California Public Employees' Retirement System

2018 Annual Review of Funding Levels and Risks

November 2018

CalPERS

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Introduction

This report is intended to assist the CalPERS Board of Administration (board) in assessing the soundness and sustainability of the Public Employees' Retirement System. It does not address the other systems (Judges' Retirement Systems, Legislators' Retirement System or the non-pension programs) administered by the board.

The results presented in this report are based on the June 30, 2017 annual valuations, which have been projected forward to June 30, 2018 based on the known 8.6 percent investment return for fiscal year (FY) 2017–18. In general, all the current and projected results in the report have been based on a long-term discount rate of 7.00 percent and the new demographic assumptions reflecting the 2017 Experience Study, unless stated otherwise.

The actual results based on the valuations at June 30, 2017 (state and public agencies using a discount rate of 7.25 percent, schools pool at 7.375 percent) are provided in Appendix A.

This report focuses on:

- Reporting the funded status for the system and for key components
- Identifying and quantifying risks to the funding of the system
- Examining how risks are changing
- Outlining risk mitigations currently in effect and progress made in addressing the risks
- Assessing the effectiveness of the risk mitigations and whether changes are needed

The report also reflects the pension and investment beliefs adopted by the board that inform our work on risks and funding, including:

Pension Beliefs

Pension Belief 5
Funding policies should be applied in a fair, consistent manner, accommodate investment return fluctuations and support rate stability.

Pension Belief 9
Sound understanding and deployment of enterprise-wide risk management is essential to the ongoing success of a retirement system.

Investment Beliefs

Investment Belief 1
Liabilities must influence the asset structure. More specifically, ensuring the ability to pay promised benefits by maintaining an adequate funding status is the primary measure of success for CalPERS.

Investment Belief 9
Risk to CalPERS is multi-faceted and not fully captured through measures such as volatility or tracking error.

Executive Summary

As a result of the relatively good performance of the capital markets over the previous two fiscal years, the estimated funded status of the system has increased to 71 percent as of June 30, 2018, despite the lowering of the discount rate to 7.00 percent. The funded status varies slightly among the different plans, with the average public agency plan having a higher funded status than the state plans. Plans for miscellaneous members generally have a higher funded status than plans for safety members.

The improvement in funded status has generally reduced the risk that plans will fall to low funding levels. However, employer contribution levels are climbing and this is potentially increasing financial stress on some employers. When combined with some of the environmental changes discussed in the report, this is an area of concern for the future. In addition to the overall level of the contributions, sudden sharp increases in employer contribution rates remain a concern as well. The greatest risk to the system continues to be the ability of employers to make their required contributions. However, with few exceptions, employers are currently up-to-date with their contribution requirements.

Maturation of plans and financial stress on some employers remain of concern. The termination policies and processes currently in place should mitigate risk to the system. However, if an employer is under severe financial stress, the termination policies cannot fully protect the benefits of members that have served that employer. Ultimately, the members' benefits are only secure if the employer continues to make the required contributions.

CalPERS completed an Asset Liability Management (ALM) review process in November 2017 that led to the adoption of a new strategic asset allocation and affirmed the prudence of the board's decision to lower the discount rate to 7.00 percent in December 2016. Subsequently, in February 2018 the board adopted a new Amortization Policy that prospectively shortens the amortization periods for experience gains and losses.

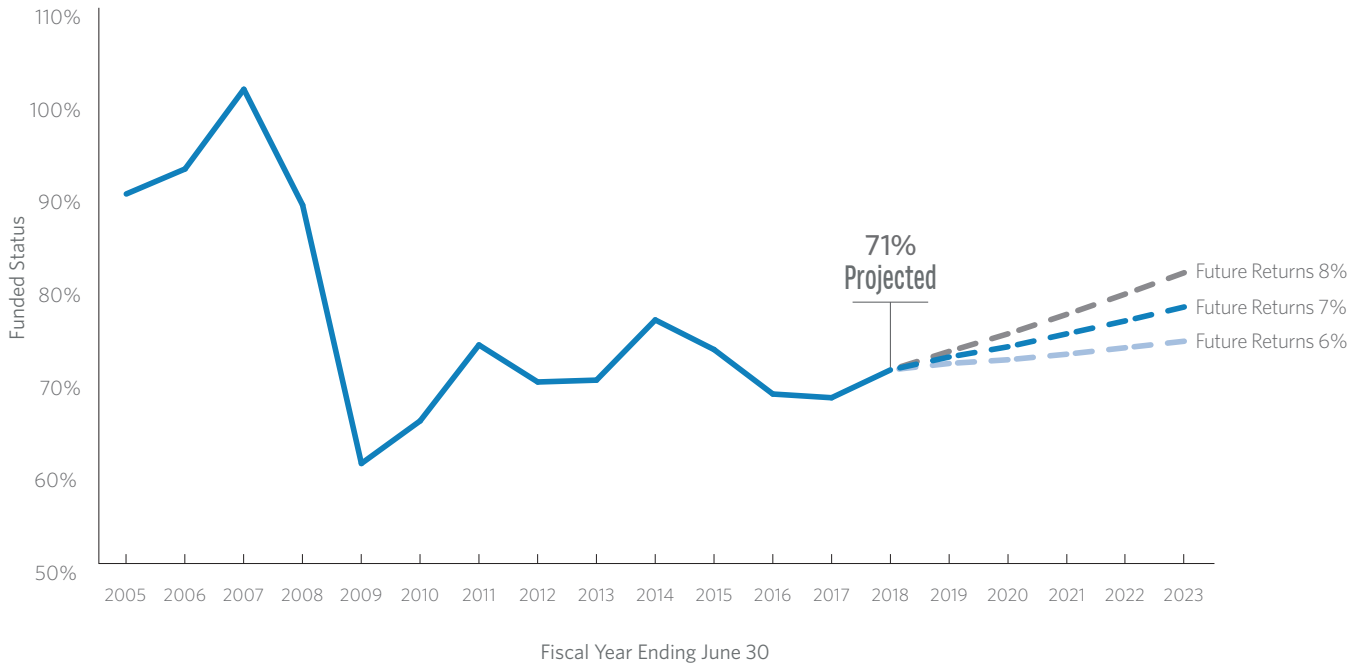
Overall, this report shows that while the funding position and the risk of falling to low funding levels in the future have improved, risks remain in the system. Required employer contributions are projected to increase over the next few years. In addition, actual contribution increases could exceed expectations if future experience is unfavorable. Employers may struggle to continue to make future required contributions if they increase too significantly. In the absence of explicit risk targets and tolerances, it is not clear whether the risk mitigations in place currently have brought risks to the levels that the board considers acceptable. The board may wish to take additional actions to address the level of funding risk.

Funding Levels

The overall level of funding of the system has improved as a result of the higher than expected investment returns for the last two fiscal years, despite the lowering of the discount rate to 7.00 percent. While definitive results will not be available until the annual valuations as of June 30, 2018 are completed, the estimated funded status at June 30, 2018 is shown in the chart below.

The chart below also provides the projected funded status over the next five years reflecting the assumed 7.00 percent annual investment return, with alternative annual investment returns at 6 percent and 8 percent to demonstrate the sensitivity of the funded status to future investment returns.

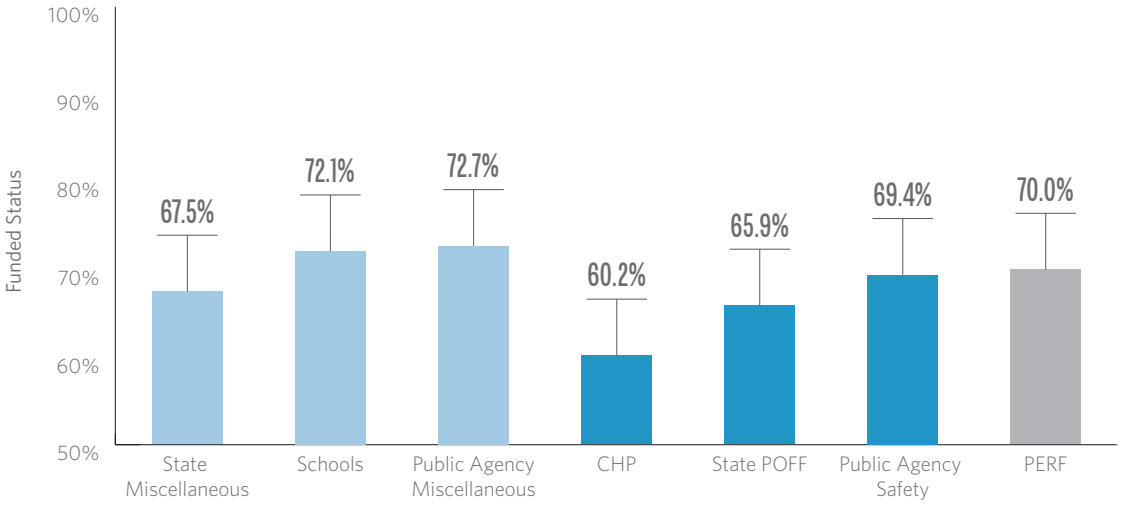
PERF Funded Status based on Market Value of Assets (June 30, 2005 to June 30, 2018)



Recent fluctuations in the funded status are within the expected variation due to the investment volatility inherent in the asset allocation last adopted by the board. The overall funded status of the system remains a concern. However, the recent adoption of a new Amortization Policy has decreased the period for paying down the unfunded liability, while addressing the generational equity concerns.

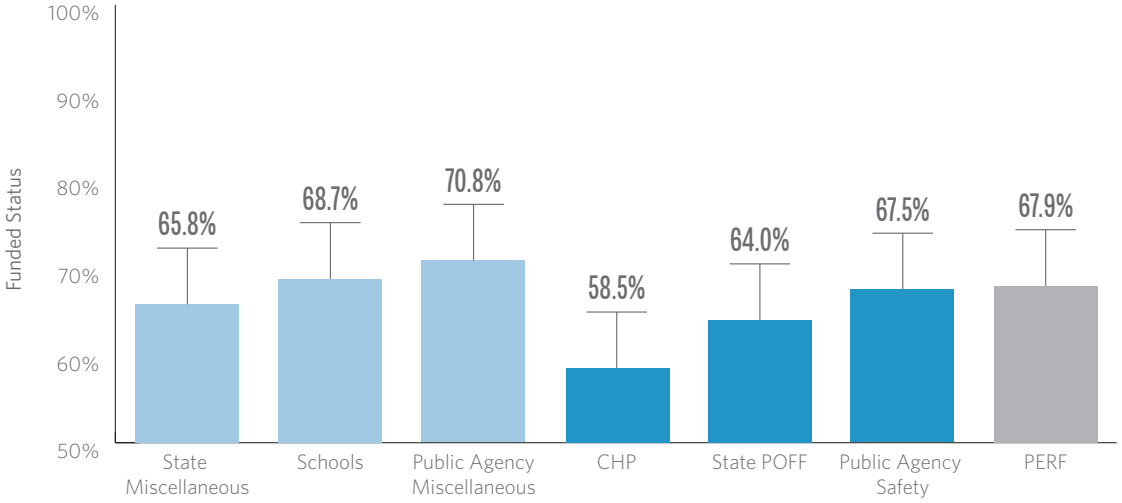
It should be noted that the system is a conglomeration of multiple plans and several risk sharing pools. Each of these pools and the non-pooled plans are funded separately. The charts on the next page show the funding levels of the various components of the Public Employees' Retirement Fund (PERF).

Funded Status Based on June 30, 2017 Funding Valuations



The chart above shows that the average funded status of public agency miscellaneous and safety plans is greater than the funded status of corresponding state plans. Based on the results of the funding valuations at June 30, 2017, the overall funding position of the PERF is 70 percent (with a discount rate of 7.375 percent for the schools pool and 7.25 percent for state and public agency).

Funded Status Based on June 30, 2017 Funding Valuations using a 7.00% Discount Rate



The chart above shows funded status of plans based on the valuation data at June 30, 2017 using the ultimate discount rate of 7.00 percent and the new demographic assumptions.

Identifying and Quantifying Risks

This section looks at the risk to the members and beneficiaries of the system by focusing on three key risk considerations:

1. The funded status and probability that it will fall to very low levels.
2. The employer contribution level and the probability that it will reach very high levels.
3. The possibility of high contribution increases in a single year.

Shared Risk

Member benefits can be paid in full and when due through the combination of CalPERS investment returns, required employer contributions, and member contributions. While there is a legal requirement for the employer to make the full contribution needed to fund the system, in extreme circumstances the employer may be unable to do so. In these situations, the employer's financial hardship can become a direct risk to the members and their benefits.

The risks borne by the employers (primarily investment risk) can impact their ability to make required CalPERS contributions. Investment and actuarial policies adopted by the CalPERS Board are always adopted with the purpose of maintaining benefit security for members. However, in certain situations, if actuarial standards of practice as well as the judgment of the chief actuary allow for a narrow range of appropriate actuarial assumptions or methods, the board may consider employers' ability to pay future required contributions when selecting these assumptions or methods.

By focusing on the risks to the soundness and sustainability to the overall system, CalPERS can take steps to mitigate risks to both members and employers. Ultimately, pensions are a shared responsibility between members and employers.

Risk of Low Funding Levels

Low funding levels represent a risk to members because the current level of assets is not at the target level given the actuarial assumptions and methods being used to fund the benefits. As shown on page 4, current funding levels are significantly below the target level of 100 percent. A key risk metric associated with this is the probability of experiencing low funded status in the future.

Current State

Current funding levels were discussed in the Funding Levels section.

Future State

The probability of falling to low funding levels in the future is shown in the table below:

Probability of Falling Below Given Funding Level (at any point in next 30 years)

Plan	40%		50%		60%	
	2017	2018	2017	2018	2017	2018
State Misc.	< 1%	< 1%	6%	1%	48%	24%
Schools	< 1%	< 1%	3%	1%	33%	22%
CHP	< 1%	< 1%	15%	2%	100%	100%
POFF	< 1%	< 1%	6%	1%	52%	26%
PA Misc.	< 1%	< 1%	5%	2%	38%	27%
PA Safety	< 1%	< 1%	9%	4%	54%	43%

The figures above are as of June 30, 2017 and were provided to the board during the ALM workshop in November 2017. The 2018 results above reflect the adoption of the new Amortization Policy that will be effective June 30, 2019 and incorporate the 8.6 percent investment return for FY 2017-18. The new Amortization Policy helped to reduce the risk of low funding levels in the future.

As shown in the table above, the probability of the funded status falling below 50 percent and 60 percent has decreased in the last year. This is primarily due to the higher than expected investment return in FY 2017–18, combined with the new Amortization Policy and its shorter amortization period for future gains and losses. In addition, the state plans made additional discretionary payments totaling $6 billion during FY 2017-18, which lowered their risk of low funding levels in the future.

Risk of High Contribution Rates

High employer contribution rates impose significant financial stress and may increase the risk that employers will default and be unable to make their required contributions. Since future employer contributions are one of the funding sources for the benefit payments, a default by the employer would result in increased risk to the members' benefits. The level of financial stress associated with any particular level of contributions will differ significantly by employer.

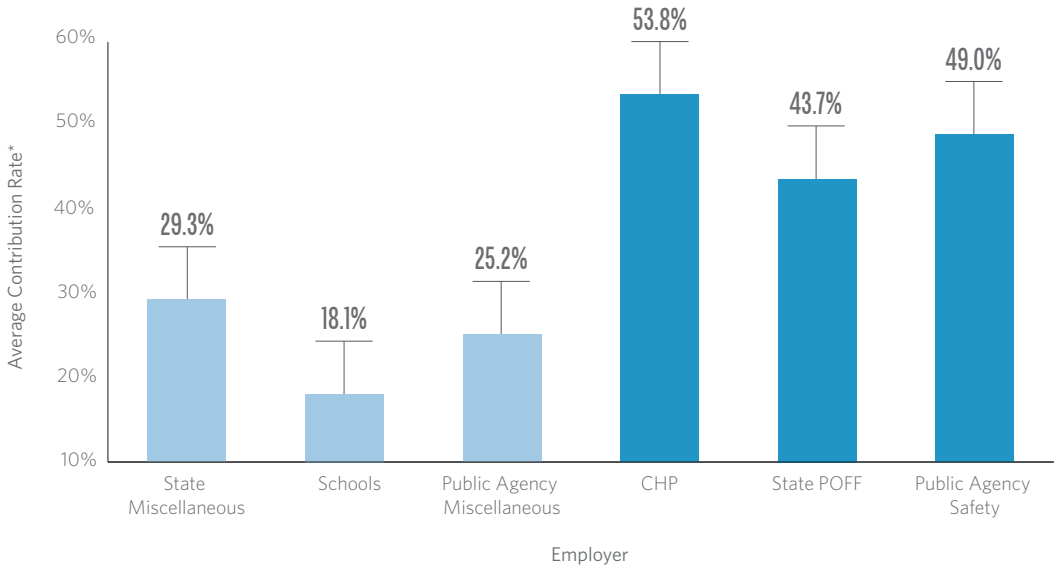
Current State

Current contribution levels or average contribution levels for public agency plans are shown in the table below.

As shown below, employer contribution levels are relatively high, especially for safety plans. Actions to reduce the probability of low funded status or contribution volatility generally result in increases in the contribution levels.

It is difficult to assess just how much strain current contribution levels are putting on employers. However, evidence such as collections activities, requests for extensions to amortization schedules and information regarding termination procedures indicate that some public agencies are under significant strain.

Employer Contribution Rates Based on the June 30, 2017 Valuations*



* June 30, 2017 valuations set rates for FY 2019-20 public agency contribution rates and FY 2018-19 state and schools contribution rates. The contribution rates are determined using a 7.25 percent discount rate for state and public agency plans and a 7.375 percent discount rate for the schools pool.

Future State

It is anticipated that employer contributions will continue to increase. This is due to current amortization schedules ramping up over the next few years. In addition, the impact of the Funding Risk Mitigation Policy is likely to result in higher contribution levels.

The table below shows the probability of employer contribution levels exceeding certain thresholds at some point in the next 30 years.

Probability of Employer Contribution Rates Exceeding Given Level (at any point in next 30 years)

	30% of Payroll		35% of Payroll		40% of Payroll	
Plan	**2017**	**2018**	**2017**	**2018**	**2017**	**2018**
State Misc.	100%	100%	73%	56%	32%	28%
Schools	25%	36%	4%	11%	< 1%	1%
PA Misc.	45%	53%	11%	23%	1%	6%

	50% of Payroll		55% of Payroll		60% of Payroll	
Plan	**2017**	**2018**	**2017**	**2018**	**2017**	**2018**
CHP	100%	100%	100%	100%	100%	87%
POFF	97%	80%	69%	52%	38%	32%
PA Safety	97%	100%	78%	79%	54%	61%

Risk of Sharp Annual Increases in Contribution Rates

Sharp annual increases in contributions can also impose financial strain on employers. And, similar to high contribution rates, that strain may increase the risk that employers will default and be unable to make their required contributions.

The probability of high employer contribution rates is still quite high. The state's contribution of an additional payment of $6 billion contributed to lowering the risk of future high employer rates for state plans. The shorter amortization periods in the new Amortization Policy increase the probability that employer rates may exceed these thresholds at some point in the future. However, the expectation is that higher rates would be temporary. The new amortization policy is not expected to increase long-term cumulative employer contributions.

The table below shows the probability of increases in employer rates beyond their current level over the next 30 years.

The new Amortization Policy has generally raised the risk of increases in the level of employer contribution rates from the current state. However, the new policy is not expected to increase long-term cumulative employer contributions.

Probability of Cumulative Employer Contribution Rate* Increases of Selected Magnitudes (over the next 30 years)

	5% of Payroll		10% of Payroll		15% of Payroll	
Plan	**2017**	**2018**	**2017**	**2018**	**2017**	**2018**
State Misc.	61%	54%	23%	27%	5%	10%
Schools	72%	74%	25%	36%	4%	11%
PA Misc.	66%	68%	22%	33%	3%	11%

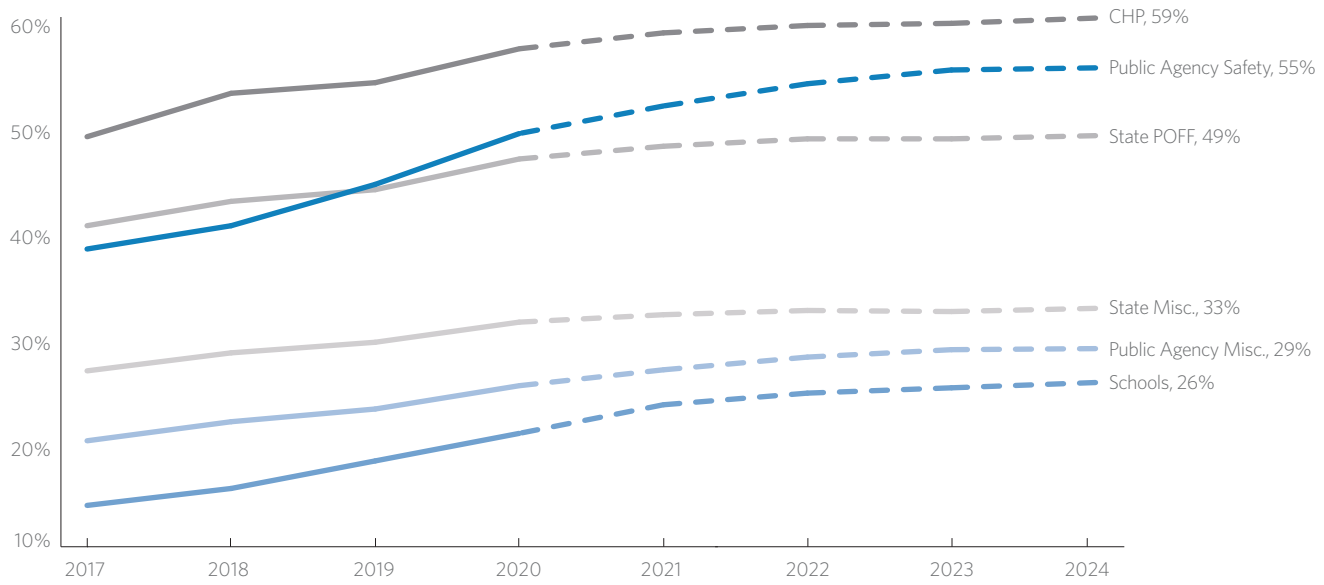
	10% of Payroll		15% of Payroll		20% of Payroll	
Plan	**2017**	**2018**	**2017**	**2018**	**2017**	**2018**
CHP	57%	49%	31%	32%	15%	20%
POFF	43%	42%	20%	26%	7%	13%
PA Safety	77%	79%	54%	60%	32%	43%

*From rates that reflect all board approved economic and demographic assumption changes

Current State

CalPERS's current actuarial policies do a good job of mitigating excessive single year rate increases. Based on conversations between staff actuaries and employers, it seems that this is currently less of a concern than the ultimate levels of the contributions.

Recent and Projected Employer Contribution Rates



Future State

The table below shows the probability of employers seeing various levels of single year contribution increases over the next 30 years. In the chart below, the new Amortization Policy has generally raised the risk of large single year contribution increases.

Probability of Employer Contribution Rate Increases of Selected Magnitudes (at any point in next 30 years)

	3% of Payroll		5% of Payroll		7% of Payroll	
Plan	2017	2018	2017	2018	2017	2018
State Misc.	18%	53%	< 1%	12%	< 1%	6%
Schools	21%	41%	< 1%	7%	< 1%	4%
PA Misc.	3%	40%	< 1%	9%	< 1%	5%

	5% of Payroll		7% of Payroll		9% of Payroll	
Plan	2017	2018	2017	2018	2017	2018
CHP	25%	59%	1%	27%	< 1%	12%
POFF	8%	47%	< 1%	18%	< 1%	9%
PA Safety	12%	55%	< 1%	20%	< 1%	10%

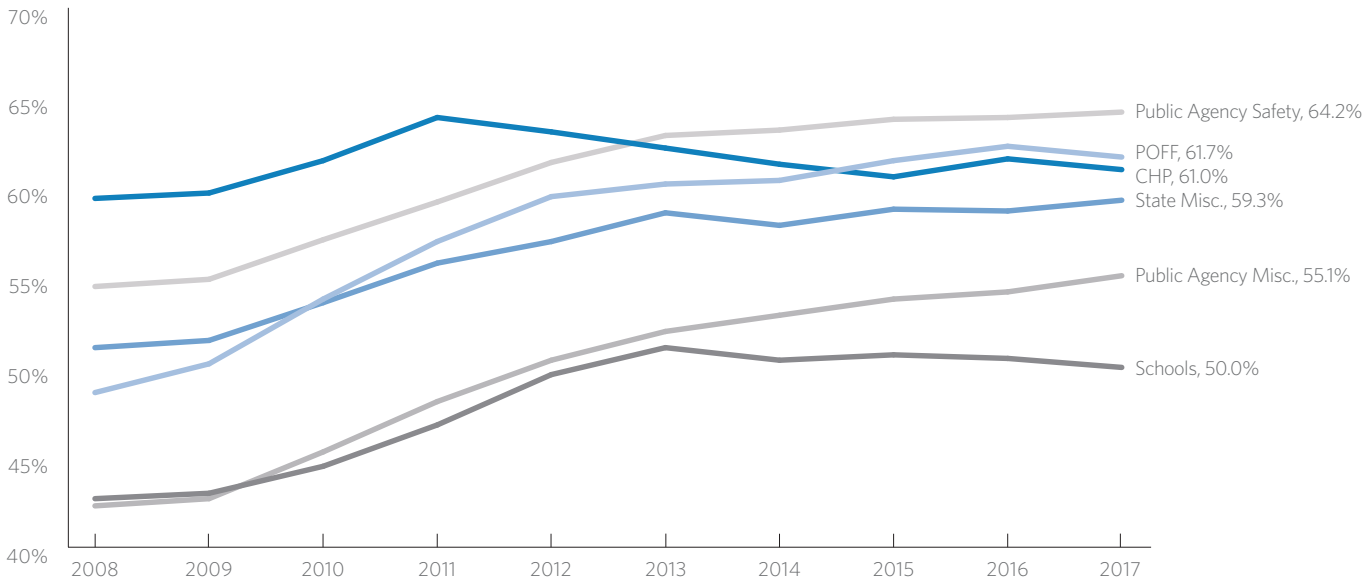
Environmental Factors: How Risks Are Changing

Plans Continue to Mature

The aging of the population and the retirement of the baby boomer generation are well known. Demographic shifts have long been predicted and considered in the funding of the system. The higher number of retirements experienced over the previous 10 years was anticipated, and this trend is expected to continue over the next five years as the remainder of the baby boomer generation leaves the workforce to enter their retirement years. Even though anticipated, this demographic shift is impacting risk measures identified in this report and must be part of any discussion on funding levels and risks.

One way to look at the maturity level of CalPERS and its plans is to look at the ratio of a plan's retiree liability to its total liability. A pension plan in its infancy will have a very low ratio of retiree liability to total liability. As the plan matures, the ratio starts increasing. A mature plan will often have a ratio above 60-65 percent. For both CalPERS and other retirement systems in the United States, these ratios have been steadily increasing in recent years. However, as seen in the chart below, this measure has flattened out considerably in the last few years and in some plans, it has even declined. The steep incline in this measure from 2010 through 2013 was largely attributable to the wave of retirements experienced during the recession.

Ratio of Retiree Accrued Liability to Total Accrued Liability

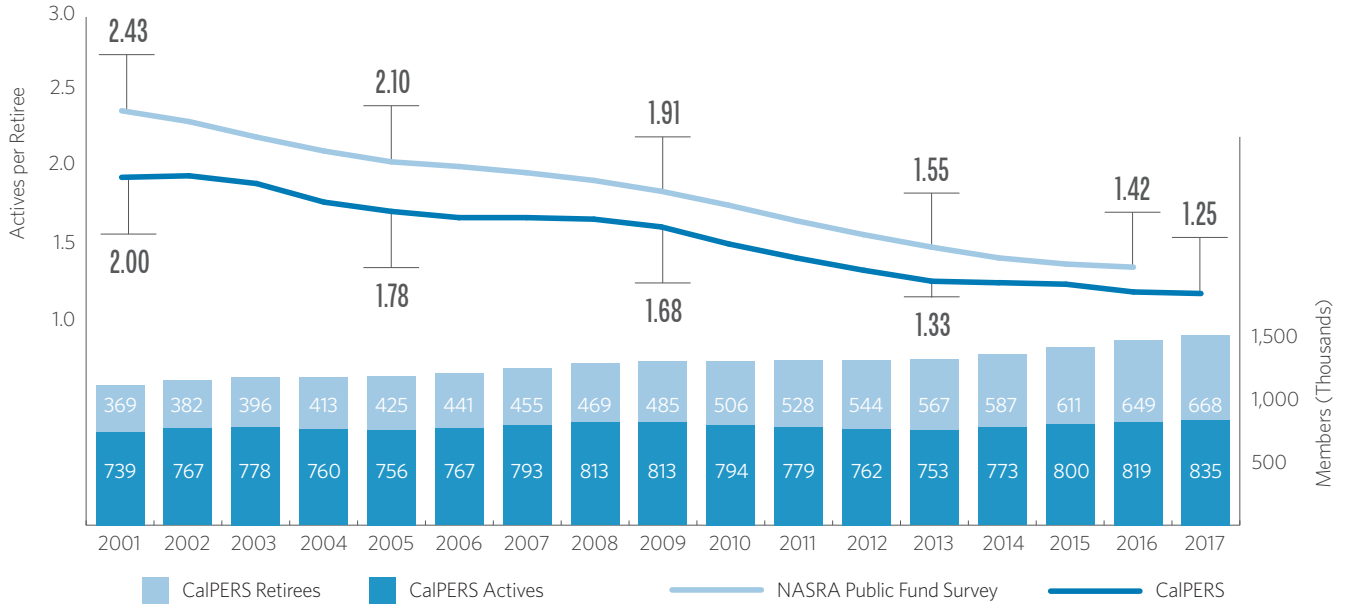


Another way to look at the maturity level of CalPERS and its plans is to look at the ratio of actives to retirees. A pension plan in its infancy will have a very high ratio of active to retired members. As the plan matures, and members retire, the ratio starts declining. A mature plan will often have a ratio near or below one.

For both CalPERS and other retirement systems in the United States, these ratios have been steadily declining in recent years. Below is a chart comparing the ratio of active to retired members for CalPERS to other public retirement systems in the United States.The ratio for CalPERS has dropped from just above 2 to 1.25 over the period noted above. Currently, there is only about one and one quarter members' payrolls over which to spread the risk associated with each retiree's benefits (instead of the two-to-one ratio from 16 years ago).

Although these ratios appear to be leveling off the last four years, this is a result of increases in active membership averaging approximately 2.6 percent each year. Active membership counts were recovering from the recent recession and this rate of growth may not continue once employers are back up to pre-recession staffing levels. In addition, later retirements are expected to occur in the future due to lower benefit formulas under PEPRA, delayed retirement ages under Social Security and increasing longevity. Accordingly, the ratio of actives to retirees is expected to continue to slowly drop over the next few decades.

Ratio of Actives to Retirees



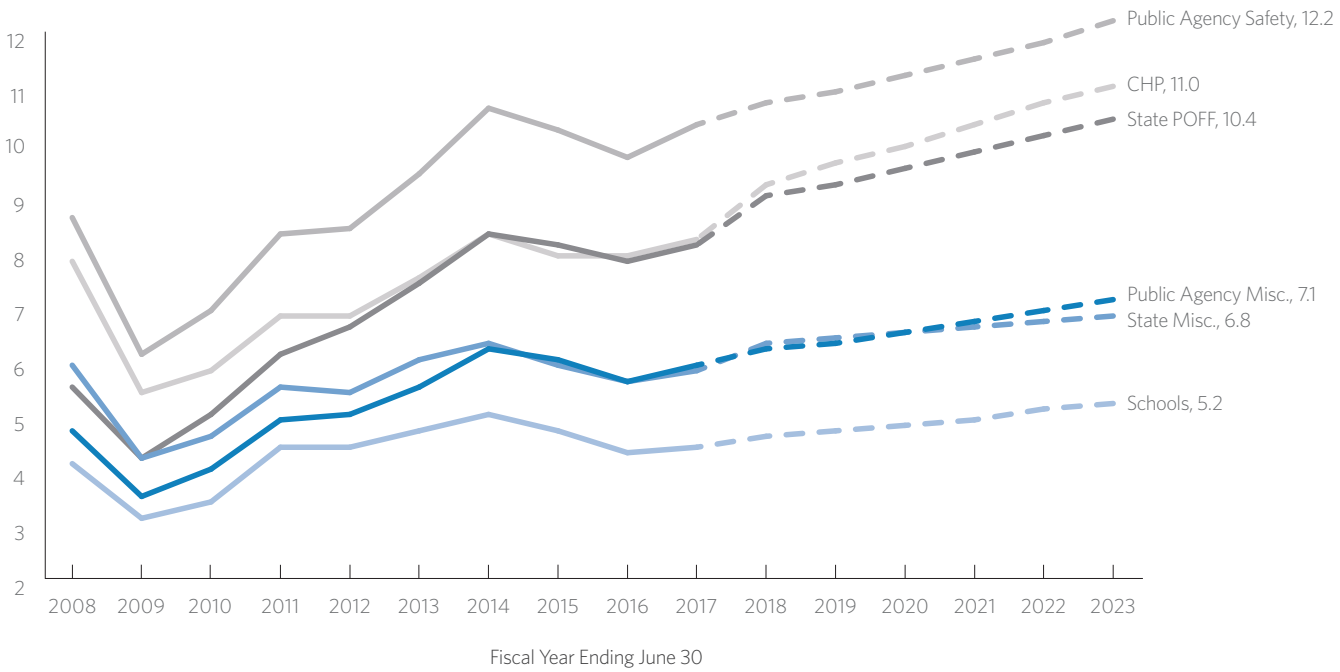
Yet another way to look at plan maturity is the ratio of assets to payroll, or the Asset Volatility Ratio (AVR). This ratio tends to rise as plans mature because assets must be built up to provide for benefit payments. Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, if the investment return in any given year is 1 percent less than expected, a plan with an AVR of 10 experiences an investment loss equal to 10 percent of annual payroll, whereas a plan with an AVR of 5 only suffers an investment loss equal to 5 percent of annual payroll.

Shown below are the historical AVRs for various plans.

The projected increases in the AVR are only partially due to demographic maturation. The other factor causing the AVRs to increase is the fact that the assets are projected to grow to equal the accrued liability as the funded ratio grows toward 100 percent. The funding policy alone will cause the AVRs to increase above current levels. As the AVR increases, each investment loss will have a higher impact than the last from the perspective of the employer.

As plans mature, they collect more assets, both in an absolute sense, but also in relation to the plan sponsor. This means that when financial markets fail to deliver a strong return or even collapse like they did in 2008–2009, it can lead to very high contribution levels. These high contribution levels could result in severe financial stress for employers.

Asset Volatility Ratio (MVA to Payroll)



Trend Toward Lower Expected Returns and Discount Rates

In addition to the demographic forces, there are increased concerns about lower returns over the near-term investment horizon. The trend nationally for public pension plans in recent years has been a reduction in the rate of return assumption.

Until very recently, economic conditions have seen continuing declines in long-term government bond interest rates that serve as the foundation of capital market returns. This has resulted in a general lowering of the expected returns (at least over the medium term) from the various asset classes. This in turn means that plans must change their asset allocations to accept a higher level of investment risk (to achieve the same level of expected return) or to accept a lower expected return on investments.

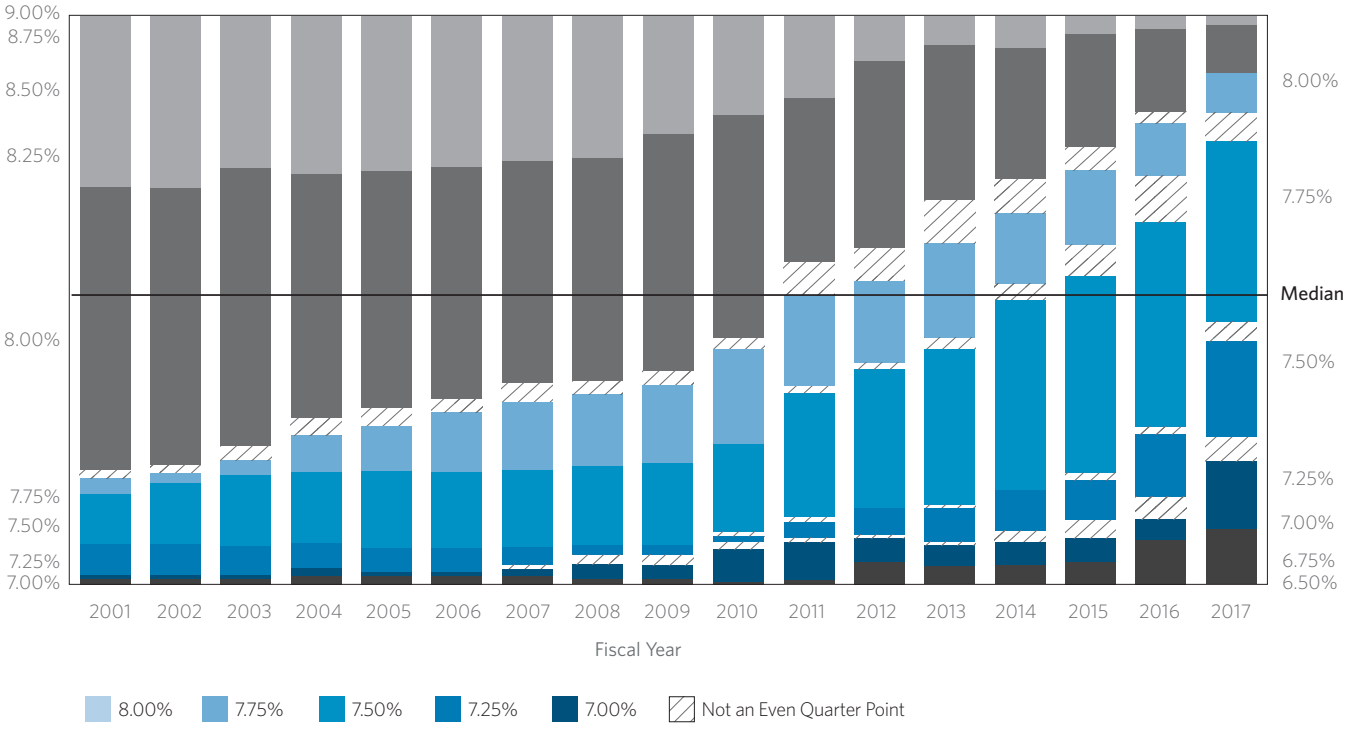
CalPERS is not alone in facing the changed expectations of what can be achieved in the capital markets. The chart below shows the change in distribution of public pension investment return assumptions reported in CAFR from 2001 through 2017 as compiled by Public Plans Data.

The survey shows that the average investment return assumption is 7.38 percent, and the median is expected to drop below 7.50 percent when the data from the FY 2017-18 Comprehensive Annual Financial Report (CAFR) is released in December 2018.

It is likely that the reductions in rate of return assumptions are the result of the same factors that have influenced changes at CalPERS, namely, a general lowering of expectations about future investment returns for a given level of risk and a concern about the level of risk being taken.

As part of the recent ALM cycle concluding with the ALM workshop in November 2017, the current capital market assumptions were reflected and the appropriate asset allocation and expected investment return were selected and adopted by the board. The choice of the ultimate 7.00 percent discount rate assumption was consistent with the trends towards lower expected returns that is demonstrated in the above chart. On-going monitoring of capital market assumptions is imperative to ensure that the assets and liabilities are being managed appropriately.

Change in Distribution of Nominal Investment Return Assumptions



Public Fund Survey, NASRA July 2016

Changes to Actuarial Amortization Policy

CalPERS is making the following changes to the Amortization Policy, effective with the June 30, 2019 valuations and contributions beginning FY 2020-21 for the state and school's plans, and FY 2021-22 for public agencies:

1. Reduced period over which actuarial gains and losses are amortized, from 30 years to 20 years. This change applies only to new gains/losses established on or after June 30, 2019.
2. Level Dollar amortization payments for all Unfunded Accrued Liabilities (UAL) bases throughout the amortization period. This change applies only to new UAL bases established on or after June 30, 2019.
3. Elimination of five-year ramp-up or ramp-down on UAL bases attributable to assumption changes and non-investment gains/losses established on or after June 30, 2019.
4. Elimination of five-year ramp-down on investment gains/losses established on or after June 30, 2019. The five-year ramp up from the current policy will continue.

These changes will improve fund sustainability, benefit security, and intergenerational equity.

The following table summarizes key features of the policy for bases established on or after June 30, 2019 with contributions beginning FY 2020-21.

Driver	(Gain)/Loss Investment	(Gain)/Loss Non-Investment	Assumption/ Method Change	Benefit Change	Golden Handshake
Amortization Period	20 Years	20 Years	20 Years	20 Years	5 Years
Escalation Rate	0%	0%	0%	0%	0%
Ramp Up	5	0	0	0	0
Ramp Down	0	0	0	0	0

Current Amortization Progress

An analysis of the current contribution rate supports the need for the gradual, but steady, increases in the contribution rates shown earlier in this report (see Risk of Sharp Annual Increases in Contribution Rates section). The contribution rate includes an amortization payment which serves to reduce the UAL. If that amortization payment were sufficient to fund the UAL over the desired timeframe, contribution rate increases would not be necessary.

The chart below shows the comparison of the amortization payment to the UAL to illustrate what portion of the UAL is satisfied by the current amortization payment. The "amortization factor" is the amortization payment, with interest to the end of the contribution year, divided by the UAL at the beginning of the year.

For example, the State Miscellaneous amortization factor in FY 2018-19 is 0.082 (8.2 percent). With a discount rate of 7.25 percent, the amortization payment is enough to pay off 0.95 percent of the UAL in a single year after interest is applied to the UAL. Therefore, there is only expected to be a small reduction in the UAL during that year. As these amortization factors increase, greater reductions will be made to the UAL.

The amortization factors have increased since last year due to contribution rate increases, the investment gain, and the additional discretionary payments made by the state and many public agencies. The factors are expected to increase further in the future, which is a positive development.

Current and Projected Amortization Factors

	Contribution Year					
Plan	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
State Miscellaneous	0.082	0.084	0.091	0.098	0.104	0.113
Schools	0.054	0.065	0.070	0.080	0.087	0.095
PA Miscellaneous	0.062	0.076	0.076	0.085	0.094	0.100
CHP	0.076	0.077	0.083	0.088	0.093	0.100
POFF	0.072	0.073	0.080	0.086	0.090	0.097
PA Safety	0.059	0.070	0.070	0.078	0.086	0.092

*These factors are based on the assumptions used to determine the required contributions, which differ accross plans and contribution years.

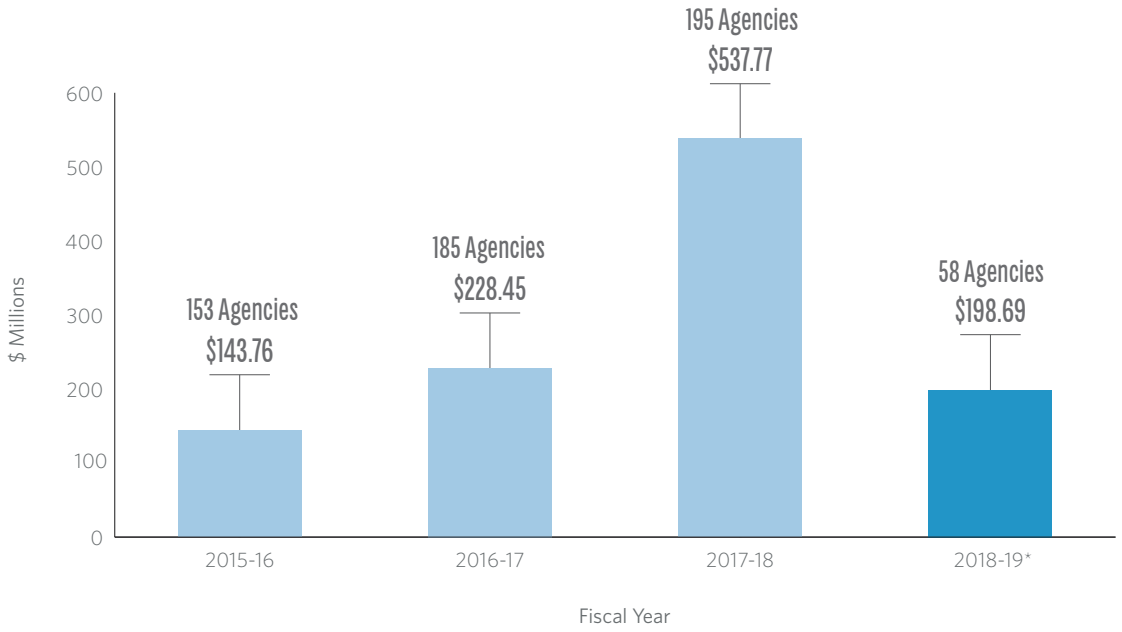
Employers Taking Charge of their Future

An increased number of employers have elected to make additional contributions over and above the minimum required contributions to improve their funded status. This has been happening for many years but seems to be happening at an ever-increasing rate since the implementation of GASB Statement 68. A reduction to their net pension liability is a concern to many of our agencies. An additional benefit is a reduction in pension expense, since interest on the plan assets is a large component of the expense under Statement 68. Finally, employers recognize that paying down their unfunded liabilities sooner saves them a considerable amount of interest and lowers the overall cost of their pension programs.

Employers that make additional contributions beyond the minimum required contribution will lower their risk of low funded status and lower their risk of high contributions in the future. This is true regardless of whether it is done on an ad hoc basis or as part of a more formal plan.

The form of these additional discretionary payments (ADP's) vary between employers. Some employers make occasional ADP's on an ad hoc basis, for example, if they have a budgetary surplus towards the end of a fiscal year. While other employers and the state have made more regular ADP's on a monthly or quarterly basis and some even have a formal plan in place to pay off their unfunded liabilities by a specific target date. Whatever the motivation or method of application of ADP's, there has been an increasing trend in the use of these payments as demonstrated by the chart below.

ADP's by Fiscal Year



* ADP's from July 1, 2018 through August 31, 2018

California Employers' Pension Prefunding Trust Program

The passing of Senate Bill 1413 in September 2018 established the California Employers' Pension Prefunding Trust (CEPPT) fund program at CalPERS, which allows state and local public agency employers that provide a defined benefit pension plan to their employees to voluntarily prefund their required pension contributions. Assets in the CEPPT can be used to satisfy future required employer contributions.

Joint Powers Authorities

The passage of Assembly Bill 1912 in September 2018 significantly mitigates any risk to the funding of the CalPERS pension benefits if an entity formed under a joint powers agreement terminates its retirement contract with CalPERS. The bill establishes that if an entity formed under a Joint Powers Agreement (JPA) terminates its contract with various pension systems (including CalPERS), the parent agencies would become responsible for any retirement liabilities or obligations associated with the JPA.

Risk Mitigation

Current Policy

In November 2015, the board adopted the Funding Risk Mitigation Policy. This policy is currently in place and is expected to result in a lowering of investment volatility (and the lowering of the expected returns and the discount rate) over time. The goal of the policy is to reduce the risk to members' benefits that could result from investment volatility impacting funded status and required contribution rates.

The policy provides for a reduction in the investment risk by changing the asset allocation when investment performance significantly outperforms the discount rate. To achieve a lower level of investment volatility, the new asset allocation will have a higher allocation to less volatile asset classes, such as fixed income. This in turn means that the new asset allocation will have a lower expected investment return and require a consequent lowering of the discount rate.

The thresholds that trigger a risk mitigation event (the changing of the asset allocation and consequent reduction in the discount rate) are shown below:

The policy provides that the reduced discount rate would be included in employer actuarial valuations effective as of June 30 in the fiscal year in which the funding risk mitigation event occurred. Member calculations (including service credit purchases) would not reflect the reduced discount rate until October 1st of the following fiscal year.

Current Year Impact

As a result of the board's decision to lower the discount rate to 7.00 percent over a three-year period, the board also elected to temporarily suspend the Risk Mitigation Policy until the discount rate was reduced to 7.00 percent for the June 30, 2018 valuations. In any event, the 8.6 percent investment return during FY 2017–18, would not have been a triggering event under the Risk Mitigation Policy.

How the Policy Works

Excess Investment Return If the actual investment returns exceed the discount rate by	Reduction in Discount Rate Then the discount rate will be reduced by	Reduction in Expected Investment Return And the expected investment return will be reduced by
2 percentage points	0.05%	0.05%
7 percentage points	0.10%	0.10%
10 percentage points	0.15%	0.15%
13 percentage points	0.20%	0.20%
17 percentage points	0.25%	0.25%

Next Steps

The next step of the ALM cycle is the mid-cycle review in June 2020. The cycle is expected to conclude in February 2022 with board decisions on economic and demographic assumption changes as well as the adoption of a potentially new strategic asset allocation. Highlights of this process are shown below:

ALM Timeline

July /August - Annually	June 2021
Announcement of annual investment returns	CalPERS Investment Committee reviews for approval the Capital Market & Economic Assumptions for 2022-2032 CalPERS Finance and Administration Committee (FAC) to review draft Experience Study that looks at lifespan, workforce changes, and payroll trends

September - Annually	November 2021
Notification of Risk Mitigation Policy Thresholds to FAC	CalPERS staff to present education workshop on ALM Final Experience Study presented to FAC with discussion on new actuarial assumptions

November - Annually	December 2021
CalPERS staff to present the annual Pension Funding Levels & Risks Report with performance measures to FAC	CalPERS Board to review for approval of PERF Asset Allocation and Actuarial Assumptions

The model should be enhanced over the next few years to make it possible to more easily model the diversity of public agency plans. Currently, the model is only able to handle two large public agency plans, and this limits the insight it can give into the risks facing public agency plans that differ from the most typical plans.

The goal of this additional work will be to have an enhanced model that will be better at forecasting the risks and the diversity of impacts that those risks have on the funding of the system.

Conclusion

Overall, this report shows that risks remain relatively high. A funded status of 71 percent is an improvement over the previous two years, but there is still a long way to go to attain a fully funded status. The recent modifications to the amortization policy have reduced the risk of plans falling to very low funding levels. However, these policy changes somewhat increase the risk of contribution volatility.

Increasing contribution levels will be a challenge for a lot of our employers over the next few years and the financial stress on some employers remain of concern.

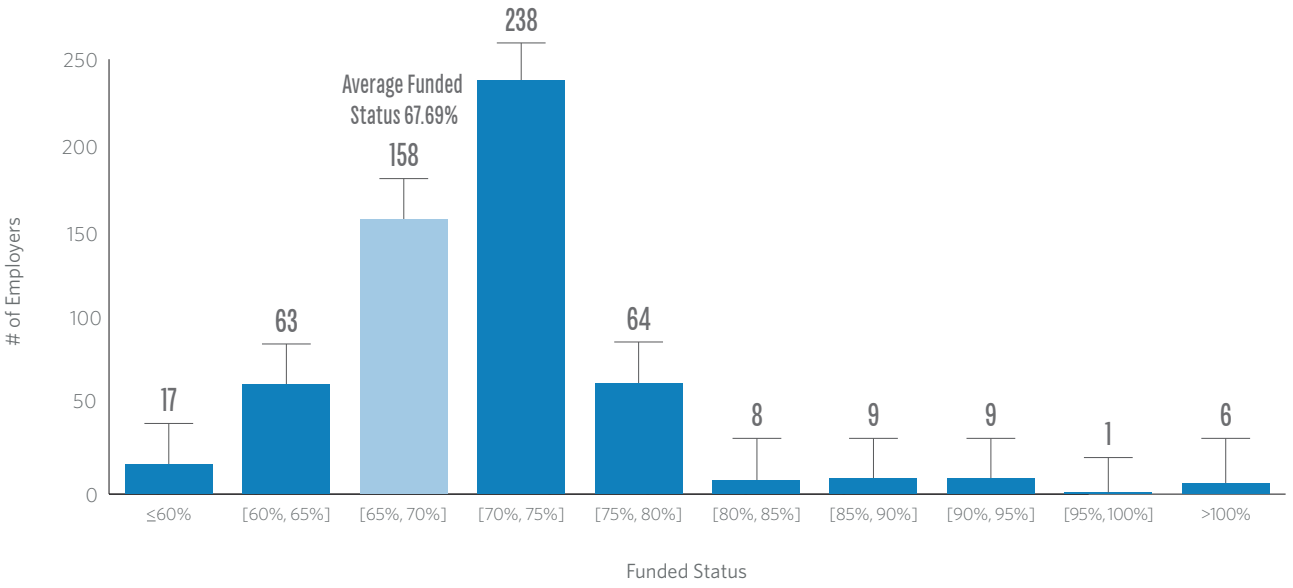
There is a delicate balance between having too much risk in the asset portfolio versus having too high costs by not taking sufficient risk in the asset portfolio. Regular monitoring of the risk measures provided within the report will help the board in assessing appropriate risk targets and tolerances.

Appendix A

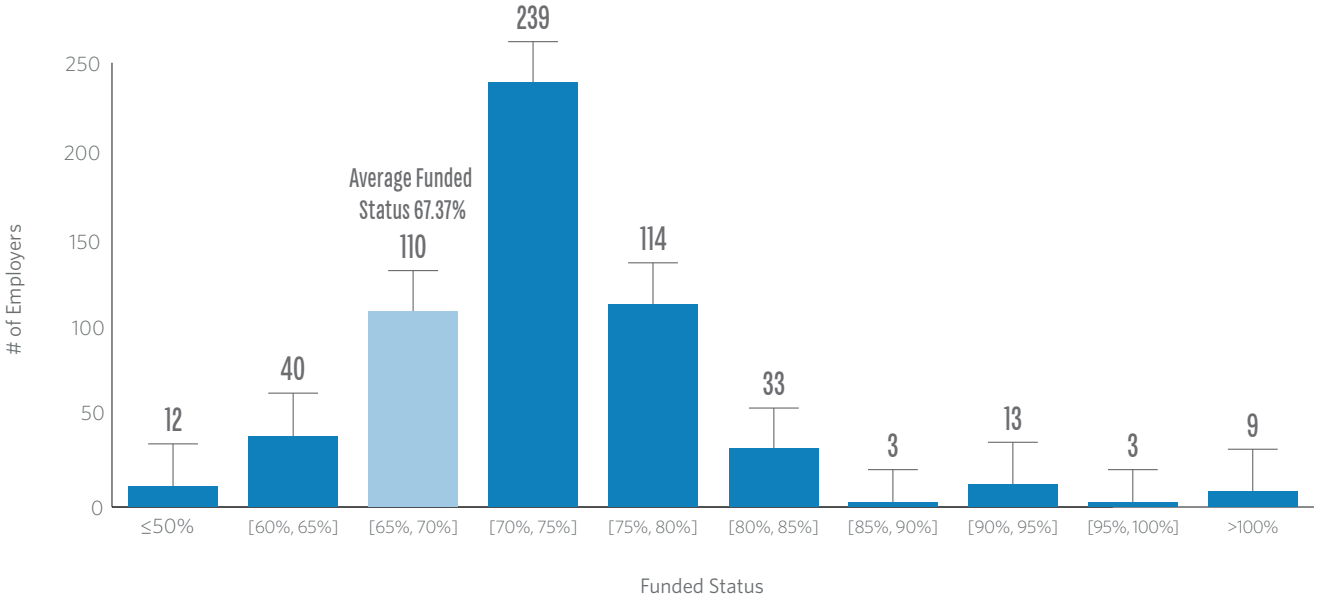
Results of June 30, 2017 Public Agency Valuations

Public Agency Funded Ratios

Funded Ratios as of June 30, 2016 Valuation (Public Agency Safety)

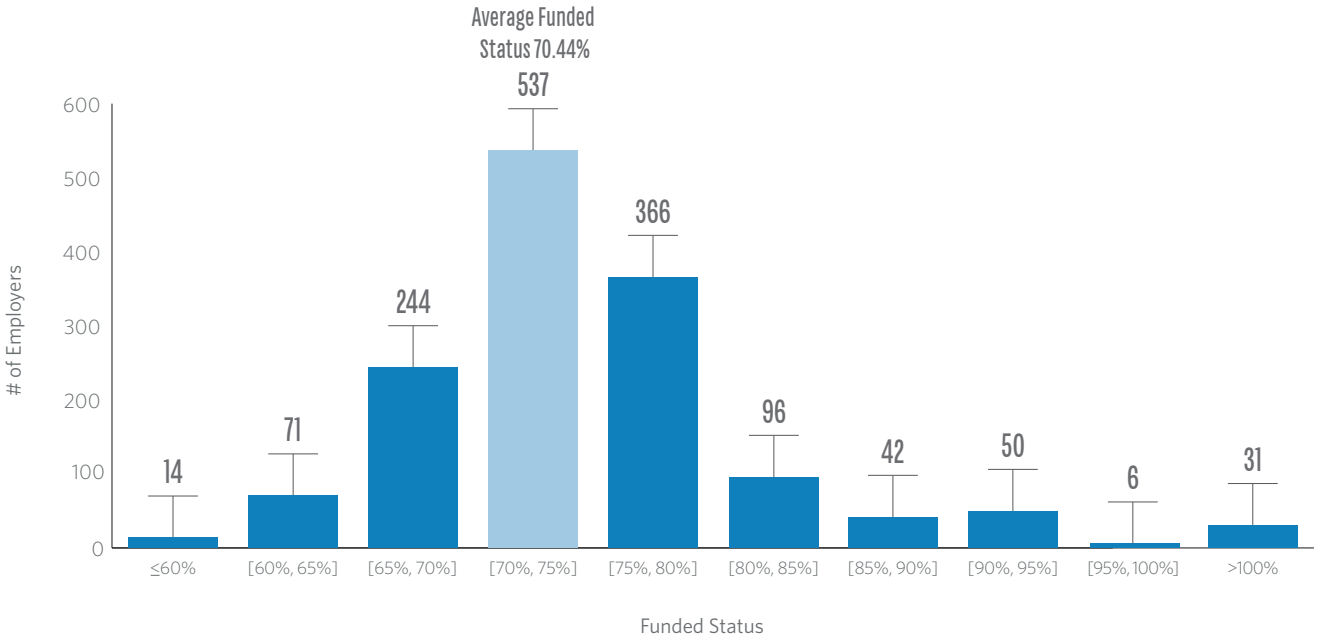


Funded Ratios as of June 30, 2017 Valuation (Public Agency Safety)

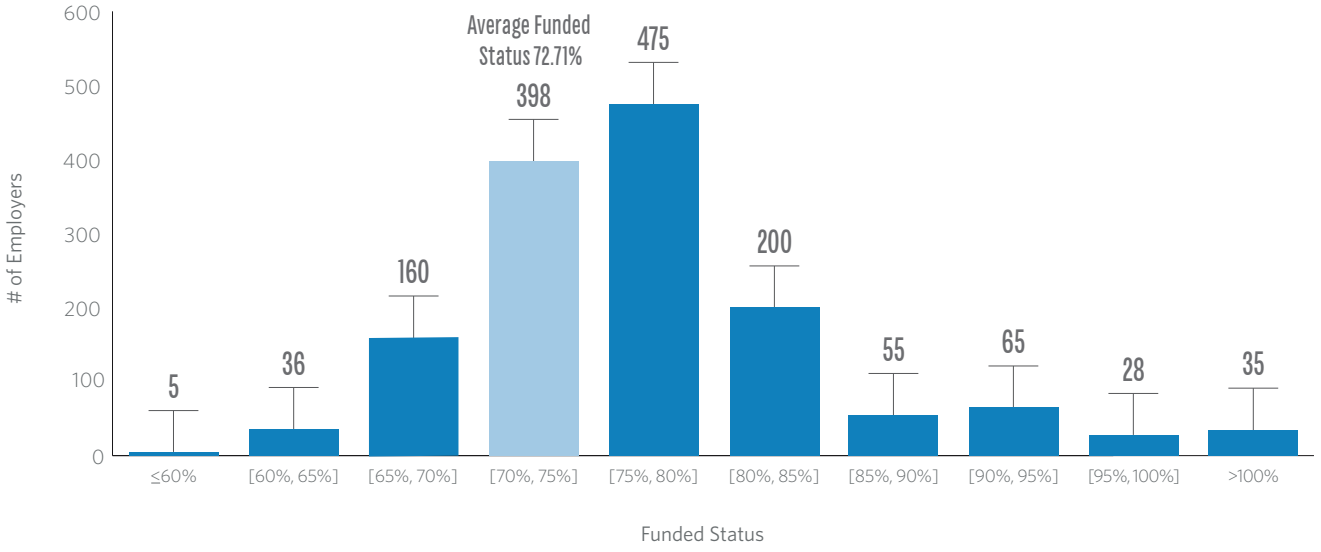


Average Funded Ratio of CalPERS Public Agency Safety Plans by County as of June 30, 2017 Valuation

Funded Ratios as of June 30, 2016 Valuation (Public Agency Miscellaneous)



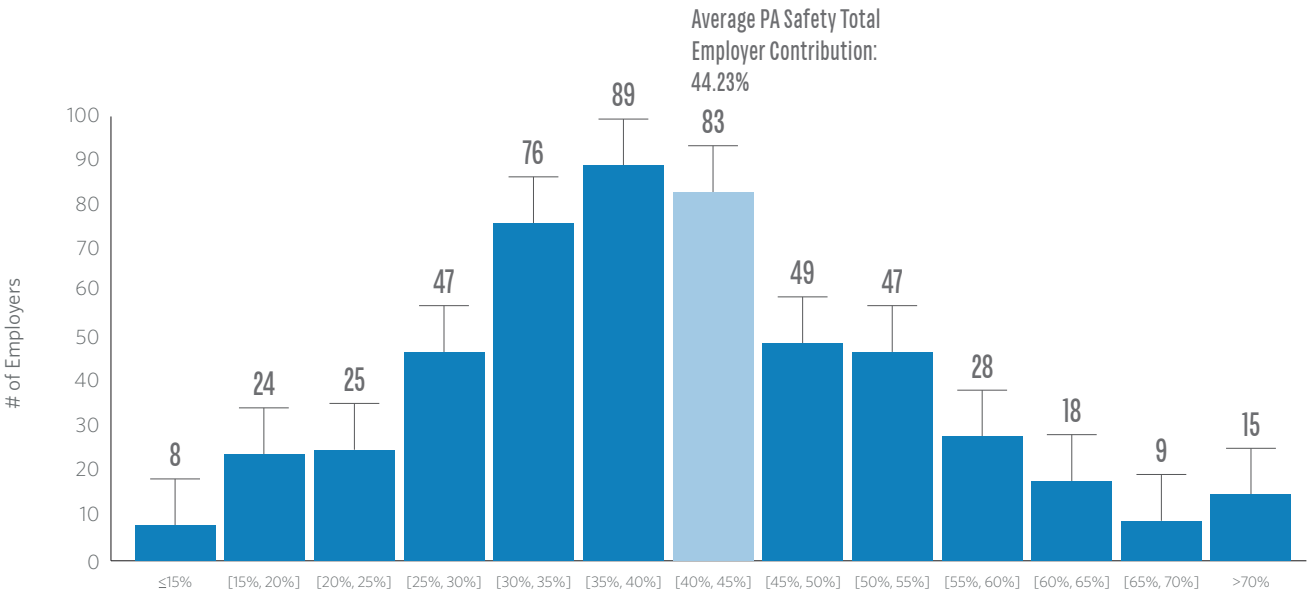
Funded Ratios as of June 30, 2017 Valuation (Public Agency Miscellaneous)



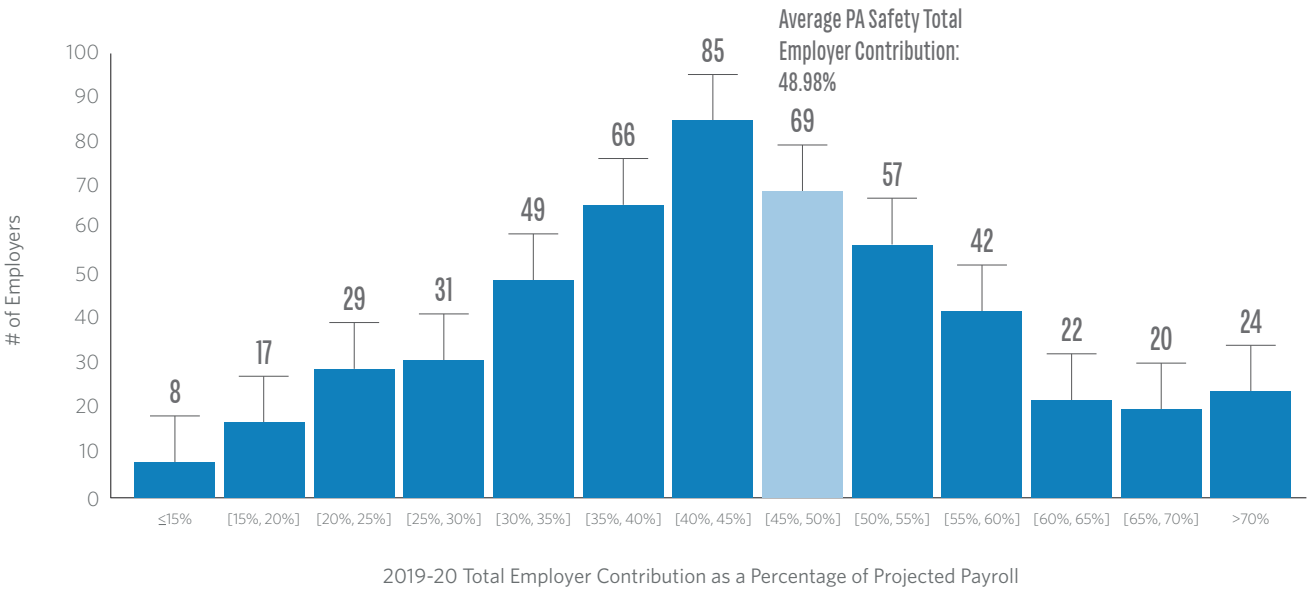
Average Funded Ratio of CalPERS Public Agency Miscellaneous Plans by County as of June 30, 2017 Valuation

Public Agency Contribution Rates

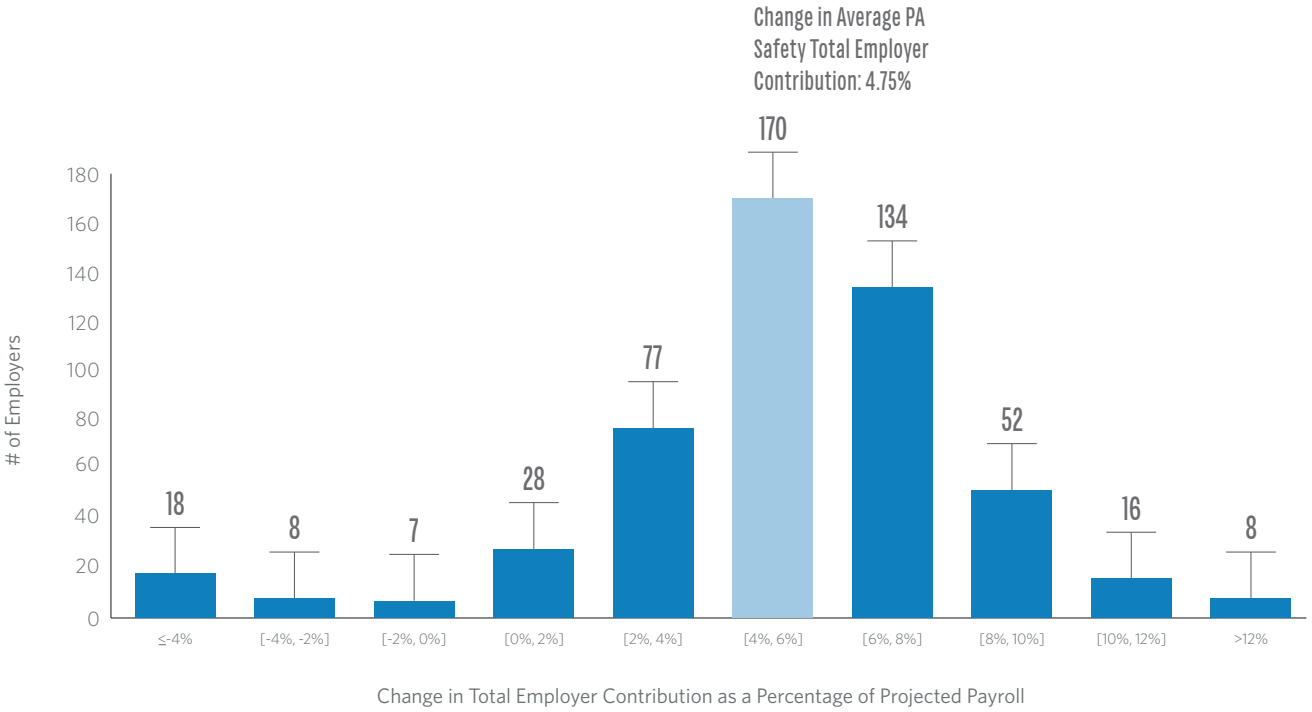
Fiscal Year 2018-19 Total Employer Contribution Rates as a % of Projected Payroll (Public Agency Safety)



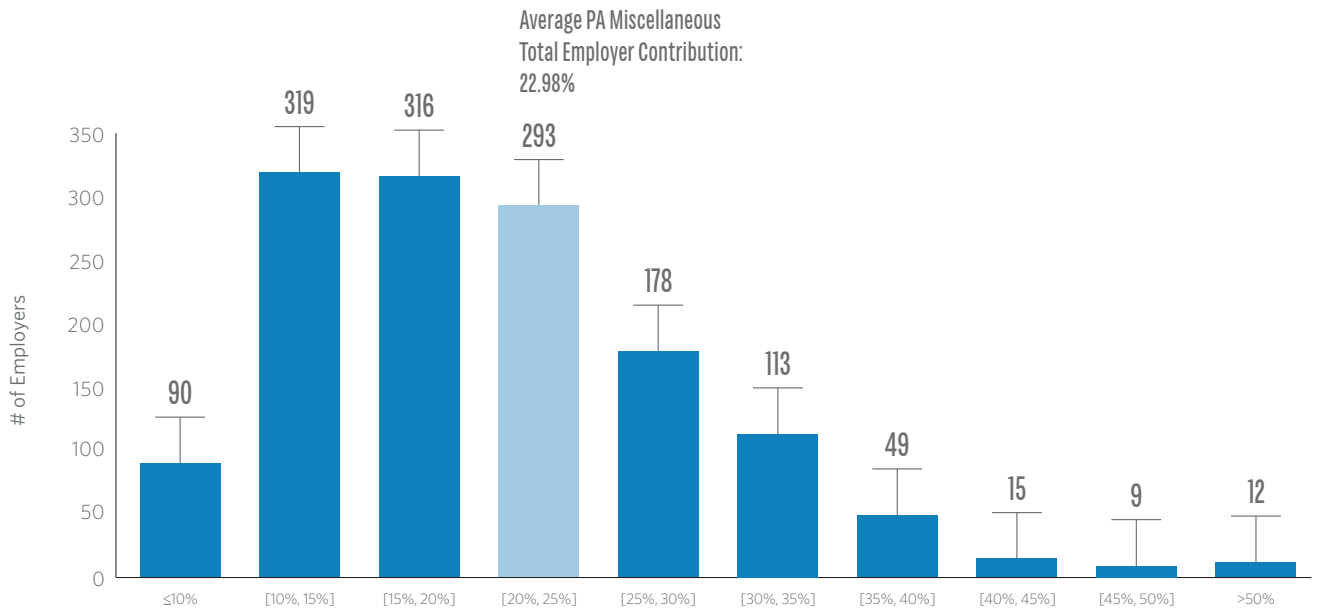
Fiscal Year 2019-20 Total Employer Contribution Rates as a % of Projected Payroll (Public Agency Safety)



Change Total Employer Contribution Rates as a % of Projected Payroll from FY 2018-19 to 2019-20 (Public Agency Safety)

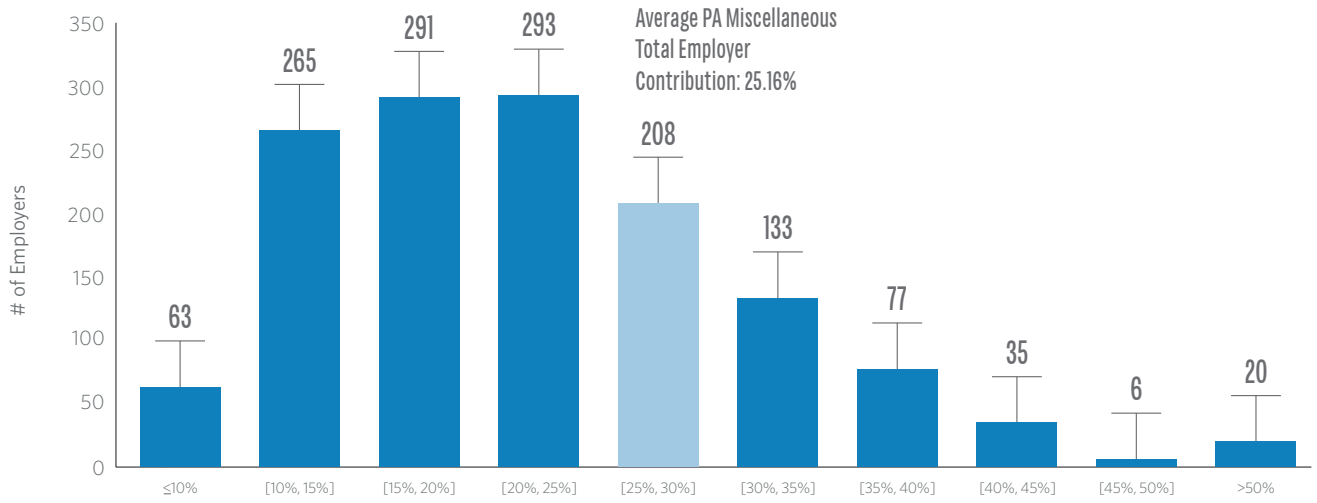


Fiscal Year 2018-19 Total Employer Contribution Rates as a % of Projected Payroll (Public Agency Miscellaneous)



2018-19 Total Employer Contribution as a Percentage of Projected Payroll

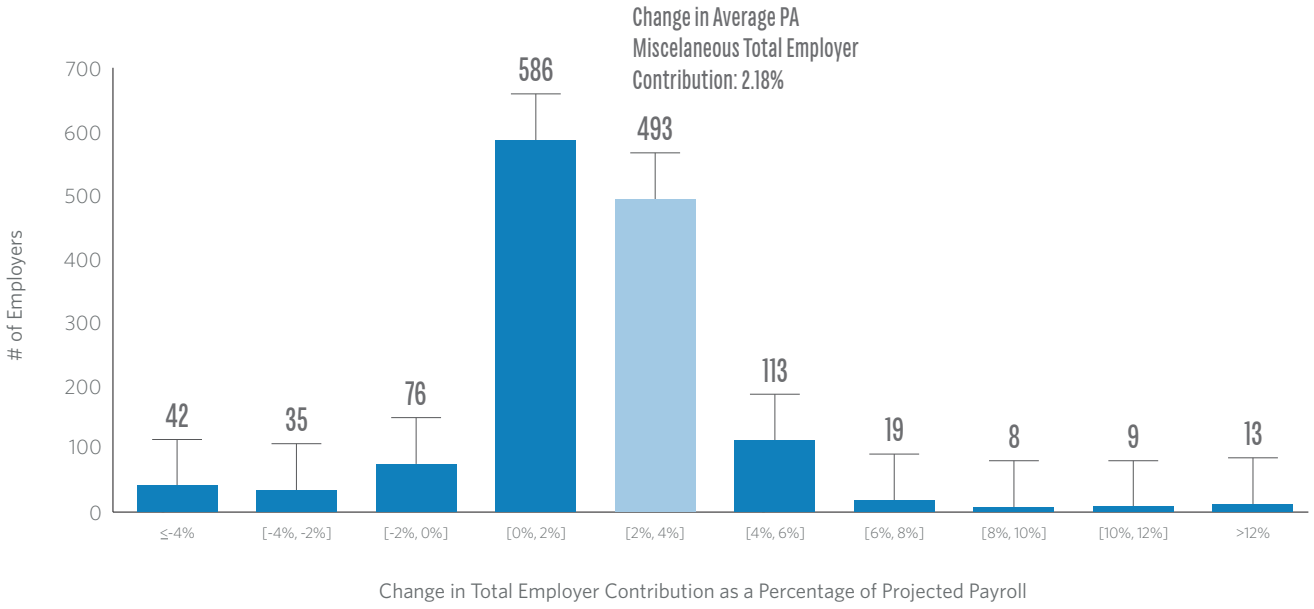
Fiscal Year 2019-20 Total Employer Contribution Rates as a % of Projected Payroll (Public Agency Miscellaneous)



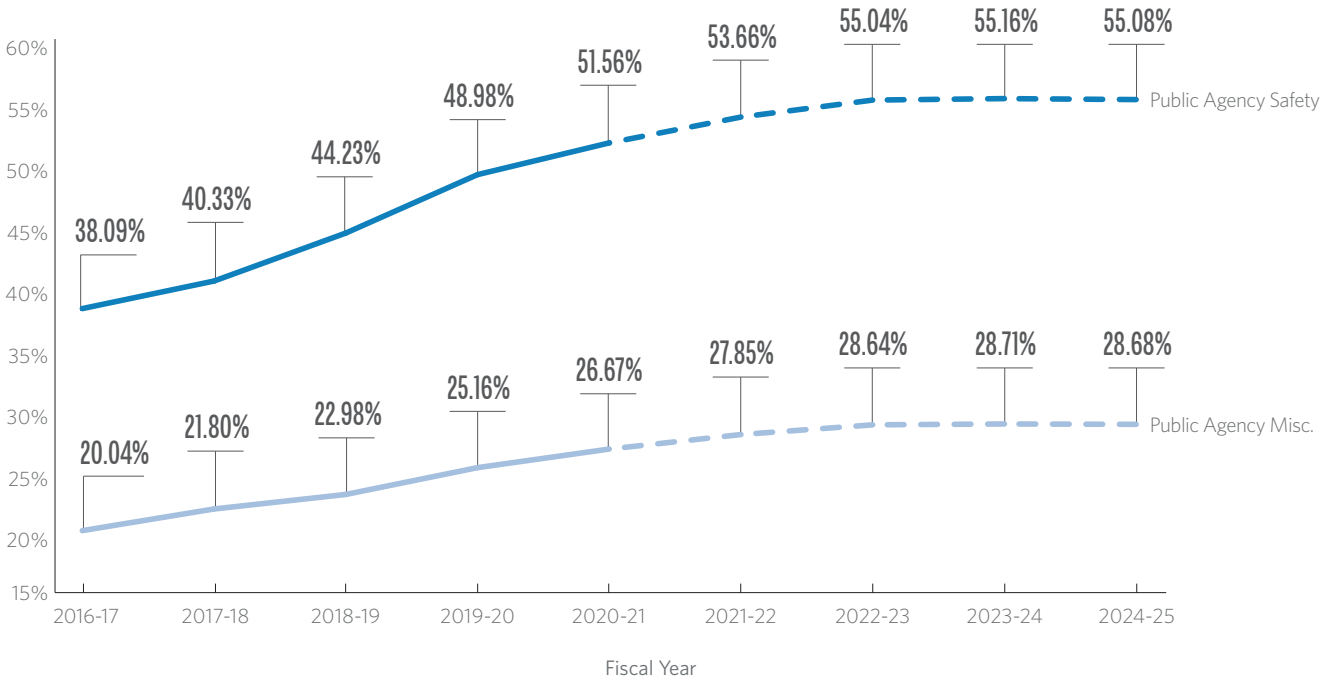
2019-20 Total Employer Contribution as a Percentage of Projected Payroll

Change Total Employer Contribution Rates as a % of Projected Payroll from FY 2018-19 to 2019-20

(Public Agency Miscellaneous)



Recent and Projected Public Agency Total Employer Contribution Rates as a % of Payroll



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