Wilshire Consulting

2014 Report on City & County Retirement Systems: Funding Levels and Asset Allocation

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Summary of Findings

- The following study includes 109 city and county retirement systems. Of these 109 retirement systems, 105 systems reported actuarial values on or after June 30, 2013 and the remaining four systems last reported before June 30, 2013.
- Wilshire Consulting estimates that the ratio of pension assets-to-liabilities, or *funding ratio*, for all 109 city and county pension plans was 73 percent in 2013, higher than the 69 percent for all plans in 2012. Global stock markets rallied strongly over the twelve months ended June 30, 2013, offsetting weaker performance by global fixed income and allowing pension asset growth to outdistance the growth in pension liabilities over fiscal 2013. (Exhibit 1)
- For the 105 city and county retirement systems that reported actuarial data on or after June 30, 2013, pension assets and liabilities as of fiscal 2013 were $428.9 billion and $589.7 billion, respectively. The ratio of pension assets-to-liabilities, or *funding ratio*, for all 105 city and county pension plans was 73 percent in 2013, up from 69 percent for the same 105 plans in fiscal 2012. (Exhibit 2)
- For the 105 city and county retirement systems which reported actuarial data on or after June 30, 2013, pension assets increased 11 percent, or $42.3 billion, from $386.9 billion in 2012 to $428.9 billion in fiscal 2013, while liabilities grew 5 percent, or $26.2 billion, from $563.5 billion to $589.7 billion. These 105 plans saw their aggregate shortfall decrease $16.1 billion over fiscal 2013 from -$176.9 billion to -$160.7 billion. (Exhibit 2)
- Of the 105 city and county retirement systems which reported actuarial data for 2013, 90 percent have market value of assets less than pension liabilities, or are *underfunded*. The aggregate ratio of pension assets-to-liabilities, or *funding ratio*, for all underfunded plans is 72%.
- City and county pension portfolios have a 62.4 percent average allocation to equities (including real estate and private equity) and a 37.6 percent allocation to debt and other assets. The 62.4 percent equity allocation is lower than the 63.8 percent equity allocation five years prior in 2008. (Exhibits 12 and 13)
- Asset allocation varies widely by city and county retirement system. Thirty-four of the 109 retirement systems have total allocations to equity that equal or exceed 70 percent, and fourteen systems have equity allocations below 50 percent. The 25th and 75th percentile range for equity allocation is 55 percent to 72 percent.
- Wilshire forecasts a long-term median return on city and county pension assets equal to 6.6 percent per annum. This 6.6 percent estimate, based on beta-only asset class assumptions and excluding active-management alpha, is below the median actuarial interest rate assumption of 7.75 percent. One should note that Wilshire's assumptions range over a conservative 10+-year time horizon, while pension plan interest rate assumptions typically project over 20 to 30 years.

Financial Overview

This is our twelfth report on the financial condition of city- and county-sponsored defined benefit retirement systems and is based upon data gathered from the most recent financial and actuarial reports published by 109 retirement systems. Appendix A lists the 109 retirement systems included in this year's study.

The Data

Financial data on public retirement systems lack the timeliness and uniform disclosure governing pension plans sponsored by publicly traded companies, making it difficult to conduct a study with data that are both current and consistent across systems. For this reason, our study methodology involves collecting data during the third quarter of each calendar year with the objective of acquiring as many reports as possible with a June 30 valuation date from the previous year. Even for systems with the desire to report in a timely manner, it often takes six months to one year for actuaries to determine liability values. One hundred five of the 109 systems, for which data are collected annually, reported actuarial values on or after June 30, 2013.

Assets versus Liabilities

Exhibit 1 shows the market value of assets, actuarial value of assets, and actuarial accrued liability values for all city and county retirement systems for which Wilshire has data. One hundred nine retirement systems reported actuarial values for fiscal years 2001 through 2012, with 105 of the 109 systems reporting values for fiscal year 2013. With the exception of the two rows containing Wilshire's estimates for recent-period funded ratios (those data points marked in **bold**), the data presented in each column of Exhibit 1 are limited to only those systems that reported on or after June of that year. For example, all 109 retirement systems reported actuarial values for 2012, while only 105 systems reported actuarial values for 2013. Note that Exhibit 1 includes both market value and actuarial value of assets. Unless otherwise noted, "assets" will refer to market value of assets for the remainder of this paper.

Exhibit 1
Financial Overview of City & County Retirement Systems[1] ($ billions)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total Pension Assets:													
- Market Value	$295.6	$266.5	$277.8	$311.8	$336.4	$366.1	$415.2	$362.8	$311.4	$345.2	$392.1	$398.5	$428.9
- Actuarial Value	$309.4	$313.0	$312.5	$318.7	$332.6	$349.0	$374.4	$386.7	$388.6	$395.1	$398.1	$402.1	$404.2
Total Pension Liabilities:	$309.9	$330.0	$345.4	$360.9	$381.3	$396.6	$418.1	$437.7	$456.2	$478.0	$499.4	$580.7	$589.7
Difference:													
- Market Value	-$14.3	-$63.5	-$67.6	-$49.1	-$44.9	-$30.4	-$2.9	-$74.9	-$144.8	-$132.8	-$107.3	-$182.2	-$160.7
- Actuarial Value	-$0.6	-$17.0	-$32.9	-$42.2	-$48.7	-$47.5	-$43.7	-$50.9	-$67.6	-$83.0	-$101.3	-$178.7	-$185.4
Market Value of Assets as a % of Liabilities:													
All Plans (**estimate**)*	95%	81%	80%	86%	88%	92%	99%	83%	68%	72%	79%	69%	**73%**
Reported Plans (actual)	95%	81%	80%	86%	88%	92%	99%	83%	68%	72%	79%	69%	73%
Actuarial Value of Assets as a % of Liabilities													
All Plans (**estimate**)*	100%	95%	90%	88%	87%	88%	90%	88%	85%	83%	80%	69%	**69%**
Reported Plans (actual)	100%	95%	90%	88%	87%	88%	90%	88%	85%	83%	80%	69%	69%
Number of Plans with Current Data:	109	109	109	109	109	109	109	109	109	109	109	109	105

Although the total pension asset and liability values for 2013 in Exhibit 1 are not directly comparable to earlier years because of the smaller number of retirement systems included (105 vs. 109), the funding ratios, or ratio of assets-to-liabilities, provide a measure of the financial health for these retirement systems during the last ten years. Market value funding ratios fell dramatically between 2001 and 2002, from 95 percent to 81 percent, stabilized between 2002 and 2003, and rebounded swiftly to 99 percent (approaching fully-funded status) from 2003 to 2007. The effects of the global market dislocation events of 2007 through early 2009 are readily observed in the fall in market value funding ratio between 2007 and 2009, from 99% to 68%. In this latest year of data, the market value funding ratio increased by four percentage points to an estimated 73 percent. Our 2013 actuarial funded ratio estimate for all plans is 69%, unchanged from 2012.

Exhibit 2 shows asset and liability values for the 105 retirement systems which reported actuarial values for fiscal June 2013 or later, and compares them with the same totals from the previous twelve fiscal years.

[11] *As disclosed in the plans' Comprehensive Annual Financial Reports (most annual reports use a June 30 or December 31 fiscal year). Liabilities are the reported actuarial accrued liabilities and assets are the actuarial values as of the same valuation date as liabilities, and the current market values as of the fiscal date of the report.*

Exhibit 2
Financial Overview of 105 City & County Retirement Systems ($ billions)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Annualized Growth % 2003-2013	Annualized Growth % 2011-2012
Total Pension Assets:															
- Market Value	$288.2	$259.8	$270.5	$303.3	$326.4	$354.8	$403.3	$354.2	$301.2	$333.9	$381.2	$386.6	$428.9	5%	11%
- Actuarial Value	$301.3	$305.1	$304.5	$309.8	$322.7	$338.2	$362.8	$375.9	$377.3	$383.3	$386.2	$389.8	$404.2	3%	4%
Total Pension Liabilities:	$300.2	$319.4	$334.2	$349.2	$368.7	$383.4	$404.1	$423.0	$440.8	$462.1	$482.6	$563.5	$589.7	6%	5%
Difference:															
- Market Value	-$12.0	-$59.6	-$63.7	-$45.8	-$42.3	-$28.6	-$0.8	-$68.8	-$139.5	-$128.2	-$101.5	-$176.9	-$160.7		
- Actuarial Value	$1.2	-$14.3	-$29.7	-$39.4	-$46.0	-$45.2	-$41.3	-$47.1	-$63.5	-$78.8	-$96.4	-$173.6	-$185.4		
Assets as a % of Liabilities:															
- Market Value	96%	81%	81%	87%	89%	93%	100%	84%	68%	72%	79%	69%	**73%**		
- Actuarial Value	100%	96%	91%	89%	88%	88%	90%	89%	86%	83%	80%	69%	69%		
Underfunded Plans as % of All Plans:															
- Market Value	61%	85%	82%	75%	72%	69%	56%	85%	98%	95%	93%	95%	**90%**		
- Actuarial Value	52%	65%	78%	80%	85%	84%	80%	84%	90%	92%	91%	95%	**96%**		
Total No. of Systems:	105	105	105	105	105	105	105	105	105	105	105	105	105		

In 2012, the pension liabilities of these 105 systems exceeded the market value of assets by $176.9 billion and the funding ratio, or ratio of assets-to-liabilities, one measure of pension fund health, stood at 69 percent. One year later, the market value of assets has increased by 11 percent to $428.9 billion, while liabilities have grown 5 percent, to $589.7 billion. The result has been a decrease in the shortfall between assets and liabilities from a -$176.9 billion deficit to a -$160.7 billion deficit, a change of $16.1 billion, and an increase in the ratio of assets-to-liabilities from 69 percent to 73 percent.

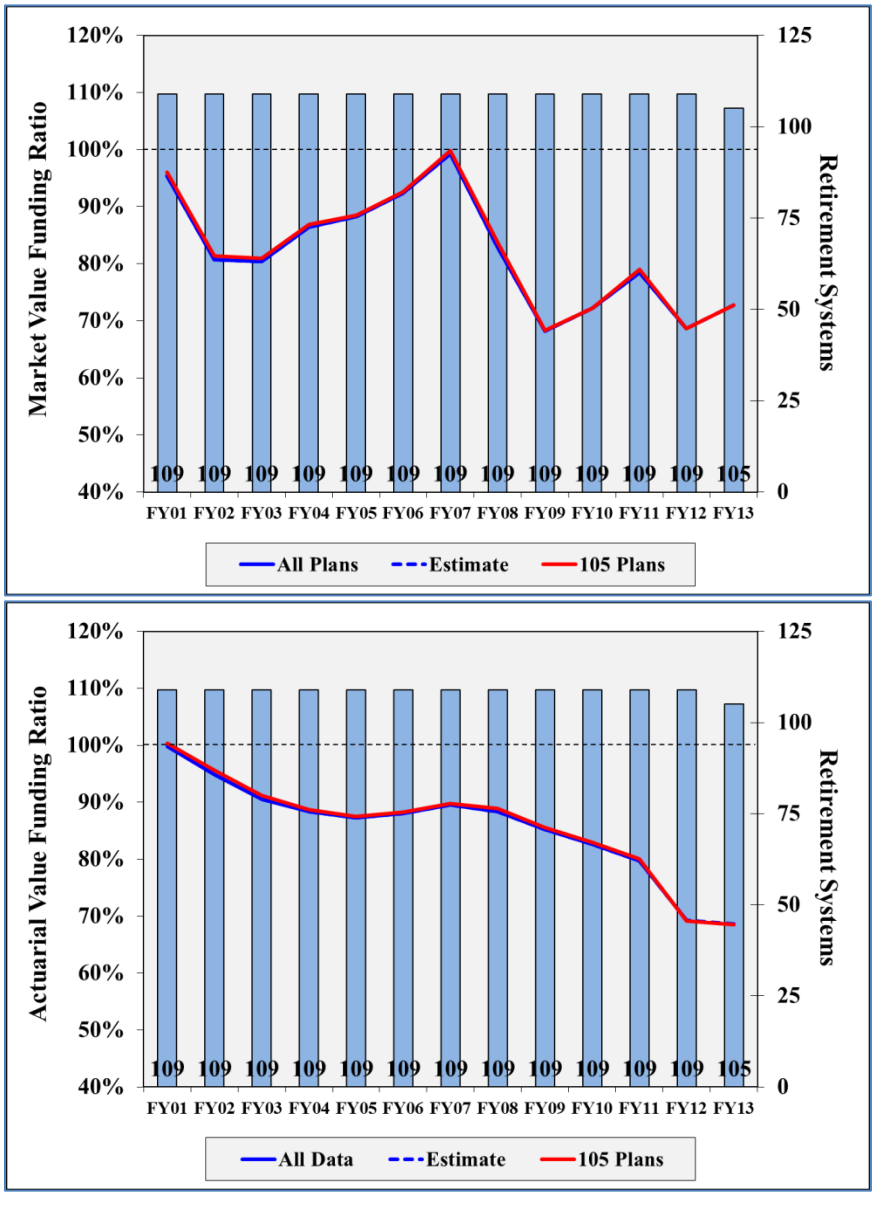
In 2008, assets of these 105 plans trailed liabilities by $68.8 billion and the funding ratio, or ratio of assets-to-liabilities, stood at 84 percent. During the next five years, assets grew 4% per year while liabilities grew 7 percent per year. The result has been an increase in the shortfall between assets and liabilities from -$68.8 billion in 2008 to -$160.7 billion in 2012, a $91.9 billion difference, and a decrease in the ratio of assets-to-liabilities from 84 percent to 73 percent.

Aggregate statistics such as these can mask the underlying fiscal strength or weakness of individual plans because assets in well-funded retirement systems are not transferable to underfunded systems. Exhibit 2 shows that 90 percent of these 105 city and county pension systems, or 95 pension systems, have assets less than liabilities. If we look only at these 95 underfunded systems, their combined assets as a percentage of liabilities total 72 percent and their combined unfunded liabilities total -$161.6 billion. Conversely, the aggregate funding ratio of the ten systems in our survey at fully-funded status stands at 107 percent.

It is important to note, as with any sample, there exists some level of statistical error. However, in the 2014 funding study our data set was sufficiently complete as to reduce that statistical error to minimal levels. Exhibit 3 provides a graphical comparison between the funded ratios based on historical data of all plans versus those based on the subset of 105 plans with more recently reported data, on both a market value of assets basis and an actuarial value of assets basis. Fiscal year 2013 is the only reporting period for which the data set is incomplete (missing just four plans). Wilshire's estimated 2013

funding ratios for the complete set of 109 plans is derived from the historical relationship between the 105-plan sample and the complete set of 109 plans through fiscal year 2012. Our estimates for funded ratios for the complete set essentially match the observed ratios for the 105-plan subset, and the line graphs plot atop one another. This estimation approach and graphical representation of estimated data will be used throughout the remainder of this report.

Exhibit 3
Funding Ratio Comparison of 105-Plan Sample vs. Complete Set of 109 Plans



Funding Ratios

Expanding on Exhibit 3, Exhibit 4 shows the aggregate, average, median, 25th, and 75th percentile market value funding ratios for the city and county pension systems by fiscal year. Market value funding ratios fell between 2001 and 2002, and generally improved from 2002 to 2007. The market declines of 2008 and 2009 effectively erased the gains earned since 2002; 2010 and 2011 saw notable improvement in these plans' financial health. The volatility in global equity markets in the twelve months ending June 30, 2012 dampened institutional fund performance. Asset growth could not keep up with the growth in pension plan liabilities over fiscal year 2012, leading to lower funded ratios for the year. Note that the aggregate funding ratio for fiscal 2012 drops off more steeply than the average and median values; this was primarily due to accounting changes adopted by three very large pension systems in our survey that greatly increased their accumulated actuarial liability (AAL)[2]. The strong capital markets of fiscal 2013 helped these pensions improve their funded status from fiscal 2012 levels.

Exhibit 4
Market Value Funding Ratios by Fiscal Year for 109 Plans

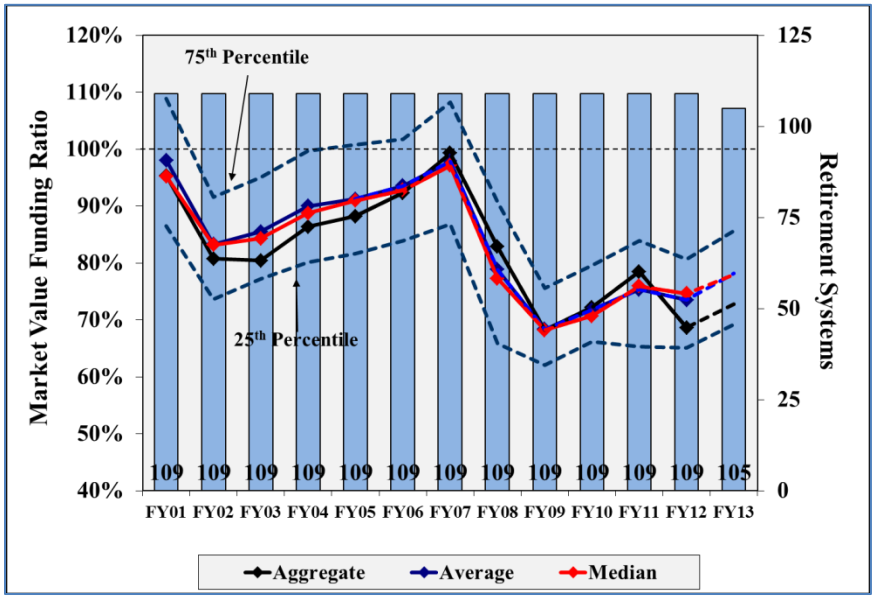
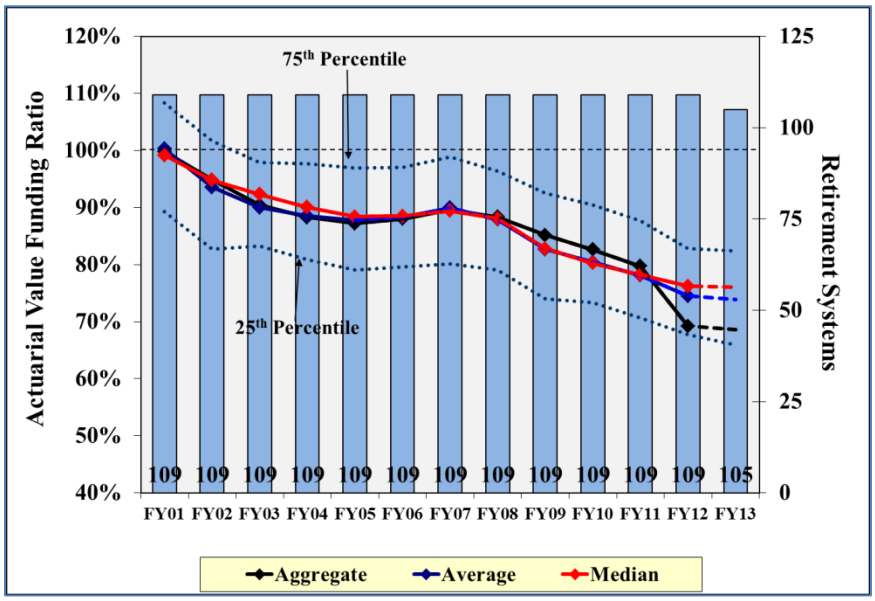


Exhibit 5 shows the same information as Exhibit 4, except it uses actuarial value of assets to determine funding ratios. The general direction of change in actuarial value funding ratios has been steadily downward over this period. In contrast to market value funding ratios, the smoothing of actuarial asset values results in less-volatile funding ratio changes over time; over the last decade, this has also meant that the dramatic market

[2] *Walker, Russ, "Addendum: 2013 Report on City & County Retirement Systems: Funding Levels and Asset Allocation". Wilshire Consulting white paper, October 23, 2013. Available at the Wilshire Associates Research Library at www.wilshire.com or from your consultant.*

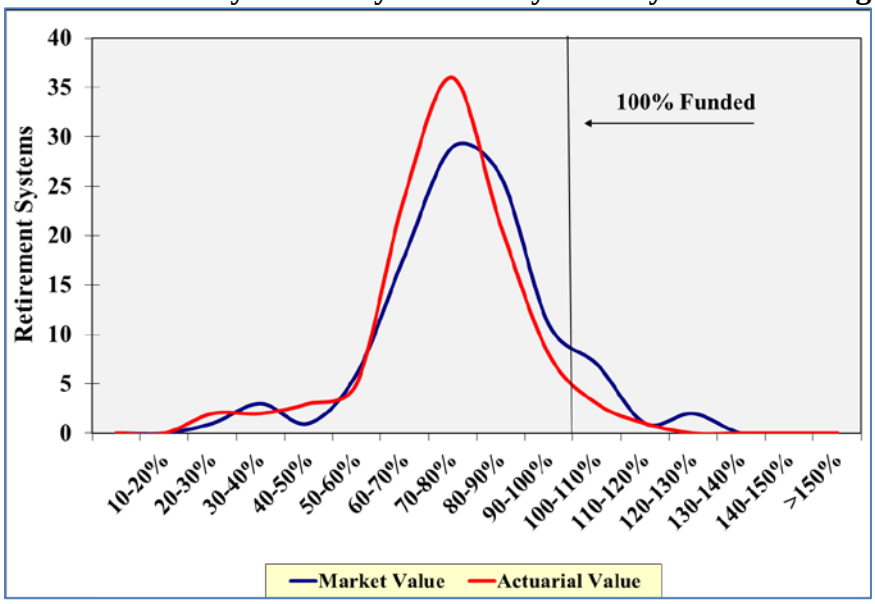
declines of 2008 and early 2009 continued to impact actuarial asset valuations through fiscal 2013, despite strong global equity markets overall during those five years.

Exhibit 5
Actuarial Value Funding Ratios by Fiscal Year for 109 Plans



The graph in Exhibit 6 gives a more detailed picture of the fiscal condition for the 105 city and county retirement systems which reported actuarial values for 2013.

Exhibit 6
Distribution of 105 City & County Pension Systems by FY13 Funding Ratio

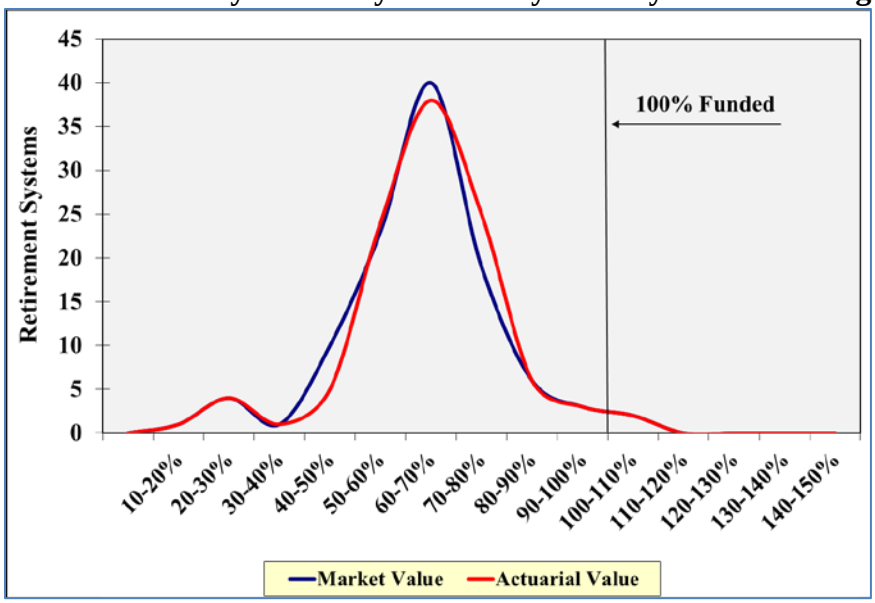


Distribution	Bucket Count				Cumulative Count				
	Market Value		Actuarial Value		Distribution	Market Value		Actuarial Value	
	Count	% of Total	Count	% of Total		Count	% of Total	Count	% of Total
0-50%	5	5%	7	7%	0-50%	5	5%	7	7%
50-60%	6	6%	5	5%	0-60%	11	10%	12	11%
60-70%	18	17%	24	23%	0-70%	29	28%	36	34%
70-80%	29	28%	36	34%	0-80%	58	55%	72	69%
80-90%	26	25%	21	20%	0-90%	84	80%	93	89%
90-100%	11	10%	8	8%	0-100%	95	90%	101	96%
100-110%	7	7%	3	3%	0-110%	102	97%	104	99%
110-120%	1	1%	1	1%	0-120%	103	98%	105	100%
120-130%	2	2%	0	0%	0-130%	105	100%	105	100%
130-140%	0	0%	0	0%	0-140%	105	100%	105	100%
140-150%	0	0%	0	0%	0-150%	105	100%	105	100%
>150%	0	0%	0	0%	>150%	105	100%	105	100%
Total	105	100%	105	100%	Total	105	100%	105	100%

Exhibit 6 shows the distribution of plan funded ratios. Of the 95 plans that are underfunded on a market value of assets basis, five plans have assets less than 50 percent of liabilities; 29 plans have assets less than 70 percent of liabilities; and 58 plans have assets less than 80 percent of liabilities. Using actuarial value of assets to determine funding ratios, 101 of the 105 plans, or 96 percent, have assets below liabilities. Seven plans have assets less than 50 percent of liabilities; 36 plans have assets less than 70 percent of liabilities; and 72 plans have assets less than 80 percent of liabilities.

Similar to Exhibit 6, the graph in Exhibit 7 examines the fiscal condition of the 109 city and county retirement systems which provided actuarial values for 2012.

Exhibit 7
Distribution of 109 City & County Pension Systems by FY12 Funding Ratio



Distribution	Bucket Count				Cumulative Count			
	Market Value		Actuarial Value		Market Value		Actuarial Value	
	Count	% of Total	Count	% of Total	Count	% of Total	Count	% of Total
0-50%	6	6%	6	6%	6	6%	6	6%
50-60%	10	9%	5	5%	16	15%	11	10%
60-70%	23	21%	24	22%	39	36%	35	32%
70-80%	40	37%	38	35%	79	72%	73	67%
80-90%	19	17%	25	23%	98	90%	98	90%
90-100%	6	6%	6	6%	104	95%	104	95%
100-110%	3	3%	3	3%	107	98%	107	98%
110-120%	2	2%	2	2%	109	100%	109	100%
120-130%	0	0%	0	0%	109	100%	109	100%
130-140%	0	0%	0	0%	109	100%	109	100%
140-150%	0	0%	0	0%	109	100%	109	100%
150-160%	0	0%	0	0%	109	100%	109	100%
Total	109	100%	109	100%	109	100%	109	100%

Using market value of assets to determine funding ratios, 104 of the 109 plans, or 95 percent, had assets below liabilities. Six plans had assets less than 50 percent of liabilities; 39 plans had assets less than 70 percent of liabilities; and 79 plans had assets less than 80 percent of liabilities. Using actuarial value of assets to determine funding ratios, 104 of the 106 plans, or 95 percent, had assets below liabilities. Six plans had assets less than 50 percent of liabilities; 35 plans had assets less than 70 percent of liabilities; and 73 plans had assets less than 80 percent of liabilities.

Unfunded Actuarial Accrued Liability

The financial health of retirement systems can also be measured by comparing the size of the unfunded actuarial accrued liability (UAAL) to different metrics. Since assets under Governmental Accounting Standards Board (GASB) Statement No. 25[3] are based on actuarial value, this section calculates the UAAL using actuarial value of assets. Exhibit 8 shows the median size of the UAAL relative to the covered payroll over the last twelve fiscal year ends for the 109 retirement systems. Exhibit 8 also shows the 25th and 75th percentile for each year. The dramatic increase in UAAL since fiscal 2008 is especially notable.

Exhibit 8
UAAL as a Percentage of Covered Payroll by Fiscal Year for 109 Plans

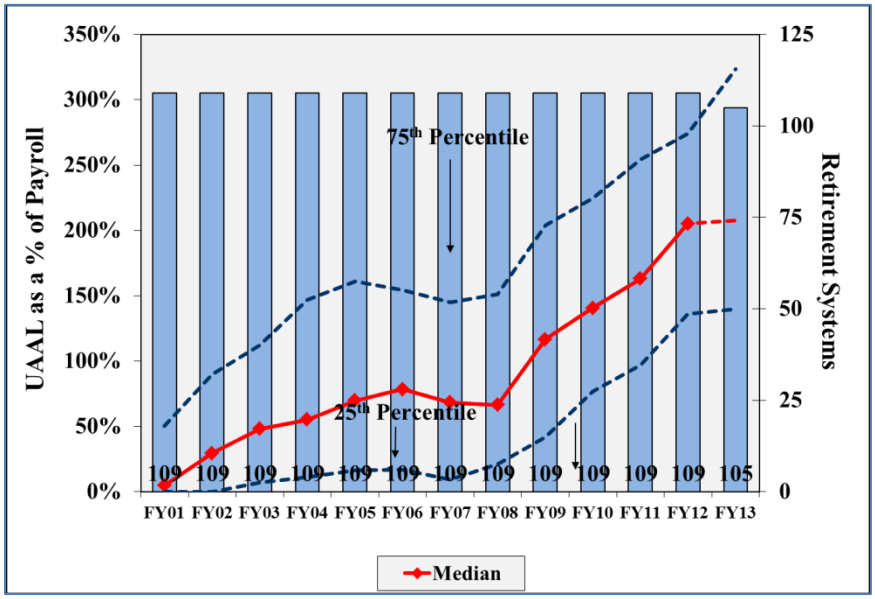


Exhibit 9 shows the median size of the UAAL relative to the actuarial value of assets over the last twelve fiscal year ends for the 109 plans. Exhibit 9 also shows the 25th and 75th percentile for each year.

[3] *GASB No. 25, Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans.*

Exhibit 9
UAAL as a Percentage of Actuarial Value of Assets by Fiscal Year for 109 Plans

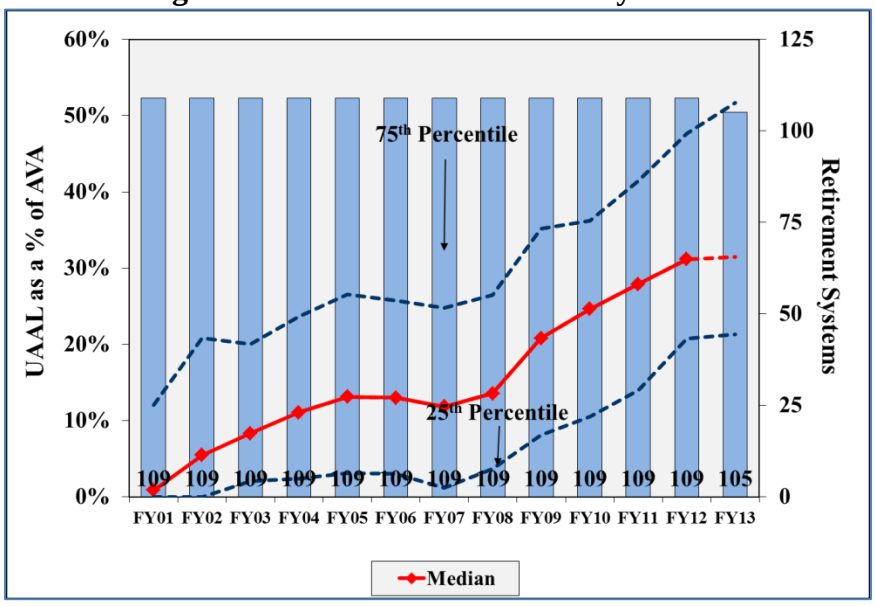
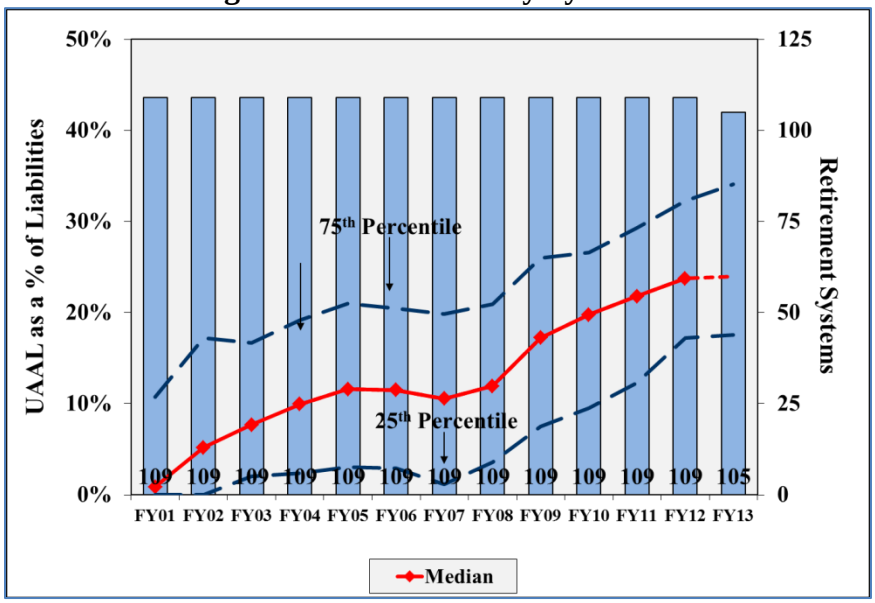


Exhibit 10 shows the median size of the UAAL relative to the actuarial accrued liability over the last twelve fiscal year ends for the 109 plans. Exhibit 10 also shows the 25th and 75th percentile for each year.

Exhibit 10
UAAL as a Percentage of Accrued Liability by Fiscal Year for 109 Plans



The median, 25th and 75th percentile ratios of UAAL to actuarial accrued liability and actuarial value of assets have risen since fiscal 2007. These trends would appear to indicate a continuation of the slow historical decline of funded status relative to actuarial asset values of earlier years. However, if the UAAL were calculated using market value of assets, the large market swings of the past decade would have led to dramatically increased volatility in all of these metrics, further illustrating the toll that global market dislocations and recessions have taken on the financial health of the pension plans in this survey.

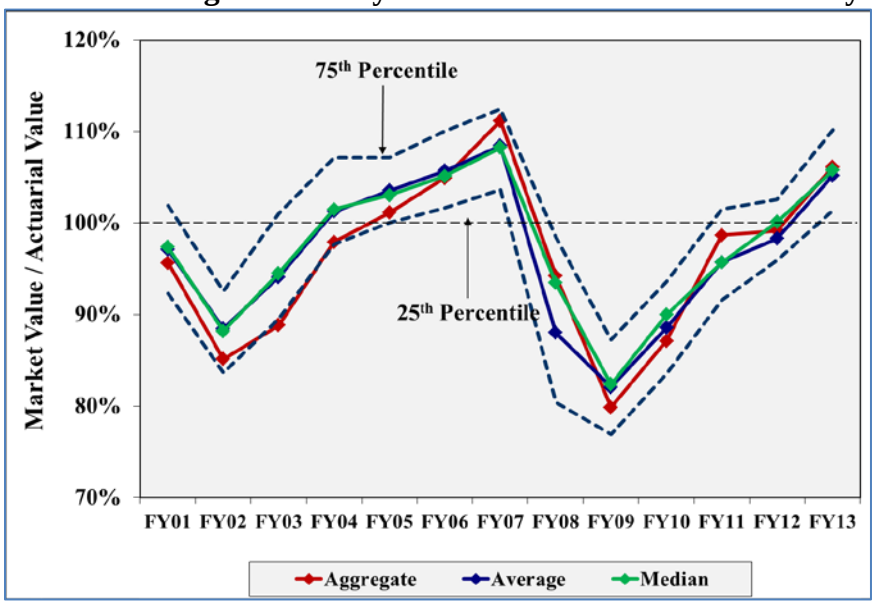
Market Value of Assets versus Actuarial Value of Assets

As mentioned previously, the actuarial value of assets is often calculated using a smoothing method in order to reduce the effects of market volatility when determining contribution rates. For example, a 5-year smooth market value method would recognize 20 percent of the gain or loss[4] in the market value of assets over 5 years. Therefore, the poor market returns from calendar year 2008 will no longer be recognized when calculating the actuarial value of assets in periods through the fiscal (calendar) year ending December 31, 2013.

Exhibit 11 shows the aggregate, average, and median ratio of the market value of assets (MVA) to the actuarial value of assets (AVA) over the last twelve fiscal year ends for the 105 retirement systems which reported actuarial values for 2013. Exhibit 11 also shows the 25th and 75th percentile for each year. During FY02, market values fell dramatically relative to actuarial values since only a fraction of the poor market return during the year was recognized when calculating the actuarial value of assets. From FY03 to FY07, market values increased relative to actuarial values for the same reason, particularly since the actuarial value of assets was still recognizing the poor market returns from 2002. In 2008 and 2009, the market value of assets fell sharply relative to actuarial values, and similar to FY02, the actuarial value of assets for FY08 reflects only a portion of the decline in 2008 and a greater proportion of the positive performance experienced from 2003 to 2007. Conversely, the market recovery seen in the early 2009 – 2013 period has allowed the market value of plan assets to rally relative to the actuarial value of assets through fiscal 2013.

[4] *A gain (loss) occurs when the actual rate of return is greater than (less than) the assumed rate of return.*

Exhibit 11
MVA as a Percentage of AVA by Fiscal Year for 105 Retirement Systems



Asset Allocation

In this section we examine the investment strategies employed by city and county retirement systems. The average asset allocation across all 109 city and county retirement systems is shown below in Exhibit 12.

Exhibit 12
Average Asset Allocation for City & County Pension Plans[5]

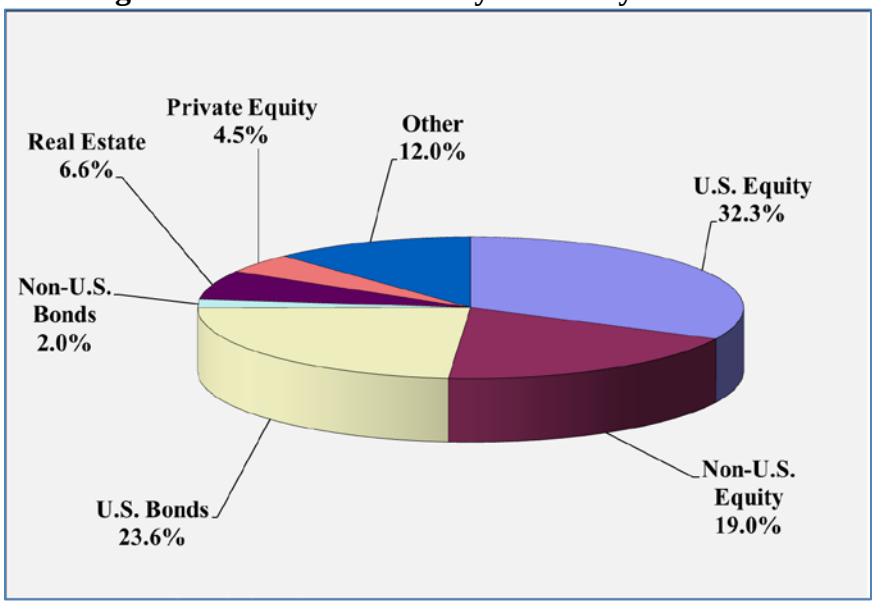


Exhibit 13 examines the change in average asset allocation for city and county pension plans from fiscal year-end 2008 to fiscal year-end 2013. During this period, the average allocations to U.S. Equities decreased by -7.6 percent as did allocations to U.S. Fixed Income, by -2.9 percent. Conversely, the average allocation to non-U.S. equities increased from 15.2 percent to 19.0 percent, continuing the trend toward reducing the home country bias[6] in institutional portfolios. In addition, private equity allocations increased 2.5%. Exposure to other assets such as hedge funds, other absolute return strategies, and inflation-hedging assets such as TIPS and commodities increased as well from 2006 to 2011, rising from 8.3 percent to 12.0 percent of total fund assets. Institutional investors have increasingly embraced alternative asset strategies, given sharply lower yields on fixed income assets, limited alpha opportunities in efficient asset categories such as U.S. public market equities, plan sponsor interest in proactively hedging inflation risk, and basic total fund risk diversification.

[5] *Asset allocations as of the last fiscal year end of each retirement system's most recent Comprehensive Annual Financial Report.*
[6] *Foresti, Steven J. and Michael E. Rush, "Examining the Home-Country Bias: There's No Place like Home. There's No Place like Home … Or is there?" Wilshire Consulting white paper, April 16, 2008. Available at the Wilshire Associates Research Library at www.wilshire.com or from your consultant.*

Exhibit 13
Average Asset Allocation for City & County Pension Plans[7]

	2008	2013	Change
Equity			
U.S. Equity	39.9 %	32.3 %	-7.6 %
Non-U.S. Equity	15.2	19.0	3.8
Real Estate	6.7	6.6	-0.1
Private Equity	2.0	4.5	2.5
Equity Subtotal	63.8	62.4	-1.4
Debt			
U.S. Bonds	26.5	23.6	-2.9
Non-U.S. Bonds	1.4	2.0	0.6
Other	8.3	12.0	3.7
Debt Subtotal	36.2	37.6	1.4

Sub-class exposures may not add up to 100.0% (for totals) or 0.0% (for net changes) due to rounding.

Portfolio return and risk expectations can be calculated using assumptions for the major asset classes together with each retirement system's actual asset allocation. Exhibit 14 gives Wilshire's current long-term return and risk assumptions for each asset class[8]. We view these as being fairly mainstream assumptions among investment professionals.

[7] *Asset allocations as of the last fiscal year end of each retirement system's most recent Comprehensive Annual Financial Report.*
[8] *Foresti, Steven J., Michael E. Rush and Russell J. Walker, "2014 Asset Allocation Return and Risk Assumptions". Wilshire Consulting white paper, January 28, 2014. Available at the Wilshire Associates Research Library at www.wilshire.com or from your consultant.*

Exhibit 14
Wilshire Consulting's 2014 Asset Class Assumptions

	Expected Return	Risk
U.S. Equity	7.25 %	17.00 %
Non-U.S. Equity	7.25	18.00
Private Equity	10.40	27.50
Real Estate	5.20	15.00
U.S. Bonds	4.10	5.00
Non-U.S Bonds	2.70	3.50

Exhibit 15 contains summary statistics on asset allocation for all city and county retirement systems. The median allocation to U.S. equities is 30.8 percent, and to non-U.S. equities, 20.4 percent. However, as the lowest and highest columns suggest, there is considerable variability in allocations among individual systems. The median city and county pension fund has an expected return, by Wilshire's estimate, of 6.6 percent, which trails the current median actuarial interest rate of 7.75 percent.

Exhibit 15
Summary Asset Allocation Statistics for City & County Systems

	Lowest (%)	Median (%)	Highest (%)
U.S. Equity	0.0 %	30.8 %	76.6 %
Non-U.S. Equity	0.0	20.4	36.5
Private Equity	0.0	2.8	23.5
Real Estate	0.0	6.9	18.9
U.S. Bonds	0.0	24.5	42.4
Non-U.S Bonds	0.0	0.0	15.5
Other	-1.5	4.6	59.9
Expected Returns	**5.7 %**	**6.6 %**	**7.7 %**

Return forecasts are based on Wilshire Consulting's 2014 asset class assumptions (exhibit 14).

Exhibit 16 plots the expected return and risk for each of the 109 city and county retirement systems based upon their actual asset allocation. Systems which plot in the upper right employ more aggressive asset mixes while points in the lower left represent systems with more conservative mixes. A horizontal plot line is positioned at a return equal to 7.75 percent, the current median actuarial interest rate assumption used by city and county pension plans.

Using Wilshire's 2014 long-term return and risk forecasts, none of the 109 city and county retirement systems are expected to earn long-term asset returns that equal or exceed the median actuarial interest rate assumption for the city and county pensions in our survey. This is essentially consistent with the findings of reports in previous years. It is important to note that Wilshire return assumptions represent beta only, with no projection of alpha from active management, and may differ in time horizon (10+ years) from the methodologies underlying actuarial interest rate assumptions (20 to 30+ years).

Exhibit 16
Projected Return & Risk by City & County Pension System

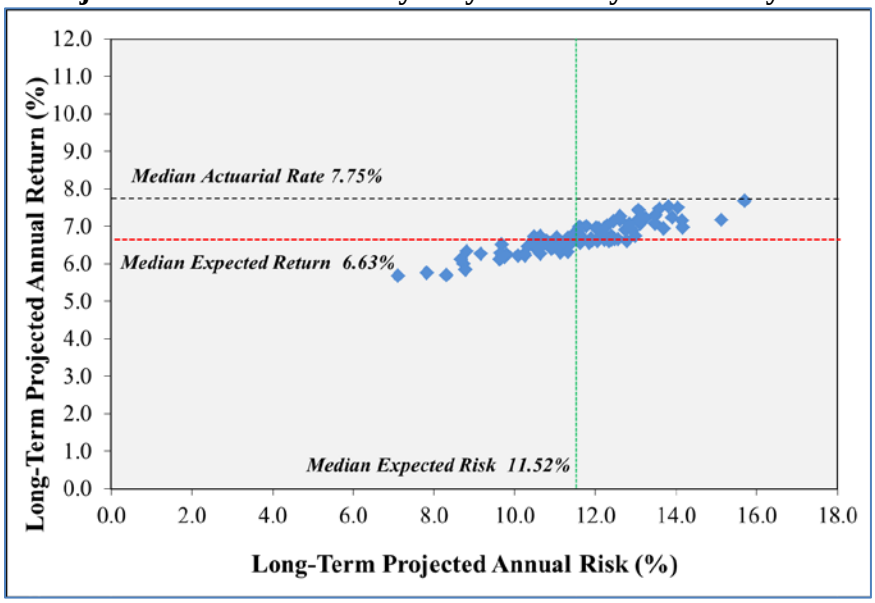
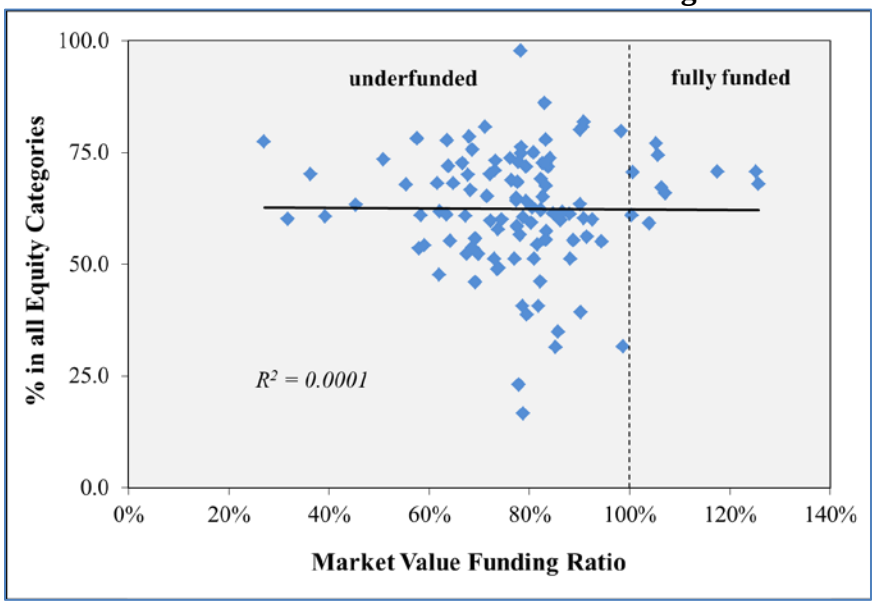


Exhibit 17 addresses the relationship between asset allocation and funding for all city and county systems. The allocation to equity asset classes, a proxy for investment risk tolerance, is plotted on the vertical scale. The market value funding ratio is shown on the horizontal scale. A linear trend line is drawn through the scatter plot of data to provide a signal of the relationship between the two metrics and a vertical dotted line separates underfunded plans from fully-funded plans.

Exhibit 17
Asset Allocation & Actuarial Funding



Casual observation reveals that overfunded plans have a tighter range of equity allocations than underfunded plans. Statistically, the relationship between the allocation to equity and plan funding ratio is quite small, with an R-square of 0.0001. In summary, city and county retirement systems have a broad spectrum of asset allocations that appear to be unrelated to the size of their unfunded liabilities.

Afterword: GASB 67 and 68

In June 2012, the Government Accounting Standards Board (GASB) approved Statement Number 67, "Financial Reporting for Pension Plans", and Statement Number 68, "Accounting and Financial Reporting for Pensions". The policies set forth in these GASB statements are designed to address the need for greater transparency and consistency in government-sponsored pension plan financial accounting and reporting. By June 30, 2014, all government-sponsored pension plans are required to have GASB 67 and 68 standards in effect. Some key policies contained in GASB 67 and 68:

- Governmental employers will have to show the net pension liabilities (NPL) of their retirement systems on their balance sheets; the NPL of a given pension is the excess of its accrued liability over the market value of assets. Additionally, the employers must present a detailed reconciliation of the change in NPL (i.e., pension expense) over the preceding twelve months in the balance sheets.
- The only accepted actuarial cost method for calculating net pension liability will be individual level-percent-of-pay entry-age normal method.

- If current and expected future plan assets are projected to fully cover plan benefits, NPL can be computed using a discount rate equal to the expected long-term return on plan assets (see below for additional reporting requirements). If current and expected future assets are not projected to fully cover plan benefits, the unfunded-benefit portion of NPL must be computed using a discount rate derived from the yield or index rate for 20-year tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher.
- The NPL must be reported using discount rates 1% higher and 1% lower than the discount rate (defined above) used in the primary disclosures.
- Disclosure of target asset allocation levels will now be required in the Notes to the Financial Statements included in pension plans' Comprehensive Annual Financial Reports (CAFRs); many pensions already include this information in their stand-alone CAFRs.
- Pension plans are required to detail the asset classes used to calculate their long-term expected rate of return as well as the expected real rate of return for each.
- In the Required Supplementary Information section, pension plans will be required to provide a schedule of the last ten fiscal years' annual money-weighted rates of return on plan assets, net of investment expenses.

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Appendix A: City and County Retirement Systems

Retirement System	Report Date
Alameda County Employees' Retirement Association (ACERA)	12/31/2013
Allegheny County Employees' Retirement System	12/31/2013
Anne Arundel County Detention Officers' & Deputy Sheriffs' Service Retirement Plan	12/31/2013
Anne Arundel County Employees' Retirement Plan	12/31/2013
Anne Arundel County Fire Service Retirement Plan	12/31/2013
Anne Arundel County Police Service Retirement Plan	12/31/2013
Arlington County Employees' Retirement System	6/30/2013
Charlotte Firefighters' Retirement System	6/30/2013
City & County Of San Francisco Retirement System (SFERS)	6/30/2013
City Of Austin Employees' Retirement System (COA ERS)	12/31/2013
City Of Baton Rouge & Parish Of East Baton Rouge Employees' Retirement System (CPERS)	12/31/2013
City Of Baton Rouge Police Guarantee Trust (PGT)	12/31/2013
City Of Birmingham Retirement & Relief System	6/30/2013
City Of Boston Retirement System	12/31/2012
City Of Cincinnati Retirement System	12/31/2013
City Of Fresno Employees Retirement System	6/30/2013
City Of Fresno Fire & Police Retirement System	6/30/2013
City Of Gainesville General Employees' Pension Plan	9/30/2013
City Of Gainesville Police Officers & Firefighters Consolidated Retirement Plan	9/30/2013
City Of Grand Rapids General Retirement System	6/30/2013
City Of Grand Rapids Police & Fire Retirement System	12/31/2013
City Of Jacksonville General Employees Pension Plan	9/30/2013
City Of Jacksonville Police & Fire Pension Plan	9/30/2013
City Of Los Angeles Water & Power Employees' Retirement Plan	6/30/2013
City Of Memphis Retirement System	6/30/2013
City Of Oakland Police & Fire Retirement System (PFRS)	6/30/2013
City Of Phoenix Employees' Retirement Plan (COPERS)	6/30/2013
City Of Richmond Retirement Sytem	6/30/2013
City Of Sacramento Employees' Retirement System (SCERS)	6/30/2013
City Of San Jose Police & Fire Department Retirement Plan	6/30/2013
City Of Tallahassee Pension Plan	9/30/2013
City Pension Fund for Firefighters and Police Officers in the City of Miami Beach	9/30/2013
Contra Costa County Employee'S Retirement Association (CCCERA)	12/31/2013
Dallas Police & Fire Pension System	12/31/2012
Denver Employees Retirement Plan (DERP)	12/31/2013
El Paso City Employees Pension Fund (CEPF)	8/31/2013
El Paso City Firemen & Policemen's Pension Fund (FPPF)	12/31/2013
Elected Officials' Retirement System Of The City Of Baltimore	6/30/2013
Employees' Retirement Fund Of The City Of Dallas	12/31/2012
Employees' Retirement Fund Of The City Of Fort Worth	9/30/2013
Employees' Retirement System Of Baltimore County	6/30/2013
Employees' Retirement System Of The City Of Baltimore	6/30/2013
Employees' Retirement System Of The City Of Milwaukee (MERS)	12/31/2013
Employees' Retirement System Of The City Of Norfolk	6/30/2013
Employees' Retirement System Of The County Of Milwaukee	12/31/2013
Fairfax County Employees' Retirement System (ERS)	6/30/2013
Fairfax County Police Officers Retirement System (PORS)	6/30/2013
Fairfax County Uniformed Retirement System (URS)	6/30/2013
Federated City Employees' Retirement System Of San Jose (FCERS)	6/30/2013
Fire & Police Employees' Retirement System Of The City Of Baltimore	6/30/2013
Fire & Police Pension Fund, San Antonio	9/30/2013
Firemen's Annuity & Benefit Fund Of Chicago	12/31/2013
Fresno County Employees' Retirement Association (FCERA)	6/30/2013
Fulton County Employees Retirement System Pension Plan	12/31/2013
General Retirement System Of The City Of Detroit (DGRS)	6/30/2013

Appendix A: (cont.)

Retirement System	Report Date
Houston Firefighters' Relief & Retirement Fund (HFRRF)	6/30/2013
Houston Municipal Employees Pension System (HMEPS)	6/30/2013
Houston Police Officers' Pension System (HPOPS)	6/30/2013
Howard County Police & Fire Employees' Retirement Plan	6/30/2013
Howard County Retirement Plan	6/30/2013
Imperial County Employees' Retirement System (ICERS)	6/30/2013
Kansas City Police Employees' Retirement System (KCPERS)	4/30/2013
Kern County Employees' Retirement Association (KCERA)	6/30/2013
Knox County DB Plan	6/30/2013
Knox County Teachers' DB Plan	6/30/2013
Los Angeles City Employees' Retirement System (LACERS)	6/30/2013
Los Angeles County Employees Retirement Association (LACERA)	6/30/2013
Los Angeles County Metropolitan Transportation Authority	6/30/2013
Los Angeles Fire & Police Pension Systems	6/30/2013
Marin County Employees Retirement Association (MCERA)	6/30/2013
Miami Beach Employees' Retirement Plan	9/30/2013
Minneapolis Employees' Retirement Fund (MERF)	6/30/2013
Montgomery County Employees' Retirement System	6/30/2013
Montgomery County Public Schools Employees' Retirement & Pension System (MCPS)	6/30/2013
Municipal Employees' Annuity & Benefit Fund Of Chicago	12/31/2013
New York City Employees' Retirement System (NYCERS)	6/30/2013
New York City Police Pension Fund (NYCPPF)	6/30/2013
Oakland County Public Employees' Retirement System	9/30/2013
Oakland County Road Commission Public Employees' Retirement System	12/31/2013
Orange County Employees Retirement System (OCERS)	12/31/2013
Orlando Firefighter Pension Fund	12/31/2013
Orlando General Employees' Pension Fund	9/30/2013
Orlando Police Pension Fund	9/30/2013
Police & Firemen Retirement System Of The City Of Detroit (PFRS)	6/30/2013
Policemen's Annuity & Benefit Fund Of Chicago	12/31/2013
Prince George's County, Maryland Pension Trust Fund	6/30/2013
Public School Retirement System Of The City Of St. Louis (PSRSSTL)	12/31/2013
Public School Teachers' Pension & Retirement Fund Of Chicago (CTPF)	6/30/2013
Retirement System For City Of Philadelphia	6/30/2013
Sacramento County Employees' Retirement System (SCERS)	6/30/2013
San Bernardino County Employees' Retirement Association (SBCERA)	6/30/2013
San Diego City Employees Retirement System (SDCERS)	6/30/2013
San Diego County Employees Retirement Association (SDCERA)	6/30/2013
San Joaquin County Employees' Retirement Association (SJCERA)	12/31/2013
San Luis Obispo County Pension Trust	12/31/2013
San Mateo County Employees' Retirement Association (SamCERA)	6/30/2013
Santa Barbara County Employees' Retirement System (SBCERS)	6/30/2013
Santa Clara Valley Transportation Authority Amalgamated Transit Union Pension Plan	6/30/2013
Seattle City Employees' Retirement System (SCERS)	12/31/2013
Shelby County Retirement System	6/30/2013
Sonoma County Employees' Retirement Association (SCERA)	12/31/2013
St. Louis County, Missouri County Employees' Retirement Plan	12/31/2013
St. Paul Teachers' Retirement Fund Association (SPTRFA)	6/30/2013
Tacoma Employees' Retirement System (TERS)	12/31/2013
Teachers' Retirement System Of The City Of New York (TRS)	6/30/2013
Texas County & District Retirement System (TCDRS)	12/31/2013
The Oklahoma City Employee Retirement System (OCERS)	6/30/2013
Tulare County Employees' Retirement Association (TCERA)	6/30/2013
Ventura County Employees' Retirement Association (VCERA)	6/30/2013

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