Risky Retirement: Colorado's Uncertain Future and Opportunities for Reform

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Acknowledgements

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Executive Summary

Colorado's rising public pension costs are threatening workers' retirement security and funding for essential public services. Although legislators made an effort to fix the problem through the passage of Senate Bill 10-001 (SB-1), which included retiree benefit cuts and increased statutory contribution rates, these actions have failed to provide relief in the near term. Even more concerning is the fact that the pension system remains particularly vulnerable to market downturns, meaning that the debt, which now totals at least $25.8 billion, will likely continue to grow.

This report outlines several key findings about the Colorado Public Employees' Retirement Association (PERA).

- Despite larger employer contributions, the debt has increased over the past decade. For example, contributions to PERA's School Division have more than doubled since 2005; yet, the payments still do not cover the plan's full cost.
- Eighty-one percent of the increase in the state's unfunded pension liabilities is due to insufficient payments.
- Colorado is relying on a risky investment strategy to close the gap between pension assets and liabilities. Two-thirds of its investments are allocated to volatile assets such as equities, real estate, and alternatives.
- Recent legislative reforms will have a marginal impact on protecting PERA from economic booms and busts.
- The state's funding plan, which includes a costly period of negative amortization, will cause PERA to remain in a precarious financial position for decades. The period of negative amortization will cause the debt to cost much more in the long term.

Colorado should take action to avoid dire financial consequences, and it should take immediate steps to improve the financial stability of its pension system. Such measures include developing a credible plan to pay down PERA's current unfunded liability, managing future cost uncertainty, and adopting a flexible funding policy. These reforms would allow Colorado to create a lasting, secure retirement plan and would help to ensure that the state is able to deliver on its promises to citizens and public employees.

Introduction

The fiscal position of the Colorado Public Employees' Retirement Association (PERA) is undermining the state's ability to fund important public services—such as education—and to provide promised retirement benefits to employees. Though Colorado has made some well-intentioned efforts to mitigate its pension challenges, recent legislative changes to the retirement system—including Senate Bill 10-001 (SB-1)—have failed to produce necessary structural reform.

Without comprehensive action, PERA's growing debt could threaten Colorado's financial future. Public workers have already been forced to endure the consequences of this rising pension debt through reduced cost-of-living adjustments (COLAs) and other benefit changes. The pension problem is expected to worsen unless the state adopts a more responsible funding policy and vigilantly manages investment risk. Rather than rely on stop-gap measures that could leave future generations with unmanageable legacy costs, the state should develop a prudent retirement funding policy that will prevent the pension debt from growing and will provide a way to pay it down over a reasonable time frame.

While it is tempting to blame PERA's deteriorating position on overall economic downturns, factors within Colorado's control—like poor funding policy—have played a much greater role in the problem. For example, when the state received surplus investment returns in the 1990s, it chose to provide benefit enhancements instead of saving the money to protect against a future economic shift. This choice proved costly when the economy slowed during the dot-com bust of the early 2000s. As a result, the fund was in a precarious position well before the financial crisis of 2008.

The state's funding policies exacerbated the negative impacts of the Great Recession. Yet, Colorado continues to use these same policies to this day. This report outlines the extent of the problem and the need for reforms that would help to ensure that the pension system is affordable, sustainable, and secure.

Section 1: The Fiscal Condition of Colorado's Public Retirement System

Today, PERA is only 61 percent funded. The state has accrued a pension debt of at least $25.8 billion—or 9 percent of its gross domestic product—for retirement benefits public workers have already earned (Figure 1). There are five divisions within PERA: School, Local Government, State, Judicial, and Denver Public Schools (DPS). The School Division, which includes all public school employees except members of the Denver Public Schools system, is the largest by far, accounting for 53 percent of total liabilities and a slightly greater share of the unfunded liability (55 percent).

Figure 1. Colorado's Five Pension Plans Are Underfunded

| Plan	Assets (thousands of dollars)	Liabilities (thousands of dollars)	Unfunded Liability (thousands of dollars)	Funded Ratio	Share of Total Shortfall	ARC* (thousands of dollars)	Actual Contribution (thousands of dollars)	Percent of ARC Contributed
School	$21,369,380	$35,437,312	$14,067,932	60%	55%	$779,459	$613,738	79%
Local	$3,291,298	$4,502,282	$1,210,984	73%	5%	$56,180	$65,329	116%
State	$13,129,460	$22,843,725	$9,714,265	57%	38%	$495,241	$393,218	79%
Judicial	$256,800	$351,598	$94,798	73%	0.4%	$8,599	$6,494	76%
Denver Public Schools	$3,075,895	$3,785,872	$709,977	81%	3%	$63,145	$23,104	37%
Total	$41,122,833	$66,920,789	$25,797,956	61%	100%	$1,402,624	$1,101,883	79%

Source: Public Employees' Retirement Association of Colorado, Comprehensive Annual Financial Report (2013);
Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado (2013).

*Annual Required Contribution (ARC)

Colorado's accrual of pension debt stems from its failure to responsibly pay for its retirement obligations. In 2013, the state owed $1.4 billion to cover pension costs; yet, public employers only contributed 79 percent of this figure, falling short by more than $300 million. The failure of Colorado's public employers to fully pay what they owe is not a new problem. In fact, it has been a trend in the state over the past decade. As shown in Figure 2, in every year since 2003, Colorado's contributions have been significantly less than the Annual Required Contribution (ARC), or the annual payment needed to cover both the current and legacy costs of retirement benefits. It is important to note that employer payments build PERA's assets. Therefore, inadequate payments have contributed to the divergence of retirement liabilities and plan assets. This gap between PERA's assets and its liabilities represents the state's pension debt, or unfunded liability, and it has increased dramatically since 2001 (Figure 3).

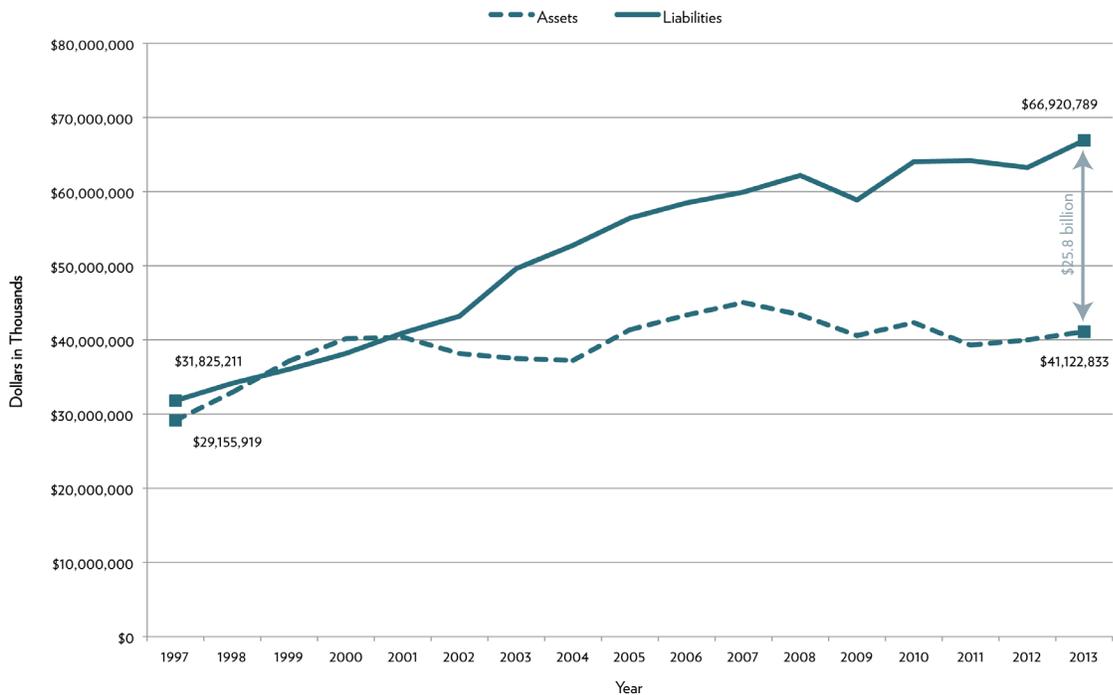## Figure 2. State Pension Contributions Fall Short of ARC

Colorado Public Employees' Retirement Association (PERA)
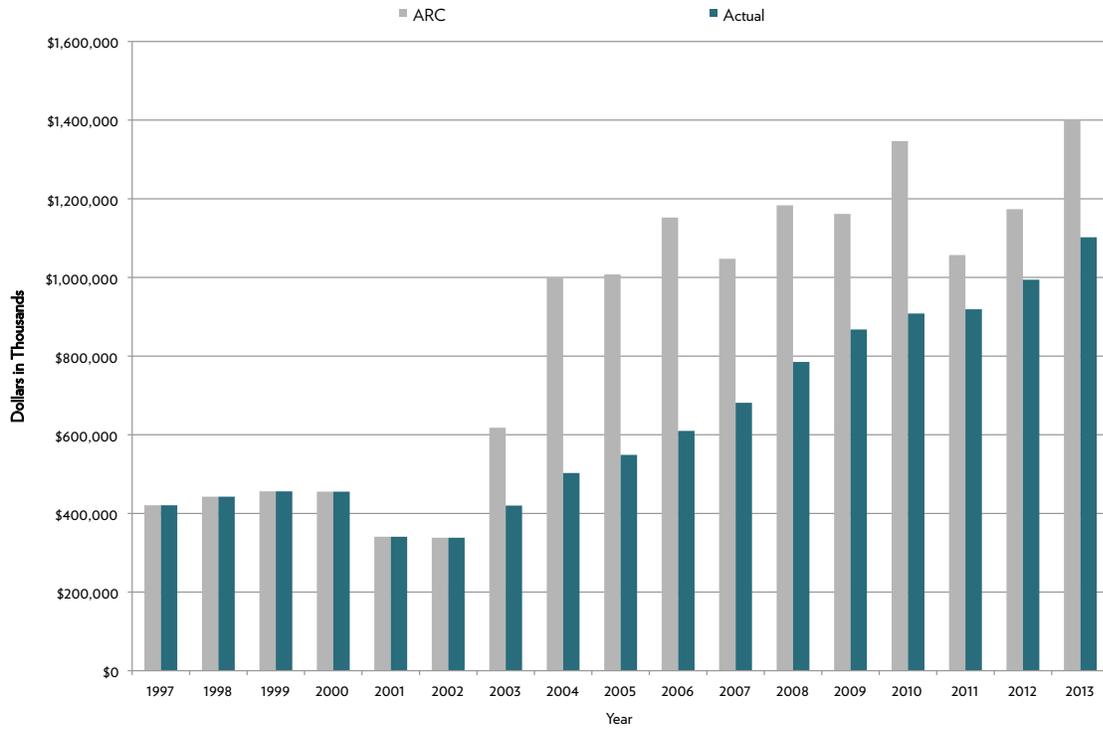
Source: Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado (1997 to 2013).

Figure 3. Poor Funding Practices and Two Recessions
## Widened the Gap Between Assets and Liabilities

Colorado PERA

Source: Public Employees' Retirement Association of Colorado, Comprehensive Annual Financial Report (1997 to 2013).

Note: Assets and liabilities are adjusted for inflation in 2013 dollars.

Figure 4. Colorado's Pension Debt Costs More Than Teacher Benefits

Amortization Cost and Normal Cost as a Percentage of ARC
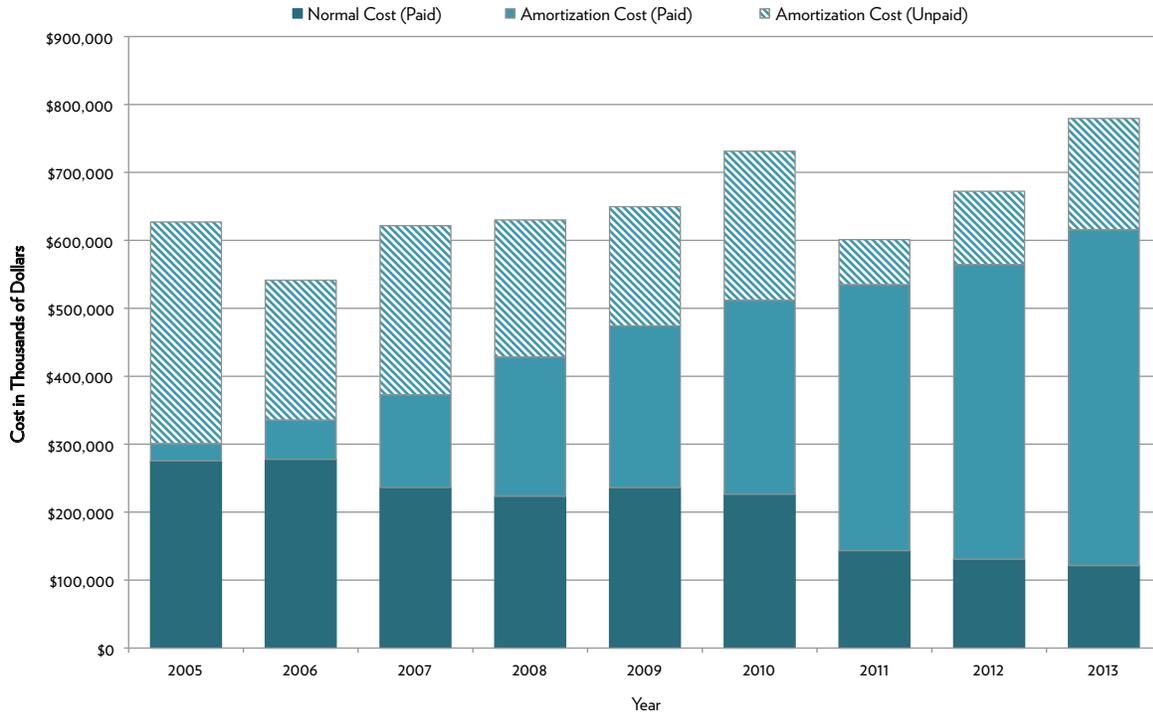
Colorado PERA, School Division
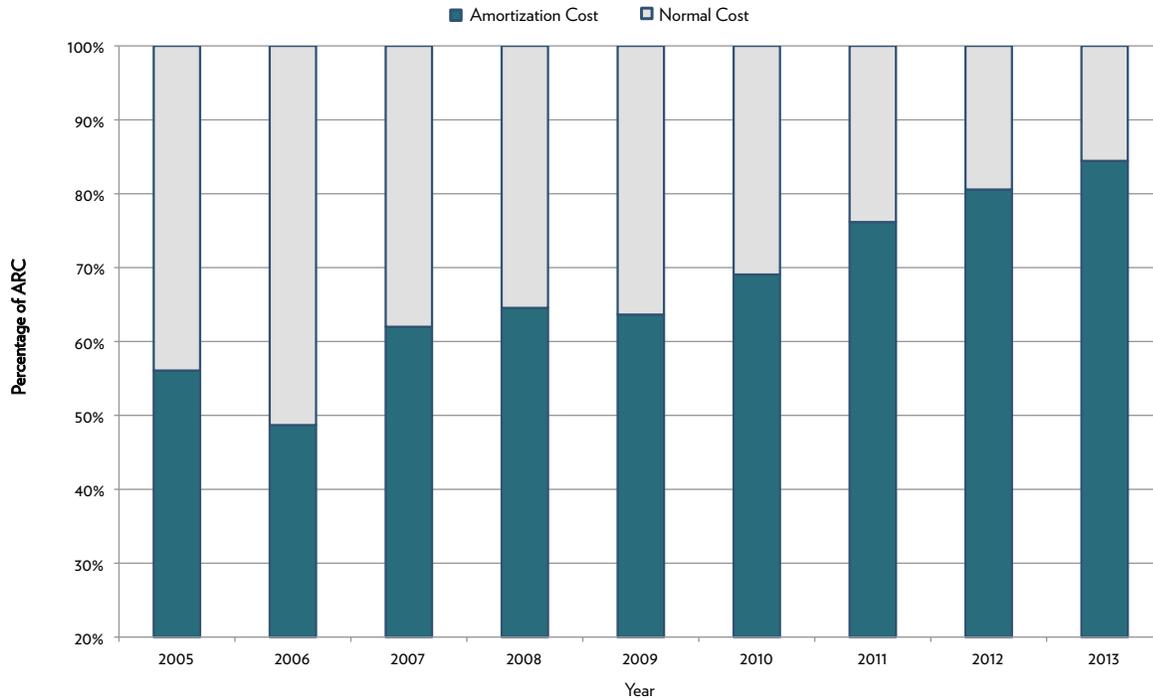
Source: Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado (2005 to 2013).

The expanding pension debt has substantially increased overall retirement costs for Colorado. The bulk of the state's annual pension payment now covers debt service (also known as amortization) rather than actual benefits earned by workers in that year (normal cost). Figure 4 shows the breakdown of the annual payment for the School Division. In 2013, 16 percent of the total ARC payment covered the normal cost. The remaining 84 percent of the payment was used solely to pay down the unfunded liability. Each year, the state is contributing a significant amount of funds to make good on benefits earned for past service—monies that in the absence of the pension debt could go directly to current workers and public services. Figure 5 illustrates the growth of retirement payments for PERA's School Division and the increasing share of these payments devoted to debt service. Since 2005, employer contributions to the School Division have more than doubled, growing at an average annual rate of more than 9 percent. But even with this significant increase, actual contributions remain more than 20 percent below the ARC. The consequence of this chronic underpayment is a much larger pension debt—the unfunded liability grew by more than $5.5 billion over this period—and higher future payments.

Figure 5. Employer Contributions Have More than Doubled; Still Fall Short of ARC Payment

Colorado PERA, School Division

Source: Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado (2005 to 2013).

The story is much the same for the entire PERA system—debt service payments will keep rising and budgetary pressure will increase if Colorado continues to make insufficient contributions. To illustrate how important state contributions are to the health of the retirement system, Figure 6 shows the degree to which the changes in the unfunded liability for the past 10 years can be attributed to five key factors: (1) insufficient contributions, (2) investment return shortfalls, (3) assumption changes, (4) demographic loss, and (5) plan changes. Prominently, 81 percent of the increase in the unfunded liability was due to insufficient contributions. Comparatively, weaker-than-expected market returns accounted for only 17 percent of the change. The good news is that because the dramatic increase in PERA's unfunded liability is largely due to poor funding policy, not low market returns, Colorado has the capability to make meaningful improvements to its pension system.[1] By rectifying its contribution rate, the state will be able reduce the systemic risk to the retirement security of public workers and ultimately pay down its debt.

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1   Plan changes that were part of Senate Bill 10-001 (SB-1), discussed in the next section, reduced the unfunded liability by roughly $8.5 billion, but the effect of these changes was offset by assumption changes (*i.e.*, discount rate reduction) and demographic loss.

Figure 6. Insufficient Contributions Account for 81% of the Unfunded Liability
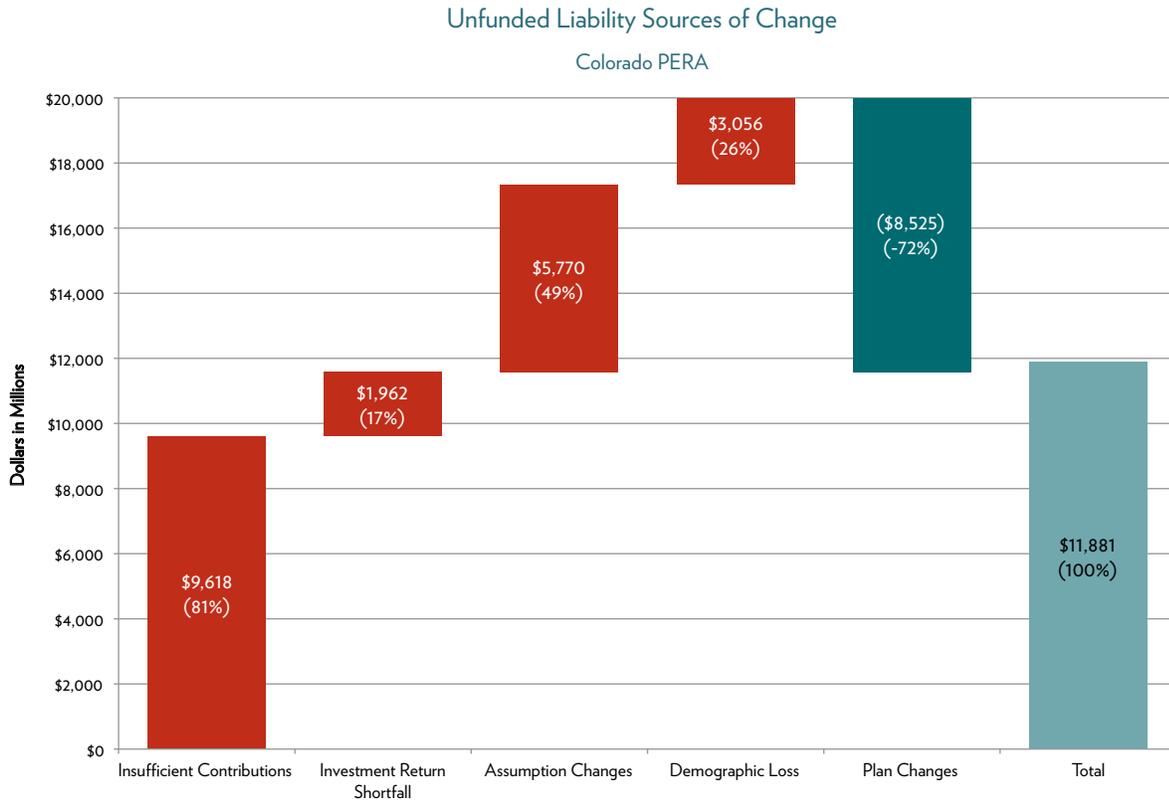
Unfunded Liability Sources of Change

Colorado PERA

Source: Public Employees' Retirement Association of Colorado, Comprehensive Annual Financial Report (2002 to 2013);
Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado (2013); authors' calculations.

Note: Market value of assets basis (2004 to 2013).

Section 2: Senate Bill 10-001 (SB-1) Fails to Solve Colorado's Pension Challenges

Like many states, Colorado enhanced public employee retirement benefits significantly in the 1990s by increasing the defined benefit accrual rate, lowering early retirement eligibility requirements, and doubling the employer match on the Money Purchase Plan.[2] These benefit enhancements left the pension system in a risky financial position because they were passed without a funding plan that could adequately react to future cost uncertainty. Although PERA entered the millennium with a funding surplus generated by strong investment returns during the economic expansion of the 1990s, the system's financial position deteriorated quickly following the 2001 recession. Because of insufficient contributions and the absence of a sound funding plan, that trend continued through the 2008 financial crisis.

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2   Benefit history is available at https://www.copera.org/pera/active/benefithistory.htm.

Since that time, Colorado has taken several steps to improve the pension system's financial position.[3] Notably, the Colorado Legislature took action in 2010 by passing SB-1.[4] SB-1 appears to have had three primary objectives: to reduce the pension system's unfunded liability and the cost of new benefits earned annually by workers, to establish a statutory funding policy that would meet the needs of the fund going forward, and to institute self-correcting mechanisms to smooth the consequences of economic swings. Unfortunately, SB-1 only accomplished the first objective. The bill reduced PERA's estimated unfunded liability by $8.5 billion and lowered normal cost through benefit cuts, including reduced COLAs for most workers and increased age and service requirements for new workers.

Achieving the last two objectives would have dramatically improved the long-term sustainability of the retirement system. However, the provisions of the bill ultimately did not facilitate the type of comprehensive, long-lasting reform that will be crucial to Colorado's financial future. For example, SB-1 aimed to improve the pension plan's funding policy by effectively increasing two of Colorado's statutory pension contributions— the Amortization Equalization Disbursement (AED) and the Supplemental Amortization Equalization Disbursement (SAED)—for PERA's School, DPS, and State divisions.[5] As shown in Table 1, the contribution rates will incrementally increase to the SB-1-capped levels by 2018. These increases to the AED and SAED *will* reduce the number of years required to pay off Colorado's pension debt. Based on PERA's actuarial estimates, with the increased rates, four of its five divisions will be fully funded in 40 years (Table 1). However, despite higher contributions, the current funding plan still includes debt pay-off periods extending well beyond those recommended by the Government Accounting Standards Board (30 years) and the Society of Actuaries Blue Ribbon Panel (15 to 20 years).[6] As we explain later in the report, these long funding ramps are derived using a set of predictions about market returns, economic conditions, and mortality over the next 40 years that are far from guaranteed. This design puts the plan at risk and leaves PERA in a precarious fiscal position for decades.

SB-1 also included new, self-correcting mechanisms that were intended to smooth the consequences of the economic cycle on the retirement system. To accomplish this, the legislature did two things. First, it linked the AED and SAED payments to the plan's funded status.[7] Second, it linked COLAs to the plan's funded status, inflation, and, in some cases, investment returns.[8] Unfortunately, neither of these self-correcting mechanisms will make a significant impact in the foreseeable future. The AED and SAED are both capped at their 2018 levels and cannot increase beyond these caps even when PERA's funded status is below 90 percent. Thus, the

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3   Specifically, Senate Bill 04-257 and Senate Bill 06-235.

4   The bill was signed into law by Governor Bill Ritter and took effect Jan. 1, 2011.

5   Colorado's annual pension contributions are comprised of three statutory amounts: (1) the employer contribution, (2) the AED, and (3) the SAED. Implemented Jan. 1, 2006, the AED, or the "Amortization Equalization Disbursement," is an additional employer contribution. It was enacted through Senate Bill 04-257 with the goal of accelerating the payoff of the unfunded liability. The initial AED equaled 0.5 percent of covered payroll. It was set to increase 50 basis points in 2007 and 40 basis points per year thereafter, until reaching 3 percent in 2012 for all five PERA divisions. Its complement, the SAED, or the "Supplemental Amortization Equalization Disbursement," was implemented two years later, in January 2008, as another way of expediting the debt payoff schedule for the Colorado Public Employees' Retirement Association's (PERA) five divisions. The initial SAED also was 0.5 percent of payroll. It was set to increase by 50 basis points each year until reaching 3 percent in 2013. Although the AED and SAED are similar in purpose, they are funded differently. Unlike the AED which is funded out of monies available specifically for the pension system, the SAED is ostensibly funded out of monies otherwise available for employee wage increases.

6   "Report of the Blue Ribbon Panel on Public Pension Plan Funding," Society of Actuaries Blue Ribbon Panel, February 2014. Government Accounting Standards Board (GASB), Statement 65 and Statement 67.

7   If the year-end funded status of each division reaches 103 percent, the AED and SAED will decrease. If the funded status falls below 90 percent, the AED and SAED will increase.

8   The SB-1 COLA cap of 2 percent is permitted to increase if PERA's overall funded status is 103 percent and is mandated to decrease if the overall funded status drops below 90 percent. Regardless of the plan's funded status, for members hired after 2006, COLAs are set to annual inflation when it is less than the 2 percent cap. For members hired before 2007, COLAs will equal annual inflation—if it is less than 2 percent—for the three years after PERA experiences negative investment returns.

changes to the AED and SAED payments provide no downside cost protection (higher statutory contribution rates to compensate for market returns being less than expected) in the medium term. In addition, while tying COLAs to inflation certainly could provide some cost relief during low inflationary periods, the rule only consistently applies for relatively new hires. For the rest of workers, this mechanism kicks in only *after* the fund realizes a negative investment return—a considerable financial shock—and even then, only for three years.

The bottom line is that the self-correcting mechanisms included in SB-1 are expected to have, at best, *a marginal impact* on stabilizing Colorado's retirement plan cost from the economy's booms and busts. For the state to truly smooth the ramifications of economic and investment risk, it should establish a responsive funding plan that will go into effect during even slight economic downturns to balance pension fund assets quickly and effectively.

Table 1. Low Contribution Rates Create Long Funding Ramps

Division	Statutory Employer Contribution Rates	Pre-SB1 AED and SAED Rates	Post-SB1 AED and SAED Rates	Total Employer Contribution Rate (2018)	PERA Projections for Full Funding (years)
State	10.15	AED – 3.00	AED – 5.00	20.15	38
		SAED – 3.00	SAED – 5.00		
School	10.15	AED – 3.00	AED – 4.50	20.15	36
		SAED – 3.00	SAED – 5.50		
Local Government	10	AED – 3.00	AED – 2.20	13.7	30
		SAED – 3.00	SAED – 1.50		
Judicial	13.66	AED – 3.00	AED – 2.20	17.36	> 40
		SAED – 3.00	SAED – 1.50		
Denver Public Schools	13.75	AED – 3.00	AED – 4.50	23.75	24
		SAED – 3.00	SAED – 5.50		

Source: "Senate Bill 10-001, Impact on PERA Employers," Colorado PERA Topics, May 2010, No. 10-1; COPERA – 2014 LAC Presentation – Projection Datapoints, requested from PERA on August 7, 2014; Senate Bill 06-235 and Senate Bill 04-257.
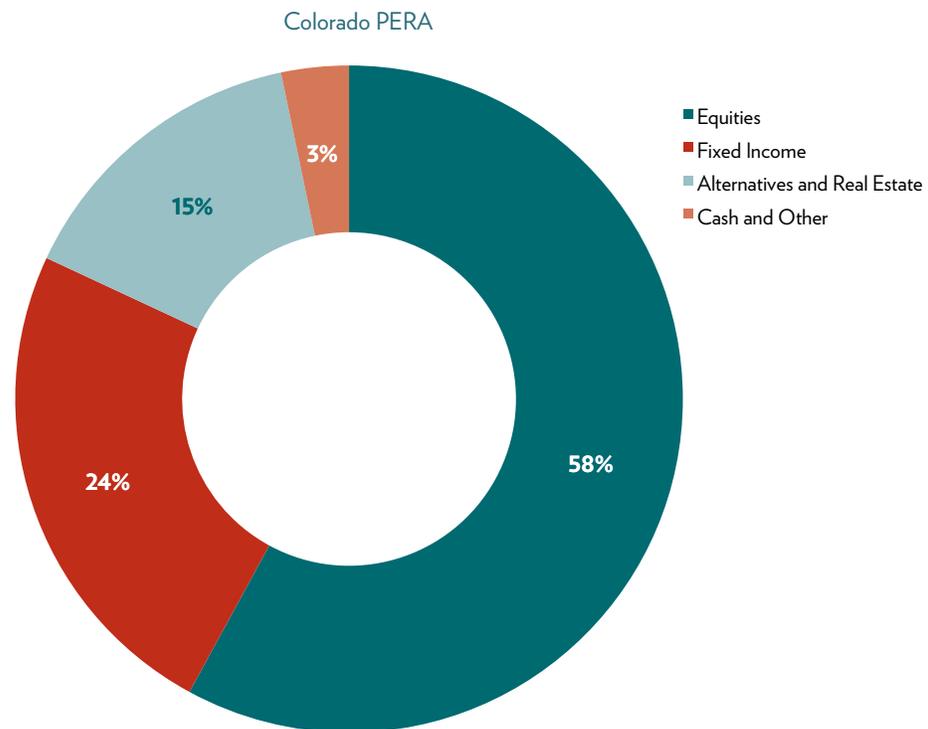
Note: Senate Bill 10-001 (SB1) maintained the AED and SAED at the 2010 level for the Local Government and Judicial Divisions. In the absence of SB1, the AED and SAED would have been capped at 3 percent for all divisions. Employer contribution rates are those that begin in 2018 for School, State, and DPS, and in 2017 for Local Government and Judicial.

Section 3: The Consequences of Investment Risk

Across the nation, governments are making riskier bets with workers' retirement savings. The share of public retirement fund assets invested in equities, real estate, and alternatives is at an all-time high.[9] In Colorado, more than two-thirds of PERA's investments are allocated to such risky assets (Figure 7).

Figure 7. Colorado Invests the Majority of Pension Assets in Equities

Colorado PERA

- Equities
- Fixed Income
- Alternatives and Real Estate
- Cash and Other

3%
15%
58%
24%

Source: "Senate Bill 10-001, Impact on PERA Employers," Colorado PERA Topics, May 2010, No. 10-1; COPERA – 2014 LAC Presentation – Projection.

While PERA's investment allocation may be considered prudent policy by some, the nature of these investments makes it even more imperative for the state's policymakers to both understand and monitor the cost implications of the pension plan's market exposure. Vigilance is critically important given that today, Colorado's public retirement promises are larger relative to the size of the state's economy than they have ever been (total pension liabilities are 23 percent of state GDP). Therefore, cost uncertainty associated with pensions has graver implications for the state than in the past. Any risk from the pension system—longevity, investment allocations, or cost—can translate into risk for state and local budgets, and, as a consequence, for workers and taxpayers.

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9   "State Public Pension Investments Shift Over Past 30 Years," The Pew Charitable Trusts and the Laura and John Arnold Foundation, June 2014.

We can measure the extent to which the fund's market reliance has changed over time by comparing PERA's assumed investment rate of return to the risk-free interest rate. The risk premium is the amount by which the return on a risky asset is expected to exceed the risk-free rate. It can be thought of as compensation for the investor taking on risk. Investors are less likely to achieve their expected rate of return if the risk premium is large. The increasing spread between PERA's assumed investment rate of return and the risk-free rate shows that Colorado is taking on greater market risk than it has before. While PERA has recently lowered its assumed investment rate of return, Colorado is still betting on a market risk premium that is twice as large as the assumed risk premium in the 1990s (Figure 8).

Figure 8. Colorado's Market Risk Premium Has Doubled Since the 1990s
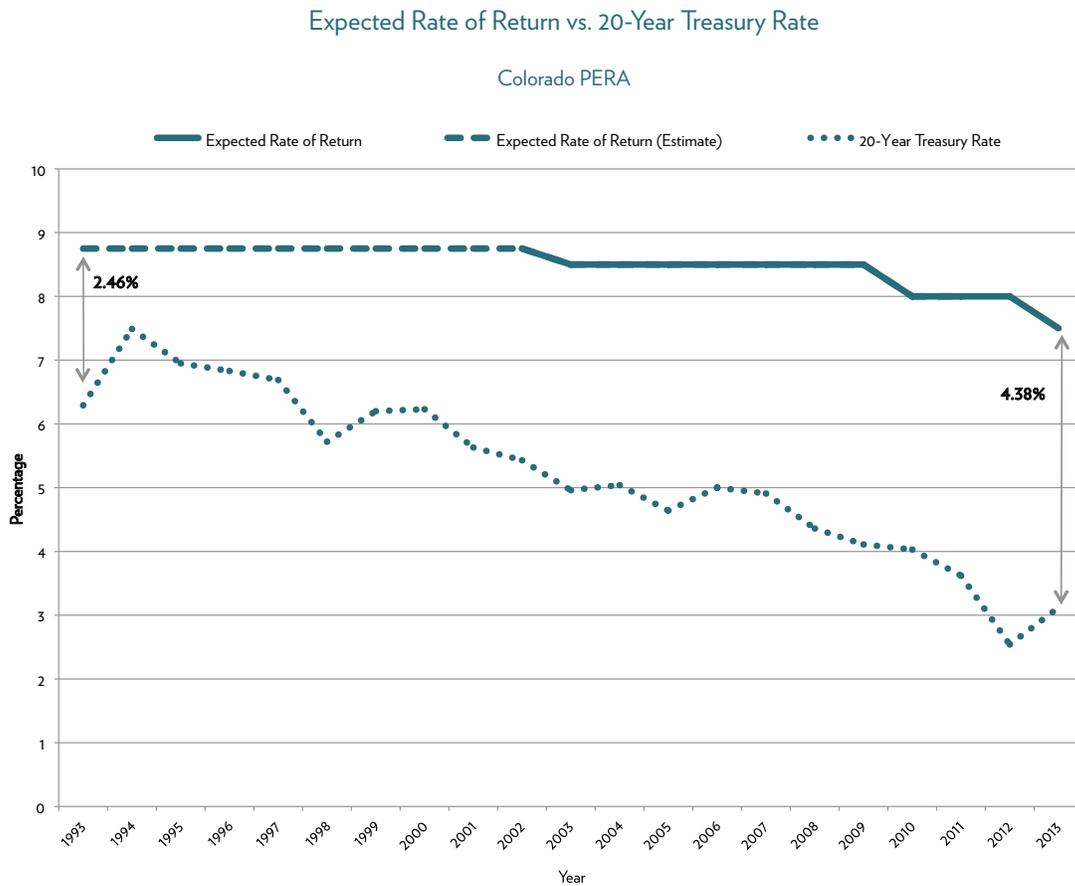
Expected Rate of Return vs. 20-Year Treasury Rate
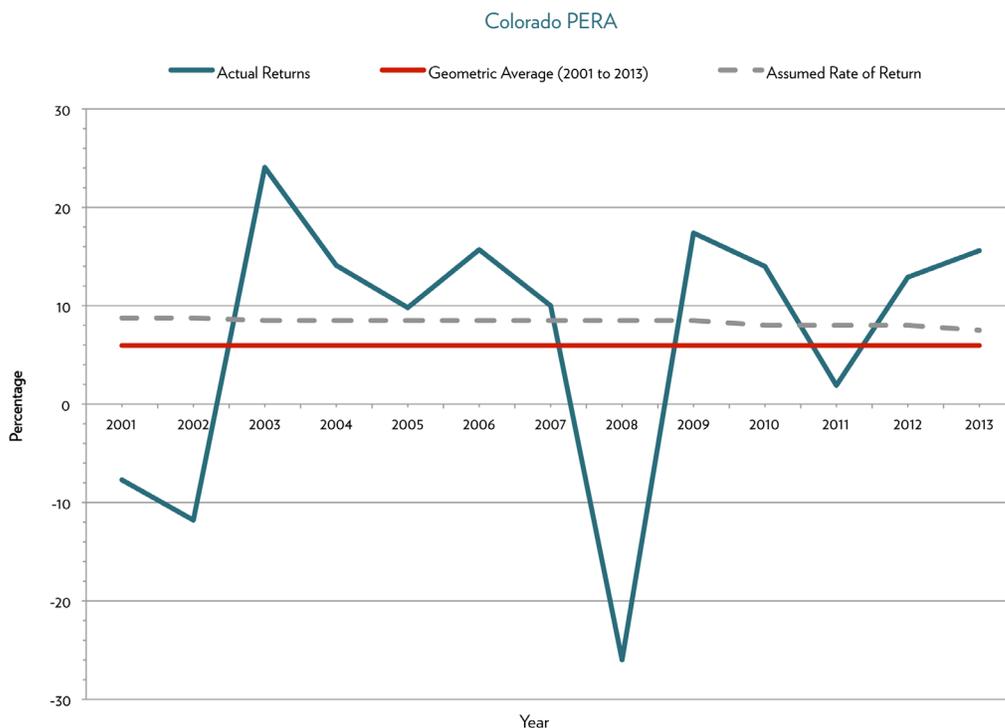
Colorado PERA

Source: Public Employees' Retirement Association of Colorado, Comprehensive Annual Financial
Report (2002 to 2013); U.S. Department of Treasury; authors' calculations.

Colorado, like many other states and municipalities across the nation, appears to be prioritizing high returns over lowering portfolio risk. While some investment risk may be prudent, current levels of risk are likely

inappropriate given the state's funding history and inflexible statutory funding policies. If PERA's investments fail to meet their expected return, annual payments to cover workers' retirement benefits will need to increase. However, Colorado's current funding policy simply does not allow contributions to increase enough to cover any additional shortfalls. Taking on high levels of investment risk without a credible plan to manage cost uncertainty amplifies the risk's ramifications for retirement costs. Furthermore, it threatens the security of workers' retirements by increasing the probability that pension debt will continue to grow. This dynamic has driven PERA to its current financial state. It is essential for Colorado to institute policies that better manage the effects of downside risk on pension plan cost.

Figure 9 shows PERA's investment performance since 2001. As depicted, actual annual returns (green line) are volatile and asymmetric around the expected rate of return. The low returns, though infrequent, were well below the expected rate. From 2001 to 2013, PERA's investments have earned an average annual return of 5.96 percent (red line)—which is a couple of percentage points below their assumed average (grey line)—despite experiencing low returns in only four of the 13 years.[10] Because Colorado has a relatively inflexible funding plan, the cost implications of these infrequent low-return years have been significant.

Figure 9. Actual Investment Returns Are Volatile

Colorado PERA

Source: Public Employees' Retirement Association of Colorado, Comprehensive Annual Financial Report (2001 to 2013); authors' calculations.

To some extent, the PERA Board has responded to the implications of market risk on plan cost. It revised

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10 From 2004 to 2013, investments earned an average annual return of 7.6 percent.

the discount rate used to set annual contributions from 8.75 percent in 2002 to 7.5 percent in 2013. Of course, as long as pension funds are invested in risky assets, pension cost will always be subject to market uncertainty, and actual returns will not always match the assumed return.[11] Lowering the discount rate used to set annual contributions increases the flow of funds into the plan and is a sensible way to reduce the impact of market volatility on plan cost.

One way to analyze whether the discount rate (*i.e.*, the expected rate of return) is appropriate is to compare it to the plan's actual returns. Starting in 2001, Figure 10 plots PERA's assumed investment rate of return with a reasonable range—a 75 percent confidence interval—alongside the 10-year time-weighted return for the period.[12] In all but two years, actual 10-year returns were well within the sensible bounds. While the PERA Board of Trustees' decision to lower the discount rate used to set annual contributions was rational, it only provides a moderate alteration that will not alone insulate the pension plan from exposure to market risk. Thus, the benefits of this tool will be rendered moot if investment risk is not diligently managed.

Figure 10. Actual Returns Do Not Always Match Assumptions

Colorado PERA
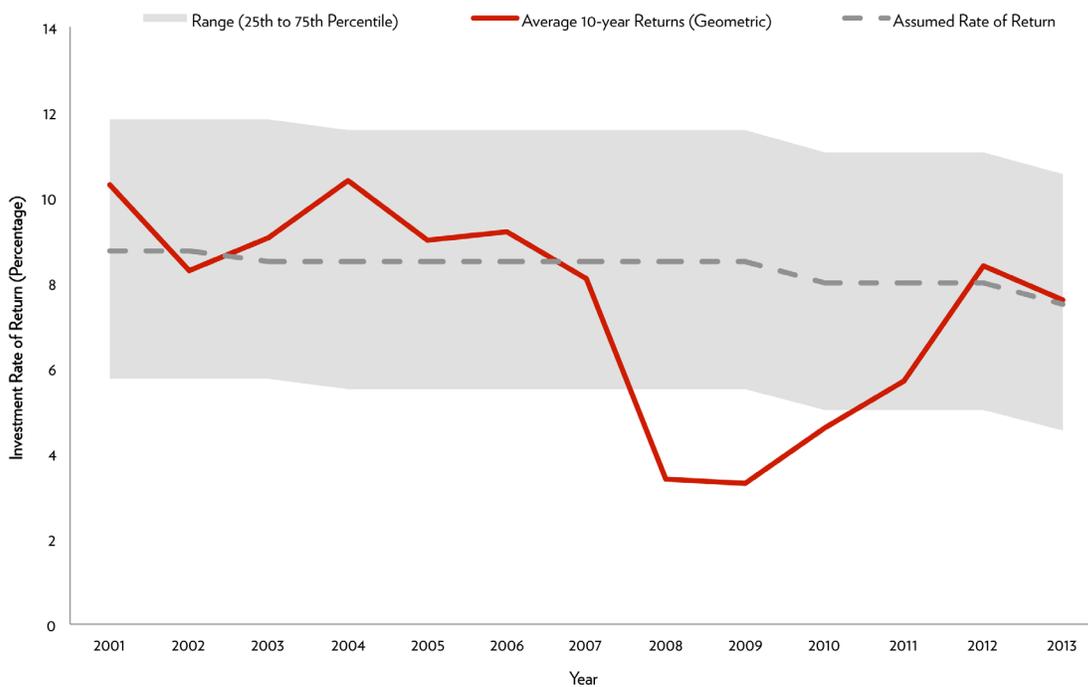
Source: Public Employees' Retirement Association of Colorado, Comprehensive Annual Financial Report (2001 to 2013); authors' calculations.

Investment volatility, when unaccounted for by the funding policy, has serious potential ramifications for PERA's financial solvency and its ability to pay for workers' retirement benefits. Going forward, Colorado

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11 Importantly, the discount rate used to set annual contributions does not have to be set equal to the assumed rate of return on the plan's investment portfolio.

12 This confidence interval is constructed by using PERA's assumed rate of return as the median of a lognormal distribution with a constant standard deviation of 14 percent and an assumed holding period of 10 years.

should develop a plan to mitigate the risk of market uncertainty on the state's funding policy and should ensure that the state is able to make payments in full even during low-return market scenarios.

Section 4: Implications of Risk and Uncertainty for the Future

Despite the attempts Colorado has made to improve the financial condition of its retirement fund, future retirement costs remain highly uncertain, and it is clear that the state's current funding plan is not sufficient. The dramatic year-to-year differences in PERA's projections of the unfunded liability illustrate the high degree of cost uncertainty surrounding the fund.[13] Forecasts produced by the fund's actuaries in 2013 predicted the unfunded liability in 2043 to be roughly $4.4 billion for the School Division. But forecasts made just one year later projected $11.7 billion in pension debt for the School Division in 2043. That is an increase of more than 165 percent.

The extent to which these two forecasts vary can largely be attributed to differences in assumptions, such as the assumed rate of return on assets. For example, while the 2013 projection used an 8 percent rate of return, the 2014 projection used a 7.5 percent rate of return.[14] It is crucial to note that this slight change in the assumed rate decreased PERA's predicted assets in 2043 by $7.6 billion (about 13 percent). This example demonstrates how sensitive the plan's finances are to even marginal differences in assumptions and actual realized returns.

Understanding the degree and nature of plan cost uncertainty, and developing policies to responsibly manage that uncertainty, are essential to establishing a sustainable public retirement plan. Figure 11 illustrates the implications of investment risk and how Colorado's current funding policies would perform under various conditions. The figure projects the School Division's unfunded liability over 30 years using PERA's current assumed rate of return as well as several alternate rates. It also shows that even if the fund realized the 7.5 percent assumed investment rate of return, Colorado's current funding policy would not significantly reduce the unfunded liability over 30 years (black line). The unfunded liability would decrease by only about $3 billion, from $12.5 billion to $9.2 billion.
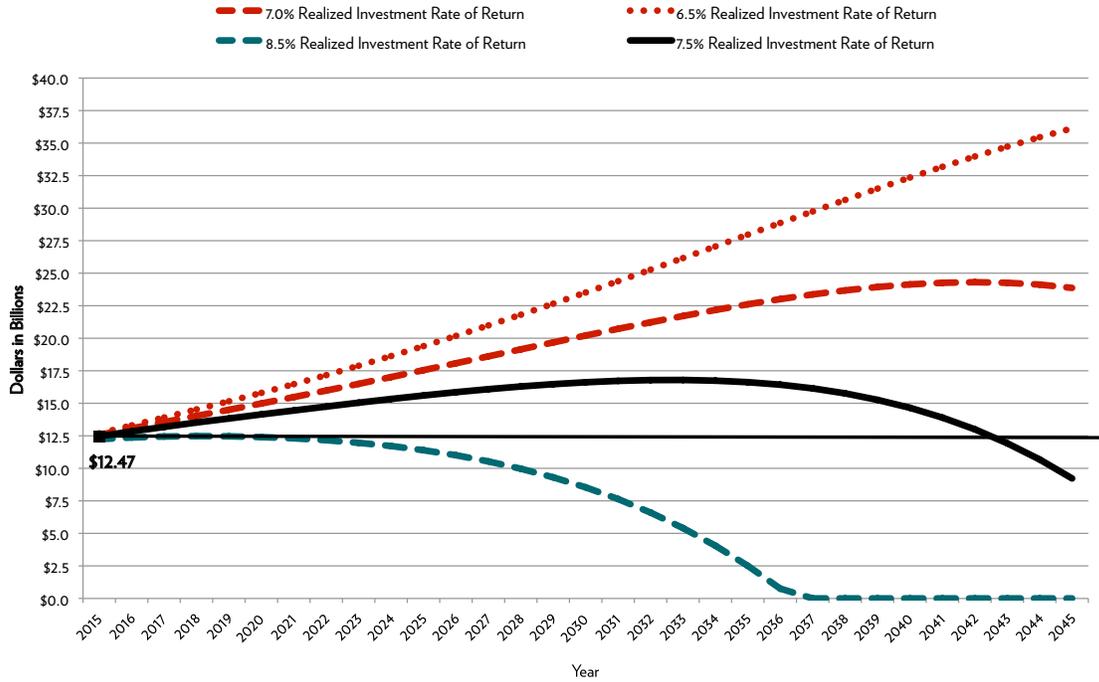
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13 COPERA – 2014 LAC Presentation – Projection Datapoints; COPERA – 2013 LAC Presentation – Projection Datapoints.

14 The annual non-merit pay increase assumption decreased to 3.9 percent (2014 projections) from 4.25 percent (2013 projections), as well.

Figure 11. Current Funding Policy Will Do Little to Reduce Pension Debt

### Projected Pension Debt for Alternative Return Scenarios

Colorado PERA, School Division

- - - 7.0% Realized Investment Rate of Return   · · · · 6.5% Realized Investment Rate of Return
- - - 8.5% Realized Investment Rate of Return   —— 7.5% Realized Investment Rate of Return

Source: Authors' calculations based on projections provided by Colorado PERA (COPERA – 2014 LAC Presentation – Projection Datapoints, COPERA – 2013 LAC Presentation – Projection Datapoints); Public Employees' Retirement Association of Colorado, Comprehensive Annual Financial Report; Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado.

The results are somewhat better if we adjust for inflation (Figure 12)—here, the unfunded liability for the School Division would be reduced to $4.3 billion in 2014 dollars by 2045. However, even after adjusting for inflation, the pension debt is not expected to decrease until 2022.

Figure 12. School Division Will Still Hold a Significant Amount of Debt in 30 Years
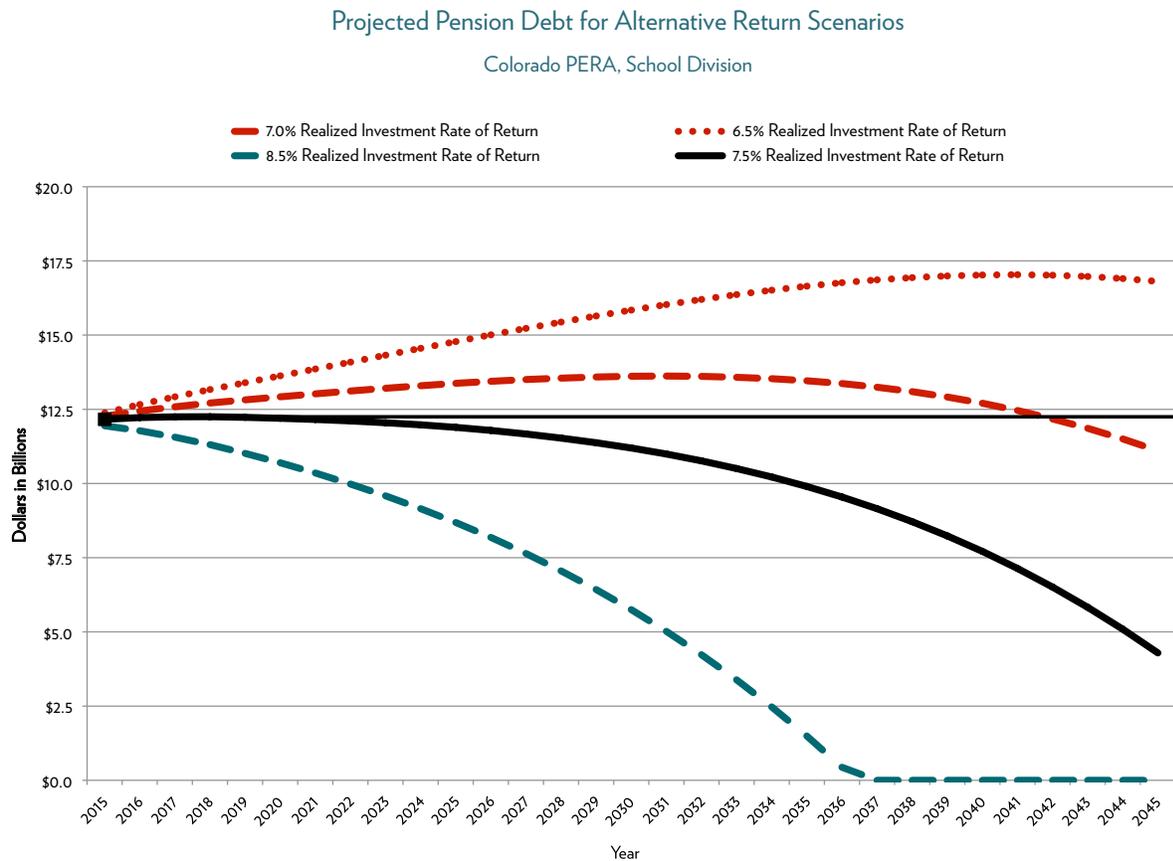
Projected Pension Debt for Alternative Return Scenarios

Colorado PERA, School Division

Source: Authors' calculations based on projections provided by Colorado PERA (COPERA – 2014 LAC Presentation – Projection Datapoints, COPERA – 2013 LAC Presentation – Projection Datapoints); Public Employees' Retirement Association of Colorado, Comprehensive Annual Financial Report; Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado.

Note: Adjusted for inflation, 2014 dollars

Alternatively, if the plan were to realize a return of 7 percent rather than the anticipated 7.5 percent, the plan's assets would not keep pace with liabilities. The pension debt would grow to nearly $24 billion after 30 years, or $11.1 billion in 2014 dollars (Figures 11 and 12).[15] If the plan were to realize a 6.5 percent

15 Inflation was calculated using an estimate of 2.5 percent to convert to constant dollars.

return—a reasonable expectation for future investments—the unfunded liability would nearly triple over 30 years. Furthermore, even if the fund beat its assumed rate of return by a full percentage point, achieving an 8.5 percent return, the School Division would not be fully funded until 2037. These potential downside scenarios demonstrate that the state's current funding policies are limited in their ability to manage even relatively minor cost uncertainty.

Despite the high degree of uncertainty associated with plan returns, Figure 13 shows that Colorado is relying on these returns to eliminate its pension debt. In all scenarios, even those with the 7.5 (black line) and 8.5 (green line) percent returns, the state's funding policy allows only minor progress in closing the near-term funding gap. Effectively, the current pension debt levels would be maintained until compound investment returns have ramped up enough to pay down the shortfall.

Figure 13. Gap Between Assets and Liabilities Will Remain Wide in Near Term
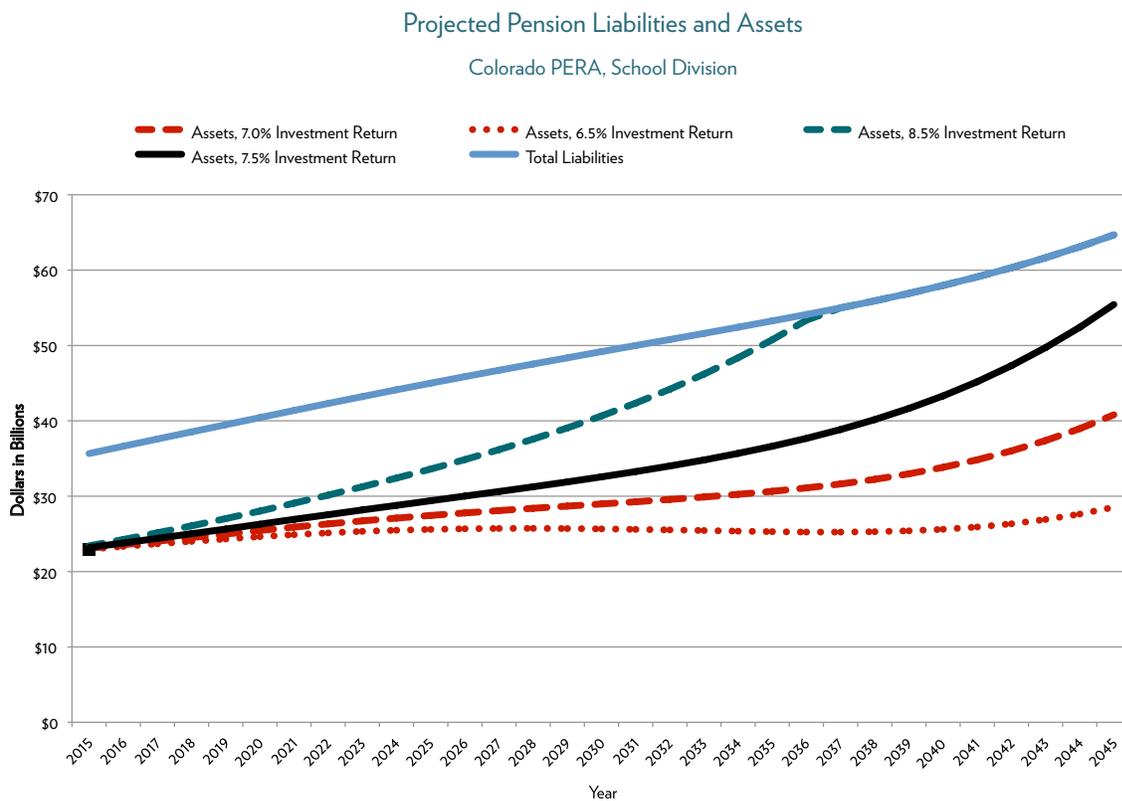
Projected Pension Liabilities and Assets
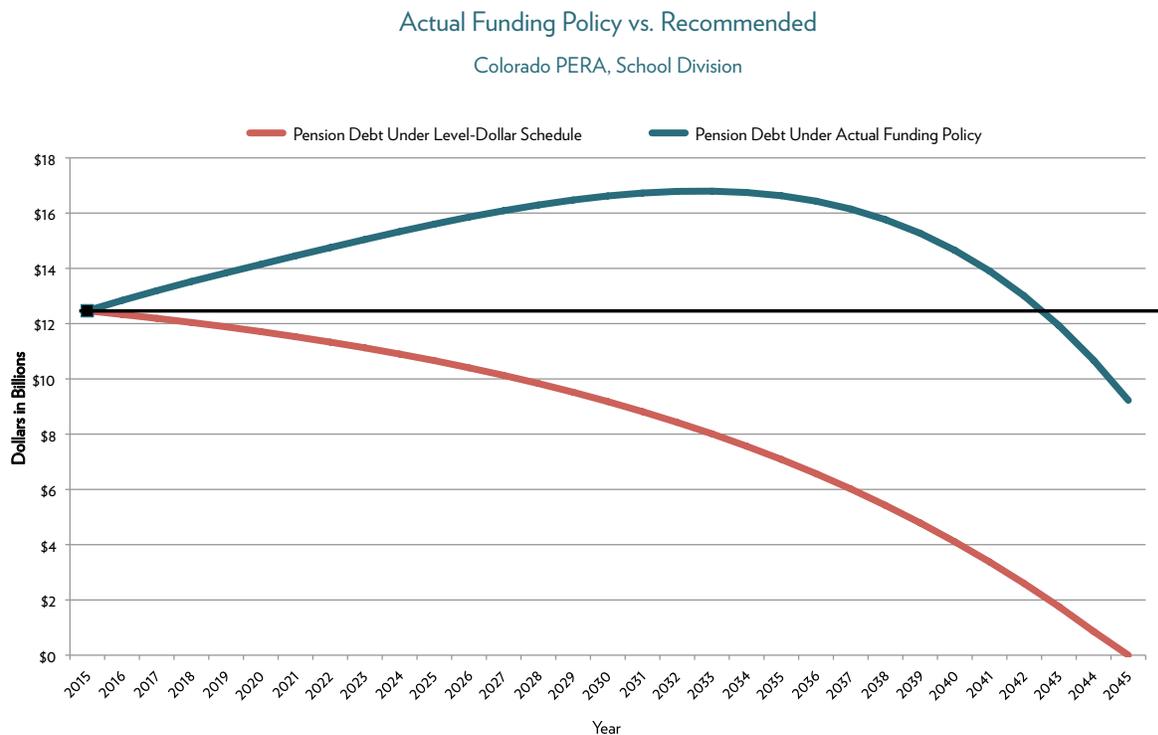
Colorado PERA, School Division

Source: Authors' calculations based on projections provided by Colorado PERA (COPERA – 2014 LAC Presentation – Projection Datapoints, COPERA — 2013 LAC Presentation – Projection Datapoints); Public Employees' Retirement Association of Colorado, Comprehensive Annual Financial Report; Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado.

Colorado's pension funding policy also includes a costly period of negative amortization. In that period, the pension debt continues to grow because of compounding unpaid interest and because near-term statutory payments are not large enough to cover both normal cost and interest on the unfunded liability. As seen in Figure 14, pension debt for Colorado's School Division is expected to grow by $4 billion in 20 years, from $12.8 billion today to more than $16 billion by 2033. Indeed, the way Colorado currently funds its retirement system is similar to an individual paying only the minimum required balance on a personal credit card. After many years, the minimum payments will pay off the principal balance, but, because of interest, the debt will end up costing much more overall.

Figure 14 also shows a payment schedule (red line) that would eliminate negative amortization and begin paying down the current pension debt immediately. While this level-dollar schedule requires a greater budgetary commitment in the short term, the overall cost of repaying the debt would be significantly lower (Figure 15). The level-dollar schedule also reduces budgetary pressure caused by pension debt sooner than under the current policy. Beginning in 2029, payments under the level-dollar schedule would actually be lower than payments under the current schedule. Most importantly, repaying the pension debt quickly puts the pension fund on firmer fiscal footing, thus providing more secure benefits for workers and making it much easier to manage future cost uncertainty.

Figure 14. Debt Could Be Paid Off Immediately Under Level-Dollar Schedule

Actual Funding Policy vs. Recommended
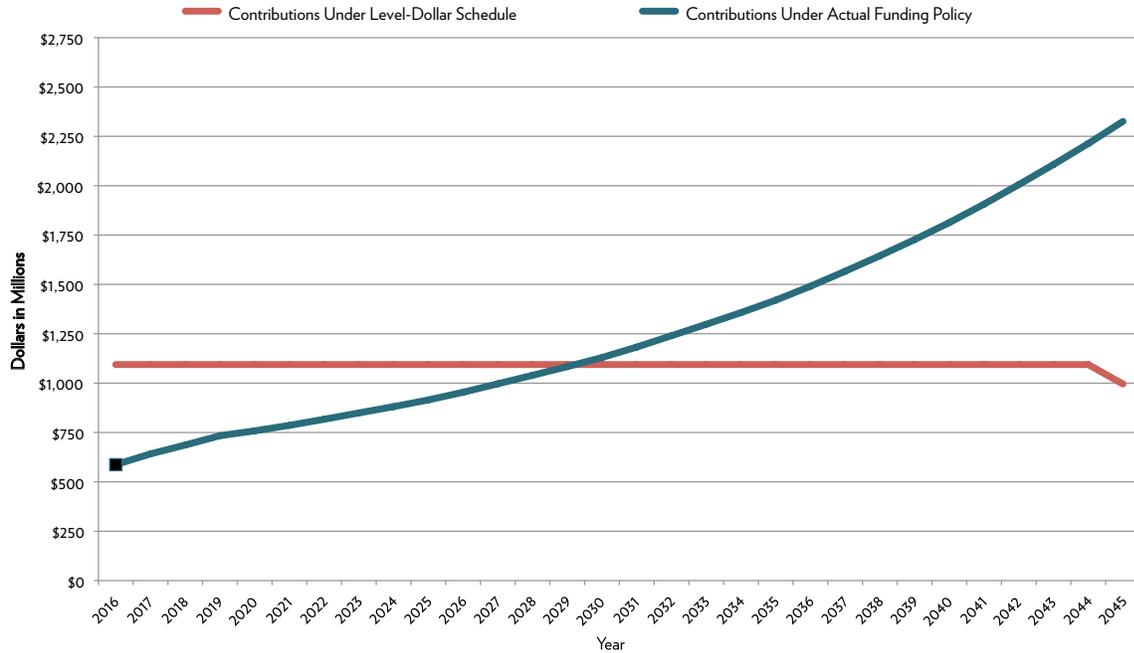
Colorado PERA, School Division

Source: Authors' calculations based on projections provided by Colorado PERA (COPERA – 2014 LAC Presentation – Projection Datapoints, COPERA — 2013 LAC Presentation – Projection Datapoints); Public Employees' Retirement Association of Colorado, Comprehensive Annual Financial Report; Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado.

Figure 15. A Level-Dollar Schedule Saves Money in the Long Term

Payment Schedule for Actual Funding Policy vs. Recommended

Colorado PERA, School Division

Source: Authors' calculations based on projections provided by Colorado PERA (COPERA – 2014 LAC Presentation – Projection Datapoints, COPERA – 2013 LAC Presentation – Projection Datapoints); Public Employees' Retirement Association of Colorado, Comprehensive Annual Financial Report; Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado.

Note: Discount Rate of 7.5%

Section 5: Adequacy of Retirement Benefits

The ultimate purpose of providing a retirement plan as part of workers' compensation is to promote the retirement security of the workforce. This means that workers should earn sufficient retirement savings for each year of service, so they can achieve retirement security regardless of geographic or professional changes in their careers.

However, as cited in a recent report, "Few Reach the Peaks," the state's retirement system fails to place many of Colorado's public workers on the path to retirement security. As shown in Figure 16, only 5 percent of workers in the School Division will remain in the system long enough to reach the peak—or the full retirement benefit offered under the plan. Even more troubling, 85 percent of teachers who leave PERA after spending up to 20 years in the classroom will do so without sufficient retirement savings.[16] To put this in perspective, more than four out of every five educators in Colorado will leave PERA with retirement savings below the minimum amount recommended by experts.[17]

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16 Aldeman and Welch, "Few Reach the Peaks," released Jan. 21, 2015. The report can be accessed online at http://www.teacherpensions. org/resource/few-reach-peaks-how-fix-colorados-teacher-pensions.

17 Because Colorado's public workers are not enrolled in Social Security, teachers should aim to save between 15 to 20 percent per year in order to stay on the path to a secure retirement. See Munnell et. al (2014), "How much should people save?," *Center for Retirement Research at Boston College*, Number 14-11.

Andrew G. Biggs (2014), "Not so Modest: Pension Benefits for Full-Career State Government Employees," *AEI Economic Perspectives*.

Bruce A. Palmer (2008), "2008 GSU/A on RETIRE Project Report." Research Report Series 08-1. J. Mack Robinson College of Business, Georgia State University.

Figure 16. Colorado Teachers Are Not on a Secure Path to Retirement
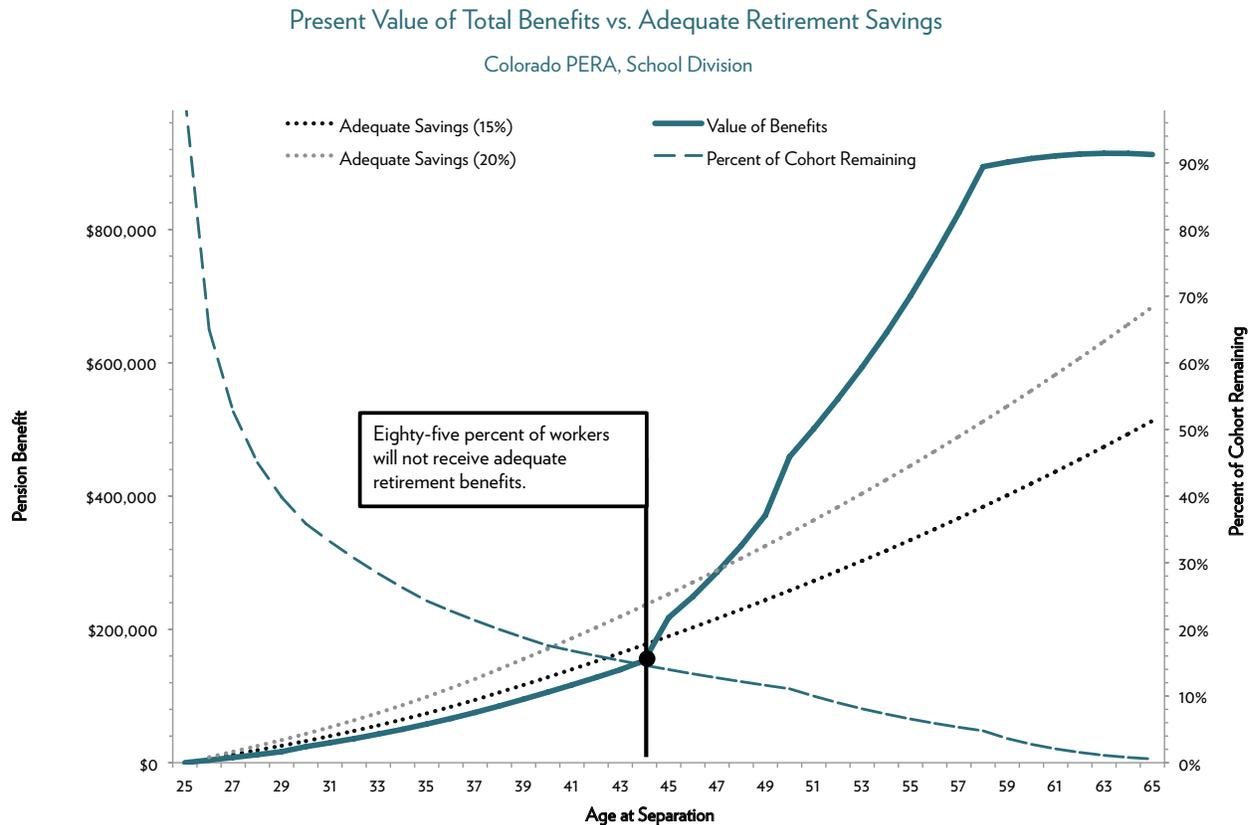
Present Value of Total Benefits vs. Adequate Retirement Savings

Colorado PERA, School Division

Source: Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado (2013); authors' calculations.

Notes: Model uses benefit tier for members hired on or after Jan. 1, 2011, but before Jan. 1, 2017. Model assumes employee discount rate of 5% and a 25-year-old female entrant. The Society of Actuaries RP 2000 Mortality Table, projected forward using Scale AA.

The public retirement plan in Colorado is a hybrid defined benefit design. The main component is a final average salary benefit based on a combination of salary and years of service. The secondary component is a cash balance benefit (referred to as the Money Purchase Plan, or "MPP"), which is a combination of a worker's contributions, employer contributions on behalf of the worker, and a guaranteed interest rate. This hybrid structure did a better job of promoting retirement security for all workers prior to recent changes to the MPP. Six years ago, the benefit provisions for workers were at a sufficient level. As seen in Figure 17, raising the MPP interest rate provision by two percentage points to 5 percent (what it was in 2008) would mean that all workers would meet the minimum retirement savings thresholds recommended by experts. This interest rate, which was lowered to 3 percent in 2009, is set by PERA's Board of Trustees and is subject to change annually. At this time, state statute caps the maximum rate the Board can select at 5 percent. However, historically, this rate was even higher—7 percent at the turn of the millennium. [18]

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18 Members earn interest at a rate specified by the board that shall not exceed 5 percent compounded annually. See Colorado's PERA law, codified in Title 24, Article 51, of the Colorado Revised Statutes (effective June 30, 2011), available at https://www.copera.org/pdf/5/5-6.pdf, 43-44. See Tax-Deferred Interest on PERA Member Contribution Accounts, Jan. 1, 2009 to present.

**Figure 17. Colorado Can Improve Retirement Security
by Increasing the Money Purchase Plan (MPP) Interest Rate**

Present Value of Total Benefits vs. Adequate Retirement Savings in School Division

Colorado PERA, School Division
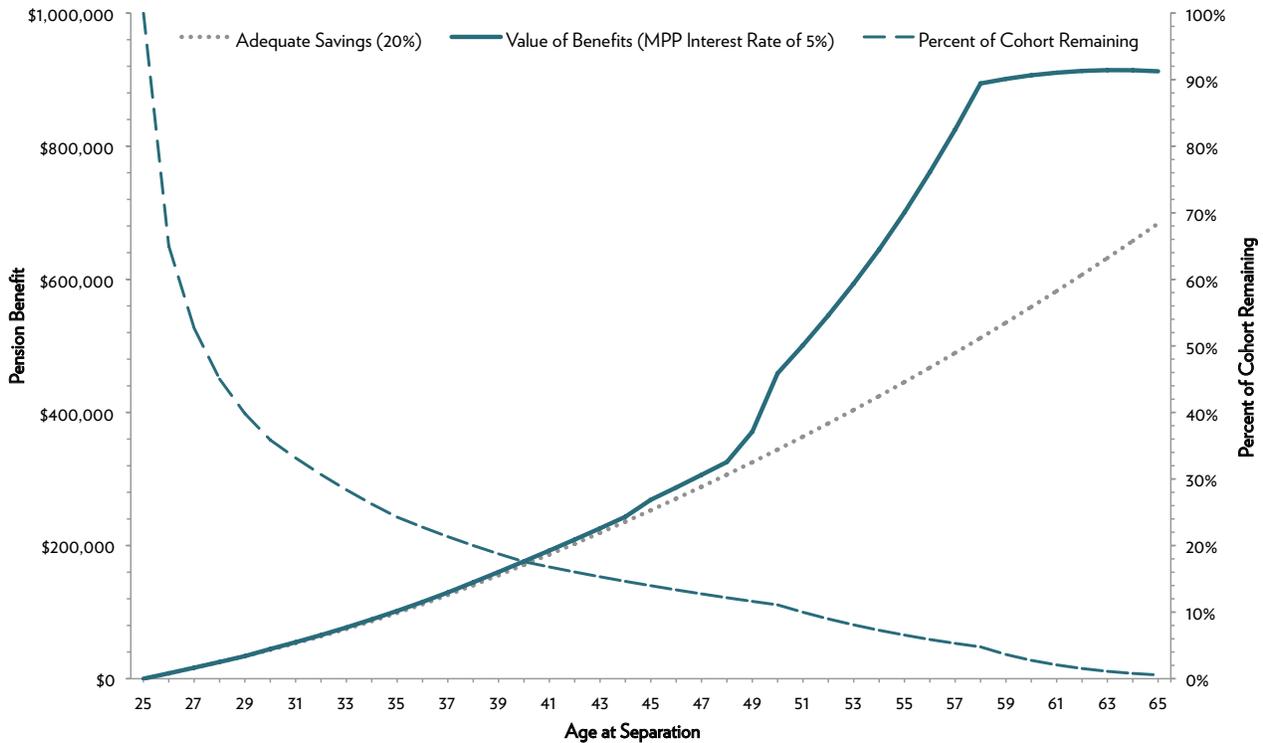
Source: Report on the Actuarial Valuation of the Public Employees' Retirement Association of Colorado (2013); authors' calculations.

Notes: Model uses benefit tier for members hired on or after Jan. 1, 2011, but before Jan. 1, 2017. Model assumes employee discount rate of 5% and a 25-year-old female entrant. The Society of Actuaries RP 2000 Mortality Table, projected forward using Scale AA.

Colorado should consider reforming the benefit structure of the retirement plan and making changes—such as raising the MPP interest rate provision—that place all workers on a path to retirement security regardless of tenure or when they are hired. However, improving the benefit design will be ineffectual unless Colorado also develops a responsible and prudent retirement funding policy. Colorado's public workforce already has suffered the effects of underfundng through COLA reductions, other benefit cuts, and tight budgets that do not allow much room for salary increases. If the pension debt continues to grow because Colorado fails to make full payments or does not adequately manage downside investment risk, retirement plan costs will also rise, increasing budgetary pressure. Ultimately, the Taxpayer Bill of Rights (TABOR), which states that tax rates cannot be raised without voter approval, ensures that the ramifications of this pressure will fall first on the shoulders of public workers. Without an improved funding plan that better ensures that full benefit costs are paid over a reasonable time frame, workers risk the constant threat of future benefit cuts and insufficient resources to do their jobs.

Conclusion

Colorado should take concrete steps to protect critical public services and the retirement benefits that workers have rightfully earned. The state should start by developing a credible plan to pay down PERA's current unfunded liability over a reasonable time frame. The plan should include specific measures to manage future cost uncertainty. Because of the grave consequences of downside risk, the state should not ignore the fact that it will experience market busts as well as booms and should devise a funding policy that takes this into account.

One strategy to reduce cost uncertainty is to lower the discount rate used to set annual contributions. Regardless of the state's projections about future investment returns, a lower discount rate to set employers' annual payments would increase the amount of money going into the plan and would help to ensure that those payments fully cover the cost of workers' benefits. While PERA recently reduced the discount rate from 8 to 7.5 percent, the state should consider further improvement by implementing a forward-looking method for choosing the discount, as recommended by the Society of Actuaries Blue Ribbon Panel.[19] For instance, tying the internal rate of return to the risk-free rate plus a set risk premium would allow the state to stabilize its investment risk relative to economic conditions.

Additionally, Colorado should consider adopting an actuarial funding policy that would allow annual contribution rates to flexibly adjust to meet realized plan cost as opposed to the state's current fixed-rate policy. The state's increase to the statutory contribution rates was a step in the right direction, but even with these higher rates, the pension debt will not be paid off—or even appreciably reduced—for decades. Moreover, if the pension fund experiences returns even slightly lower than expected, the state's pension debt would increase substantially under the current funding policy. As a general rule, the state should heed the advice presented by the Society of Actuaries Blue Ribbon Panel, including a specific recommendation to use a funding policy with a layered, closed-period amortization not to exceed 20 years.[20]

While few states have made meaningful changes to their pension systems, Colorado's previous efforts—including legislative action taken in 2004, 2006, and 2010—indicate the state is interested in identifying solutions to its pension problems. However, more still needs to be done. The state should take immediate steps to preserve services and workers' retirement benefits by adopting comprehensive reforms that are affordable, sustainable, and fair.

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19   "Report of the Blue Ribbon Panel on Public Pension Plan Funding," Society of Actuaries Blue Ribbon Panel, February 2014.

20   Ibid