payments made by the city enterprises. Primary fixed costs include actuarially determined pension contributions, actual OPEB contributions, and principal and interest payments on debt, and are here expressed as a percentage of total governmental fund expenditures. S&P Global Ratings will frequently make analytical adjustments to expenditures per our criteria to account for items such as one-time expenditures.



Chicago has been a consistent outlier in our survey over the past three years. Its pensions are the most poorly funded of the largest U.S. cities, such that they have contributed to the largest structural budget deficit in the city's recent history. The city has instituted a hiring freeze and has cut other expenditures going into the 2020 budget cycle. With fixed costs at 45% of expenditures and rising, we expect it will continue to face cost pressures that compete with other discretionary spending and absorb a greater share of its total revenue capacity. In contrast, Indianapolis (AA+/Stable) has the best-funded pensions in our survey, and the results, as shown in Chart 1, are telling in comparison to peers. In fiscal 2018, Indianapolis' pension and OPEB contributions were just over 3% of total spending, and it spent 4.3x more on debt service than it did on retirement benefits, signaling that a substantially greater share of its resources are being devoted to capital investment than to legacy costs.

The figures in Chart 1 also suggest a growing likelihood that pension and OPEB costs will increasingly compete with infrastructure spending as cost pressures grow. The majority of the 15 cities contributed more to pensions and OPEBs in fiscal 2018 than they paid in debt service (a proxy for capital investment), with the median city spending 1.2x more on pensions and OPEBs than on debt service. As noted, we believe that these current cost measures actually understate the likely future mismatch between outlays for pensions and OPEBs and those for debt, as we expect pension and OPEB costs to accelerate relative to other expenditure categories for many large U.S. cities. By implication, any of the major cities facing growing demand for new infrastructure investment or dealing with a backlog of deferred capital will experience greater budgetary pressure over time as mounting retirement costs command an ever greater share of budgets and crowd out spending elsewhere.

## GASB 74, 75 Add OPEB Transparency As Costs Appear Likely to Rise

Beginning in fiscal 2017, Government Accounting Standards Board (GASB) Statements Nos. 74 and 75 required more uniform reporting standards and greater transparency around OPEB liabilities, which we believe will continue to foster greater awareness of the extent of municipal OPEB obligations. We think that risks associated with OPEBs have frequently been underappreciated, likely in no small part due to OPEB costs being modest as a share of budgets historically and the greater flexibility that some municipalities have to modify their benefit offerings. At the median, OPEB costs represented only 1.3% of expenditures among the 15 largest cities in fiscal 2018, though this only measures actual contributions. We find that most OPEB plans are funded on a pay-as-you-go basis, where the sponsoring government is paying for benefits directly from its operating budget. These municipalities are not prefunding the plans by accumulating assets in a trust to earn investment income that will be available to cover future benefit payments. In our 15-city sample, we found that only Los Angeles has routinely made actuarially determined contributions to its OPEB plans in recent years and is the only city with an OPEB plan that is funded at greater than 50%. Its City Employees' and Water & Power plans were 81% and 78% funded, respectively, at the end of fiscal 2018.

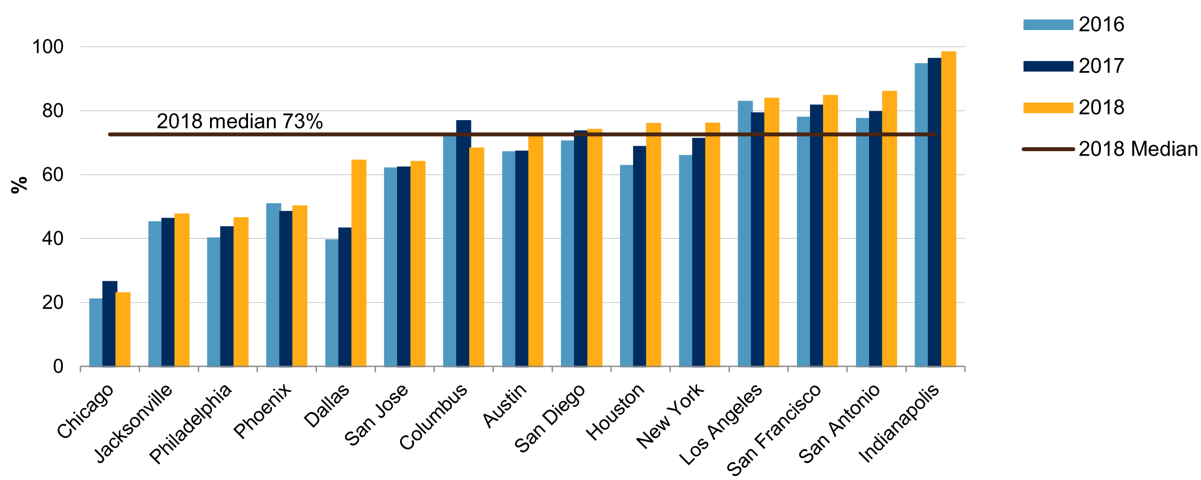
The common use of pay-as-you-go financing for OPEBs exposes cities to cost acceleration and volatility. We expect that OPEB spending will be a more significant cost pressure in the future than in the past as baby boomers continue to reach retirement age, as longevity improves, and as rising medical costs continue to outpace general price inflation, trends that have been underway for some time. While many states allow for greater flexibility to reduce OPEB liabilities by directly cutting benefits, changing eligibility and vesting requirements, or shifting costs onto employees, we recognize that these types of measures represent cuts to total employee compensation and to that end may be politically contentious. Unless we see a municipality implementing what we consider a credible plan to actually cut benefits, then we will treat OPEB benefit payments as hard costs that must be paid, as with other types of fixed obligations. For more information, see "OPEB Brief: Risks Weigh On Credit Even Where There Is Legal Flexibility" (published May 22, 2019, on RatingsDirect) and "New GASB Statements 74 And 75 Provide Transparency For Assessing Budgetary Stress On U.S. State & Local Government OPEBs" (published March 14, 2018).

## Pension Reform Efforts Keep Funded Ratios Stable As Recession Risk Looms

Data from the Center for Retirement Research at Boston College's Public Funds Database for fiscal 2018 show a median GASB 67 funded ratio of 73% for the public-sector pension funds in the sample, which coincidentally matches the median weighted funded ratio for the pension plans of the largest U.S. cities in our 2018 survey. Chart 2 shows the weighted funded ratios from 2016 to 2018 for the largest U.S. cities. Only two cities saw a decline in funded status in 2018 compared to the prior year. Chicago's weighted funded ratio fell by 4% due to investment losses in all four of its pension funds, negative amortization, and assumption changes (specifically, the use of a lower, blended discount rate to value liabilities), and Columbus' (AAA/Stable) funded ratio fell by 9% amid investment losses in both of the Ohio Police & Fire Pension Fund (OP&F) and the Ohio Public Employees' Retirement System (OPERS). The two cities with the largest gains were Dallas and Houston, which saw 21% and 7% improvements, respectively, as Dallas instituted significant pension reforms in 2017 and Houston issued pension obligation bonds (POBs) in 2018. The median city's weighted funded ratio improved by 3% in 2018.

Chart 2

**Weighted Pension Plan Funded Ratios**
All plans (2016–2018)




The weighted funded ratios represent the funded ratio for all plans for each city, where each plan ratio is weighted by the city's proportionate share of the pension liability for that plan. The 2018 median was derived from the 2018 reported GASB 67 funded ratios included in the Center for Retirement Research at Boston College and the Center for State and Local Government Excellence's Public Plans Database.


As in the examples of Chicago and Columbus, pension funds are sensitive to funding setbacks if they realize investment losses or if investment returns fall below the rate of return assumption, as they are heavily dependent on investment earnings to pay for future benefits. We think this sensitivity is worth underscoring at this moment given that we are currently well into what is now the longest economic expansion since World War II and are forecasting a 30%-35% chance of a recession in the next 12 months (see "U.S. Business Cycle Barometer: Recession Risk Rises," published on Aug. 15, 2019). In addition to placing funding levels at risk, recessions and accompanying market volatility can place upward pressure on required contributions through the remainder of the plan funding horizon. The effects on the near-term budget will depend on the severity of investment shortfall in a market downturn scenario, the length and the severity of the recession, and its effects on revenue performance, as well as plan-specific characteristics. In general, cities with more aggressive target investment allocations and aging demographics are at the greatest risk. For more discussion, see the "Investment Returns, Demographics, and Market Risk" section below.

Two other key factors that we frequently see contributing to slow funding progress include contribution practices that are not actuarially based or that otherwise defer funding progress (which we discuss in detail in the "Measuring Static Funding" section below) and an ongoing movement toward pension reform, one component of which has been the adoption of more conservative liability measures that result in weaker funding levels. In particular, we have seen a clear trend across the sector toward lowering investment rate of return assumptions in light of a generally more bearish assessment of long-term economic growth and expectations for weaker market returns. A February 2019 survey by the National Association of State Retirement Administrators (NASRA) found that 30% of the 129 pension plans sampled had reduced their assumed rate of return in the prior year and 90% had reduced their return assumption since 2010 (see "NASRA Issue Brief: Public Pension Plan Investment Return Assumptions," February 2019).

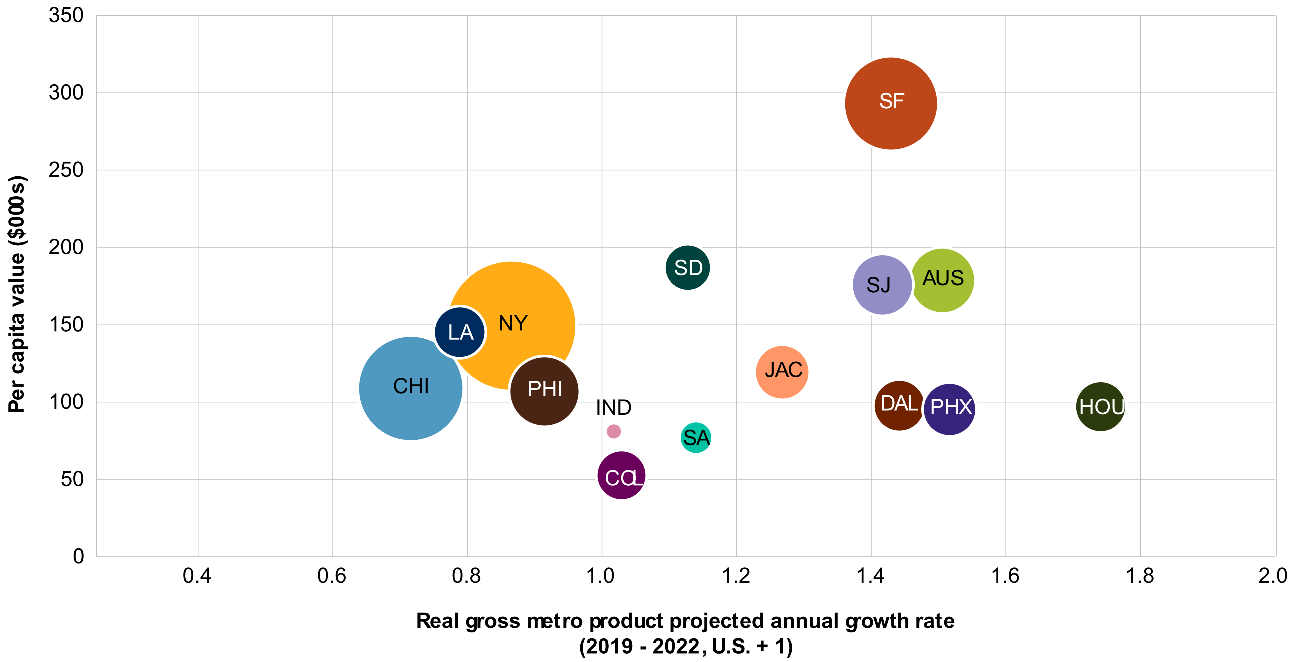
Along similar lines, most of the 15 largest cities have reduced their return assumptions for at least one of their pension plans within the last few years. We view the move to more realistic actuarial assumptions, particularly more conservative rate of return assumptions, favorably, though also recognize its role in rising plan contributions. As cities adopt more conservative actuarial assumptions, so too will their annual contributions increase, a kind of budgetary catch-22 that can place near-term fiscal priorities in tension against long-term stability. Still, while the turn to more conservative assumptions inherently involves these kinds of difficult budgetary tradeoffs, the costs of unrealistic assumptions are much greater in the long run, particularly if aggressive assumptions result in systematic underfunding that is allowed to compound over many years, generating a much larger problem down the road.

## Issuer-Specific Economic Fundamentals Are Key To Affordability

Our view of how pension and OPEB risk factor into credit quality is informed by an assessment of issuer-specific economic fundamentals and trends, which bear heavily on plan affordability. Despite the size of their liabilities, cities that are in rapidly growing and wealthy economies will, all else equal, be comparatively better positioned to manage liability growth, as they are more likely to see stronger future revenue performance and favorable demographic trends. These are especially important considerations in the context of municipal pensions and OPEBs, given the cost trajectory we are observing for retirement benefits. To the extent that revenue growth is not keeping pace with higher costs, we expect that the crowd-out effect discussed above will be more pronounced. Further, many municipalities, including a majority of the 15 largest cities, depend on future payroll growth to pay for their unfunded pension liabilities; to the extent that slow economic growth portends weaker demographic trends, these municipalities could see higher-than-expected costs if their payroll growth assumptions are not met.

Chart 3 shows each of the 15 cities' combined per capita net pension and net OPEB liabilities across all plans (as reflected in the bubble sizes), against two affordability measures: per capita market value (vertical axis) and the projected gross metro product (GMP) of their namesake metropolitan statistical areas (MSAs) compared to the projected U.S. gross domestic product (GDP) from 2019 through 2022 (horizontal axis, where U.S. projected GDP growth=1). Cities positioned higher on the scale are comparatively wealthier on a per capita basis, while those further to the right are projected to see stronger medium-term economic growth.

**Per Capita Net Pension And OPEB Liabilities**
**(Relative to per capita market value and projected economic growth)**




The bubble sizes reflect each city's combined net pension liabilities and net OPEB liabilities on a per capita basis across all plans. The vertical axis represents per capita market value and the horizontal axis the projected real GMP annual growth rate relative to the projected U.S. GDP growth rate from 2019 through 2022, where the projected U.S. growth rate is equal to 1. The projections are derived from data from IHS Global Insight.
AUS = Austin, CHI = Chicago, COL = Columbus, DAL = Dallas, HOU = Houston, IND = Indianapolis, JAC = Jacksonville, LA = Los Angeles, NY = New York, PHI = Philadelphia, PHX = Phoenix, SA = San Antonio, SD = San Diego, SF = San Francisco, SJ = San Jose.
OPEB—Other postemployment benefit. NPL—Net pension liability. NOL—Net OPEB liability.Source: S&P Global Ratings.


New York (AA/Stable), Chicago, and San Francisco (AAA/Stable) have the largest per capita pension and OPEB liabilities, though San Francisco is positioned at the opposite end of the scale. San Francisco has exceptionally strong per capita wealth and projected GMP that is approaching 1.5x the national growth rate, whereas New York and Chicago have comparatively less wealthy economic bases and GMP that is projected to trail the national growth rate. In general, with the exception of Los Angeles, the Sun Belt cities are better positioned than their Midwest and Mid-Atlantic counterparts to realize strong economic growth in the coming few years and also tend to have lower per capita liabilities, factors we think suggest that they will be relatively better off to the degree that they experience cost acceleration from pension and OPEBs. For more information on our near-term economic expectations and local government credit conditions by region, see "U.S. State And Local Governments Will Need to Keep Their Hands On The Wheel," published on RatingsDirect on July 31, 2019.

Table 1

## Select Affordability Metrics

| | NPL per capita ($) | NOL per capita ($) | OND per capita ($) | NPL + NOL + OND per capita ($) | Primary fixed costs as % of total governmental funds expenditures | Weighted pension funded ratio (2018) (%) |
|---|---|---|---|---|---|---|
| Austin | 1,767 | 2,700 | 5,373 | 9,840 | 22 | 73 |

Table 1

## Select Affordability Metrics (cont.)

| | NPL per capita ($) | NOL per capita ($) | OND per capita ($) | NPL + NOL + OND per capita ($) | Primary fixed costs as % of total governmental funds expenditures | Weighted pension funded ratio (2018) (%) |
|---|---|---|---|---|---|---|
| Chicago | 11,171 | 254 | 8,782 | 20,207 | 45 | 23 |
| Columbus | 2,103 | 497 | 2,997 | 5,597 | 20 | 68 |
| Dallas | 2,399 | 386 | 5,115 | 7,900 | 30 | 64 |
| Houston | 1,689 | 1,022 | 4,832 | 7,543 | 40 | 76 |
| Indianapolis | 31 | 257 | 4,395 | 4,683 | 17 | 98 |
| Jacksonville | 2,900 | 207 | 2,916 | 6,023 | 28 | 47 |
| Los Angeles | 2,081 | 694 | 4,194 | 6,969 | 28 | 84 |
| New York | 5,687 | 11,727 | 9,582 | 26,997 | 25 | 76 |
| Philadelphia | 3,918 | 1,182 | 4,567 | 9,667 | 14 | 48 |
| Phoenix | 2,851 | 108 | 1,932 | 4,891 | 23 | 50 |
| San Antonio | 518 | 606 | 6,182 | 7,305 | 26 | 86 |
| San Diego | 1,856 | 391 | 5,820 | 8,066 | 19 | 74 |
| San Francisco | 4,912 | 4,200 | 7,171 | 16,284 | 23 | 85 |
| San Jose | 3,022 | 892 | 7,039 | 10,953 | 29 | 64 |
| Mean | 3,127 | 1,675 | 5,393 | 10,195 | 26 | 68 |
| Median | 2,399 | 606 | 5,115 | 7,900 | 25 | 73 |

NPL--Net pension liability. OPEB--Other postemployment benefit. NOL--Net OPEB liability. OND--Overall net debt. The net pension liability (NPL) represents the share of the total pension liability that is not matched by assets and is therefore unfunded. Similarly, the net OPEB liability (NOL) represents the unfunded share of the total OPEB liability. Overall net debt (OND) includes both direct debt as well as debt from overlapping entities. The weighted funded ratio is the combined funded ratio of all plans that each city sponsors or participates in, as weighted by its proportionate share of the total pension liability.

## Recent Trends Among Largest Plans

Turning to the cities' largest pension plans, funding levels were more or less stable from 2016 to 2018, on average improving by 5.4% over the three-year period. Plan funding practices, investment performance, and, in the case of Houston, the issuance of POBs are key factors that we see contributing to the largest year-over-year changes. The average and median funded ratios for the 15 cities' largest pension plans were 66% and 70% in fiscal 2018, respectively. At the extremes, Chicago's Municipal Employees' Annuity and Benefit Fund (MEABF) was the most poorly funded plan at 23%, and Indianapolis' 1977 Police Officers' and Firefighters' Pension and Disability Fund the best funded at 102%.

While trends in funding status are a useful indicator of year-over-year funding progress and, indirectly, future cost trends, we also observe that certain plans are at greater risk of experiencing cost acceleration due to plan actuarial assumptions and methods and funding practices. In the next section, we also analyze fiscal 2018 performance among the largest plans by looking at two quantitative measures that better enable us to pinpoint funding shortfalls that could contribute to setbacks in funding status and cost acceleration. And in the final section, we also examine the largest plans' investment allocation (as reflected in their rate of return assumptions) in light of their demographic makeup, which we believe better informs our view of their exposure to market risk and funding volatility.

## Measuring Static Funding And Minimum Funding Progress Of The Largest Plans

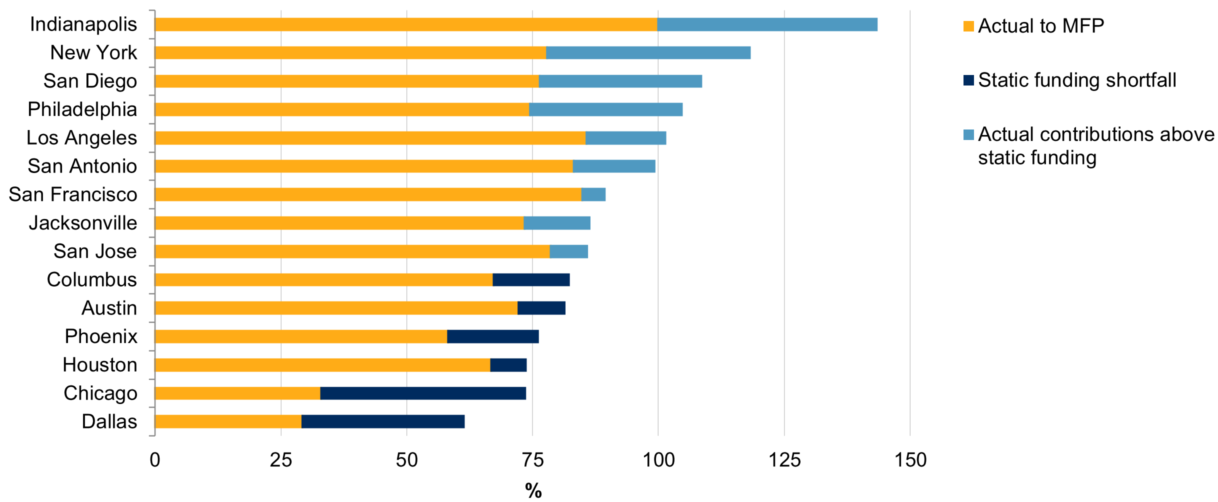
S&P Global Ratings incorporates pension and OPEB risk into its credit analysis for local governments by first looking to current reported liabilities and costs and then to the likely future liability and cost trajectory in light of plan-specific contribution practices and actuarial assumptions and methods. (For more information, see "Quick Start Guide To S&P Global Ratings' Approach to U.S. State And Local Government Pensions," published on May 13, 2019). Key factors that we routinely observe contributing to cost acceleration include weak contribution practices, such as funding based on a statutory formula that is out of sync with actuarial recommendations, and actuarial assumptions and methods that defer contributions into the future, thereby trading long-term plan stability for short-term budget relief. Regardless of the particular circumstance, a key observation that informs this perspective is that actuarial funding is a necessary, though not sufficient, component of a prudent funding practice. Indeed, plans that are funded on an actuarial basis often do introduce significant risk of cost acceleration, particularly when actuarial contributions are structured around assumptions and methods that are unrealistic, do not align well with plan experience and are not updated regularly, or fail to require meaningful progress in paying down unfunded liabilities within a reasonable timeframe.

Chart 4 compares total contributions to each city's largest pension plan in the most recent fiscal year to two measures that enable us to assess the adequacy of the plan contribution practices—static funding and minimum funding progress. "Static funding" is equal to the sum of the plan's annual service cost (the present value of benefits earned in the current year) and the interest cost on the portion of the total pension liability that is not backed by assets. Typically, when annual contributions are equal to this amount, the funding level will remain unchanged, or static, year over year. If all assumptions are perfectly met, a static funding shortfall will result in a decline in the funding level, as annual contributions will not be enough to match current-year earned benefits and interest costs.

"Minimum funding progress" is equal to the static funding level plus 1/30 of the beginning net pension liability. Regardless of the particular actuarial assumptions and methods that inform required contributions, contribution practices that ensure at least 100% of the minimum funding progress metric each year will, in our view, make the minimum contribution necessary to make steady funding progress within a reasonable timeframe.

Chart 4

### Static Funding And Minimum Funding Progress For The Largest Plans




MFP--Minimum funding progress. Indianapolis -- 1977 Police and Firefighters. New York -- Teachers' Retirement System (TRS). San Diego -- City Employees' (SDCERS). Philadelphia -- Municipal Pension Plan. Los Angeles -- Los Angeles Fire and Police. San Antonio -- Fire and Police Pension Fund. San Francisco -- City and County Employees' (SFERS). Jacksonville -- Police and Fire Pension Plan. San Jose -- Police and Fire Retirement Plan (PFDRP). Columbus -- Ohio Police and Fire Pension Fund (OP&F). Austin -- Employees' Retirement and Pension (COAER). Phoenix -- Public Safety Personnel (PSPRS). Houston -- Municipal Employees' Pension System. Chicago -- Municipal Employees' (MEABF). Dallas -- Police and Fire Pension System.

Five of the six plans that experienced a static funding shortfall in fiscal 2018 fund their plans based on a statutory formula that does not match actuarial recommendations. Although Phoenix funds its Public Safety Personnel Retirement System (PSPRS) on an actuarial basis, its contributions are based in part on the assumption of an above-average long-term rate of return on investments and the plan is relying on future payroll growth to pay down its net pension liability, which backloads contributions. On the other hand, nearly all of the plans with contributions exceeding the static funding level in 2018 are funded on an actuarial basis with assumptions that are generally more conservative, including long-term investment return assumptions that are below the national average and amortization schedules that pay down unfunded liabilities more rapidly.

Only five plans had contributions greater than 100% of the minimum funding progress metric in 2018. Common characteristics of these plans include actuarially based funding practices; a below-average investment rate of return assumption (with the exception of Philadelphia's Municipal Pension Plan); and more frequent use of level-dollar amortization of unfunded liabilities, meaning that the plans are making increased contributions now in lieu of relying on future payroll growth and increasingly large contributions over time. Although the near-term costs of these funding practices are no doubt higher than they would be otherwise, making at least minimum funding progress reduces the likelihood of future cost acceleration through a more effective payment structure and one that is ultimately less costly over the long run, as the cities that are paying their liabilities down more rapidly will also pay lower interest costs over the life of their plans.

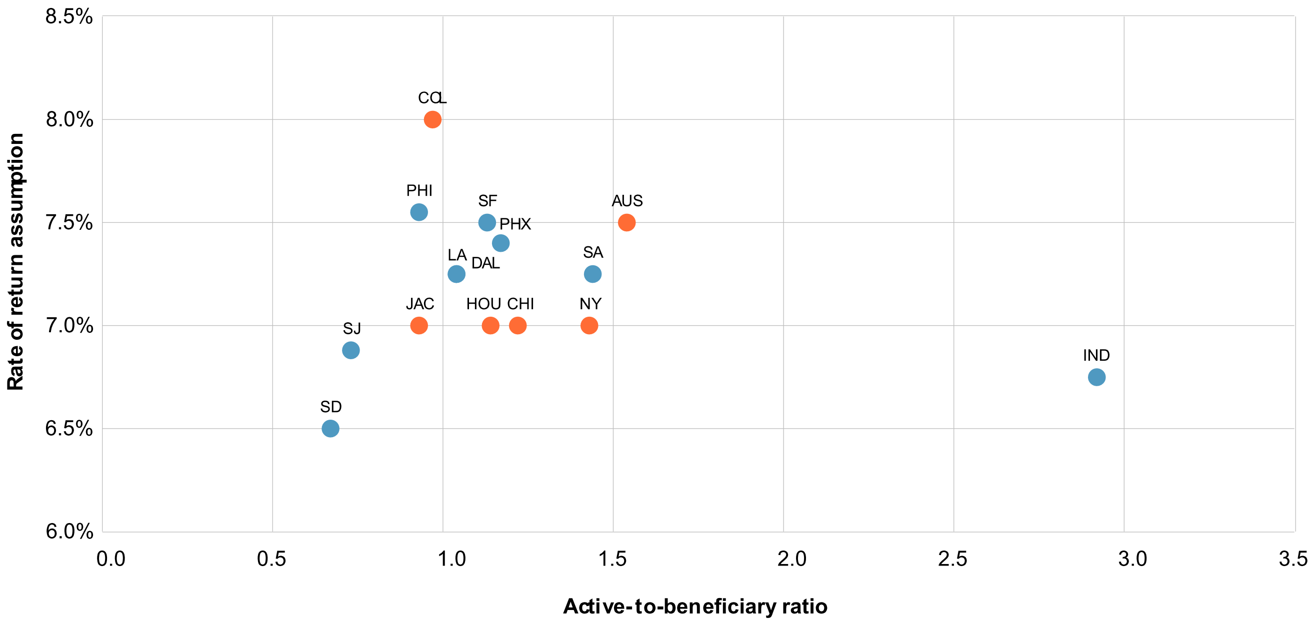
## Investment Returns, Demographics, And Market Risk Of The Largest Plans

The investment rate of return assumption—typically the single most significant variable in determining funding levels and annual contributions—can usefully be taken as an indicator of a plan's exposure to investment volatility and market risk. Plans with a higher rate of return assumption will have a target asset allocation that can reasonably be expected to produce greater returns over the long run, but at the cost of greater volatility and greater exposure to larger percentage decreases in asset values during a market downturn.

We believe that the investment rate of return assumption—and the level of market risk that it implies—is best considered within the context of each plan's unique characteristics, including its demographics and contribution practices. More mature plans, with a lower ratio of active employees to retirees and beneficiaries, will typically have more assets banked relative to the payroll of their working population, and to that extent, will be subject to greater volatility in contributions should they see large swings in investment returns. Conversely, younger plans tend to have fewer assets relative to payroll and a longer investment horizon that better situates them to absorb investment losses over the long term, thereby making a greater appetite for investment risk more appropriate.

Moreover, actuarial funding is generally more effective at absorbing market volatility while maintaining funded status, as investment losses in a given year will automatically be factored into future contributions. By contrast, most statutory contribution practices we see do not make such an automatic adjustment following a year of below-target investment returns, rendering these plans more susceptible to deterioration in funded status due to market volatility, particularly if their investment returns are chronically below their rate of return assumption and the statutory contribution rate is left unmodified. (For more discussion, see "Looking Forward: The Application Of The Discount Rate In Funding U.S. Government Pensions," published Sept. 13, 2018, and "The Increasing Cost of Governmental Pensions: Discount Rates And Contribution Practices," published Sept. 27, 2018.)

**Plan Demographics And Investment Rate of Return Assumptions (Largest Plans)**




Dallas' largest plan—the Police & Fire Pension System—is beneath the marker for Los Angeles, as both plans have the same rate or return assumption and nearly identical active-to-beneficiary ratios. Dallas' largest plan is not funded on an actuarial basis.
AUS = Austin, CHI = Chicago, COL = Columbus, DAL = Dallas, HOU = Houston, IND = Indianapolis, JAC = Jacksonville, LA = Los Angeles, NY = New York, PHI = Philadelphia, PHX = Phoenix, SA = San Antonio, SD = San Diego, SF = San Francisco, SJ = San Jose.
Source: S&P Global Ratings. 

Chart 5 shows each of the 15 cities' largest pension plans by their rate of return assumption (on the vertical axis) and their ratio of active employees to retirees and beneficiaries (on the horizontal axis), with the blue markers signifying plans that are funded on an actuarial basis and the red markers indicate plans that are not actuarially funded.

We see that one-third of the plans had rate of return assumptions that were above the 7.27% average in NASRA's sample from February 2019. In particular, the Ohio Police and Fire Pension Fund (OP&F)—a cost-sharing multiple-employer plan that is the largest plan for Columbus—is an outlier with an 8% rate of return assumption, and Philadelphia's Municipal Pension Plan is not far behind with a 7.55% return assumption. Further, both plans have an active-to-beneficiary ratio of less than 1x, meaning that they have more retirees and beneficiaries than active employees, and to that extent, are more dependent on assets and employer contributions to maintain their funded status. These plans and others that are positioned toward the upper-left portion of the chart are comparatively more vulnerable to investment risk, and are thus more likely to see cost acceleration following a market downturn.

Indianapolis' 1977 Police and Firefighters' plan is another outlier but in a different way. The city closed its pre-1977 plan to new entrants when it created the 1977 plan, so the new plan has a healthy active-to-beneficiary ratio and, being fully funded, can meet its projected benefit payments with less dependence on future investment earnings. Accordingly, it has one of the lowest investment rate of return assumptions in our sample at 6.75%. The lowest rate of return assumption belongs to San Diego City Employees' Retirement System (SDCERS; 6.5%), which also has the lowest active-to-beneficiary ratio of any plan in our sample at 0.67x. The city has lowered its return assumption in stages over the past few years, which we think is prudent given its exposure to cost increases if were SDCERS to experience significant investment losses. Along similar lines, we expect that, in general, cities with aging demographics may likewise consider lowering their return assumptions over time to reduce contribution volatility from market exposure. Those that do not could be at greater risk of asset volatility and cost increases following a market downturn or a period of below-target investment returns.

## Recent Pension Developments In The Largest Cities

### Chicago

In her 2019 State of the City Address in August, the city's newly elected mayor announced that Chicago faces a sizable $838 million structural budget gap for fiscal 2020 (see "How Chicago Closes Its Fiscal 2020 Budget Gap Will Be Pivotal To The Rating," published Sept. 3, 2019). The city is currently midway through a multiyear hike in contributions to its four single-employer defined-benefit pension plans. This so-called contribution "ramp" follows from legislation passed in 2016 and 2017 requiring the city to make increasing fixed-dollar payments through 2020 for two of the plans and through 2022 for the other two, after which contributions to all four plans will be actuarially based and designed to reach 90% funding in 40 years. The mayor's announcement, while not surprising to many observers, makes clear the precariousness of Chicago's current fiscal trajectory as well as the key role that rising pension costs have played in creating it.

Despite higher contributions based on the funding ramp, fiscal 2018 saw several setbacks for Chicago's pensions. The combined net pension liability across all plans increased from the prior year to just over $30 billion ($11,171 per capita) from $28 billion ($10,092 per capita) in 2017. This was primarily due to negative amortization (where contributions are not sufficient to cover interest on the liability); investment losses in all four funds; and, consequently, the use of a single blended discount rate to measure liabilities in the Laborers', Policemen's, and Firemen's funds in 2018. The use of a single blended discount rate indicates that under current assumptions and funding practices, plan assets are projected to be depleted—per current projections, in the 2070s for three plans. While we expect that these developments will only minimally affect the city's actuarially determined contributions, the larger near-term challenge will be that of narrowing the substantial gap between actual and statutorily required contributions. Chicago's 2020 budget forecast shows projected contributions increasing by more than $1 billion from 2019 levels by 2025 (an 83% increase overall), with the most significant spikes occurring in 2020 and 2022. We believe that the city's ability to address these higher costs in a sustainable way will be key to preserving credit quality.

### San Diego

San Diego (AA/Stable) has a single-employer, defined-benefit pension plan, the San Diego City Employees' Retirement System (SDCERS), and various defined-contribution pension plans covering most of its employees. At our most recent rating action (August 2019), we revised the city's rating outlook to stable from positive, citing in particular the uncertain effects of a long-awaited resolution to a lawsuit over the city's 2012 pension reform, along with our concern regarding the potential budgetary fallout. In 2012, San Diego voters approved Proposition B, a ballot measure that closed the city's defined-benefit plan to new employees and in its place provided a 401(k)-style plan for nonpolice new hires. Following a lawsuit challenging the legality of Prop B and a related series of appeals, the California Supreme Court ruled last year that the measure violated state labor laws in that the city had failed to properly confer with its employee unions prior to placing Prop B on the ballot. The court remanded the case back to the state appeals court to enact an unspecified judicial remedy. San Diego's subsequent petition to the U.S. Supreme Court to review the decision was rejected in March 2019.

We understand that it is now highly likely that the city will need to provide some remedy to the staff hired after 2012 who were affected by Prop B, though it remains unclear if the remedy will take the form of a retroactive defined-benefit service credit, a retroactive defined-benefit contribution payment, or otherwise. We believe the case's eventual resolution creates potential for either one-time payments to affected retirees or an increase in plan liabilities, leading to cost increases. In any event, we expect that San Diego's strong economic base and forward-planning management will enable it to absorb whatever costs come out of the settlement without pressuring the rating, although we believe that future upside potential will be limited, absent clarity around the extent of the city's exposure to contingent risk stemming from the lawsuit and its plan to fund potential cost increases.

## Dallas

Dallas provides pension benefits to its employees via three separate retirement plans: the Employees Retirement Fund (ERF), the Dallas Police and Fire Pension System (DPFP), and the Supplemental Police and Fire Pension Plan of the City of Dallas. A combination of negative investment returns, changes in actuarial assumptions and methods following a five-year experience study, and payouts related to a deferred retirement option plan challenged DFPP's funded status from 2015 through 2017. The city's contributions to ERF and DPFP have met statutorily required payments in recent years, though these fall short of actuarial recommendations. The city's combined fixed costs totaled 30% of adjusted governmental fund expenditures in fiscal 2018 (including 14.4% for pensions and OPEBs and 15.9% for debt service). The plans have net pension liabilities of $765.6 million for ERF (82.5% funded), $2.39 billion for DPFP (47%), and $15.9 million for the supplemental plan (53%).

In the summer of 2017, the state legislature passed House Bill (HB) 3158, which significantly changed the contributions to and benefits provided by DPFP and requires additional changes if certain funding benchmarks are not. As a result, its funding ratio improved to 47% in 2018 from only 25% the year prior. In April 2019, we affirmed our 'AA-' rating (with a stable outlook) on the city's general obligation (GO) debt, noting that upside potential depends partly on moderation in pension liabilities and citing carrying charges as a potential source of downside pressure.

## Houston

Following a one-notch downgrade in 2016 that largely reflected pension pressures, Houston's GO rating remained on negative outlook for nearly two years before we revised the outlook back to stable in early 2018 after the city adopted a package of significant pension reforms and issued POBs to shore up funding levels. The reform package—which was formally enacted in July 2017—included benefit reductions and increased contributions; lower rate of return assumptions; the adoption of a closed, 30-year amortization period; and the adoption of a cost corridor system that caps the city's maximum annual contributions when investment returns are less than projected. In conjunction with these reforms, the city also issued $1 billion in POBs to address its unfunded liabilities. (For more on pension obligation bonds, see "Pension Obligation Bonds' Credit Impact On U.S. State And Local Government Issuers," published Dec 6, 2017).

Houston's three, single-employer defined-benefit plans had a combined NPL of just over $4 billion and a weighted funded ratio of 76% as of the 2018 valuations, while combined pension, OPEB, and debt service costs were elevated at 40% of governmental fund spending. At our most recent rating action (August 2019), we expressly tied Houston's future credit potential—both downside and upside—at least in part to how well or poorly it manages its pension liabilities and overall fixed-cost burden.

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## Analytical Contacts

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|---|---|---|---|---|
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**Survey Methodology**

Our calculation of pension liabilities was derived from pension plan and city CAFRs reporting under GASB 67 and 68 standards and GASB 68 allocation reports currently available to us. We have combined information across multiple pension plans for each city and weighted the respective plans' fiduciary net position to total pension liability ratio by the city's proportionate share of the plan liability to calculate the weighted pension funded ratio. Where applicable, we used cost-sharing multiple-employer pension plan CAFRs and the city's reported proportionate share of plan liabilities to calculate its net pension liability. We exclude component unit enterprise pension plans with annual pension contributions paid by non-governmental fund revenue

We will frequently make analytical adjustments to governmental fund expenditures pursuant to our criteria, and may also adjust debt service to account for refundings and actuarially determined pension contributions to exclude payments made by component units or enterprises. Accordingly, some of the ratios included in this report—particularly those reflected in Chart 1—may not match the data in the city CAFRs

Chart 4 uses the following calculation for the largest plan to estimate annual plan funding progress: Total employer and employee plan contributions ÷ the sum of service cost + total interest cost x (1 - average plan funded ratio) + (beginning plan net pension liability ÷ 30). If the beginning unfunded pension liability is negative, the beginning plan net pension liability ÷ 30 would be treated as zero. Likewise, for funded ratios at or above 100% in fiscal 2018, the interest cost factor would be zero

We excluded Indianapolis' pre-1977 police and fire pension plans from the city's ratios since the state of Indiana passed legislation in 2008 to cover annual benefit payments on a pay-as-you-go basis for the city's pre-1977 fire and police plans, which are now closed to new entrants

This report does not constitute a rating action.