

Impact of Recent Inflation on Retirement



Inflation has been at the forefront of the news lately as monthly year-to-year inflation increased steadily from 1.4% for January 2021 to 9.1% for June 2022, after which it declined each month to 6.5% for December 2022. Pension and OPEB plan participants might ask questions about their COLAs as they learn about inflation from the media. In this newsletter we review some different measures of inflation and how they impact pension and OPEB plans.

“The CPI-U measure most often reported by the media is the monthly year-to-year change”

CPI-U

The U.S. Bureau of Labor Statistics (BLS) publishes measures of inflation monthly, including those for specific commodities and services and some for different geographical areas. CPI-U is a measure of the change in prices for a basket of goods and services purchased by urban consumers.¹ Exhibit 1 shows data published by the BLS for CPI-U for 2018 through 2022.

Exhibit 1 - CPI-U – Not Seasonally Adjusted													Annual Average
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2018	247.867	248.991	249.554	250.546	251.588	251.989	252.006	252.146	252.439	252.885	252.038	251.233	251.107
2019	251.712	252.776	254.202	255.548	256.092	256.143	256.571	256.558	256.759	257.346	257.208	256.974	255.657
2020	257.971	258.678	258.115	256.389	256.394	257.797	259.101	259.918	260.280	260.388	260.229	260.474	258.811
2021	261.582	263.014	264.877	267.054	269.195	271.696	273.003	273.567	274.310	276.589	277.948	278.802	270.970
2022	281.148	283.716	287.504	289.109	292.296	296.311	296.276	296.171	296.808	298.012	297.711	296.797	292.655

The CPI-U measure most often reported by the media is the “monthly year-to-year” change. For example, as shown in Exhibit 2, the CPI-U change from December 2021 to December 2022 was 6.5%.²

Exhibit 2 - CPI-U Monthly Year-to-Year Changes – Not Seasonally Adjusted													Annual Average
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2019	1.6%	1.5%	1.9%	2.0%	1.8%	1.6%	1.8%	1.7%	1.7%	1.8%	2.1%	2.3%	1.8%
2020	2.5%	2.3%	1.5%	0.3%	0.1%	0.6%	1.0%	1.3%	1.4%	1.2%	1.2%	1.4%	1.2%
2021	1.4%	1.7%	2.6%	4.2%	5.0%	5.4%	5.4%	5.3%	5.4%	6.2%	6.8%	7.0%	4.7%
2022	7.5%	7.9%	8.5%	8.3%	8.6%	9.1%	8.5%	8.3%	8.2%	7.7%	7.1%	6.5%	8.0%

¹ CPI-U shown here is the “Consumer Price Index for All Urban Consumers (CPI-U), US City Average, All Items, 1982-84=100, not seasonally adjusted.” It is based on the expenditures of urban consumers including wage earners, clerical workers, and professional, self-employed, unemployed, and retired persons, representing 93% of the U.S. population. See <https://data.bls.gov/cgi-bin/surveymost?cu>.

² The CPI-U “monthly year-to-year” change is CPI-U for a month divided by that for the same month of the prior year. For example, for December 2022: $296.797 / 278.802 - 1 = 6.5\%$.

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As has been widely reported by the media, inflation during 2022 reached levels not seen in over 40 years. Chart 1 shows changes in the “annual average” CPI-U from 1960 through 2022.³

The media and other interested parties also report “month-to-month” CPI changes. For example, the year-to-year CPI-U change for December 2022 was 6.5% while CPI-U actually decreased by 0.3% from November 2022 to December 2022 as shown in Exhibit 3.⁴

“Many inflation-linked COLAs are based on annual average CPI-U”

Chart 1 - CPI-U Annual Average Changes

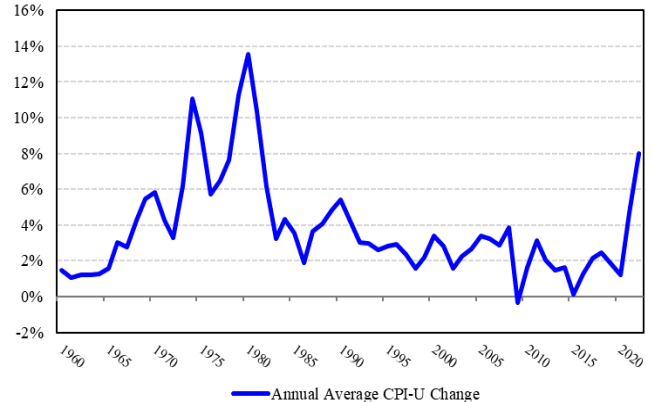
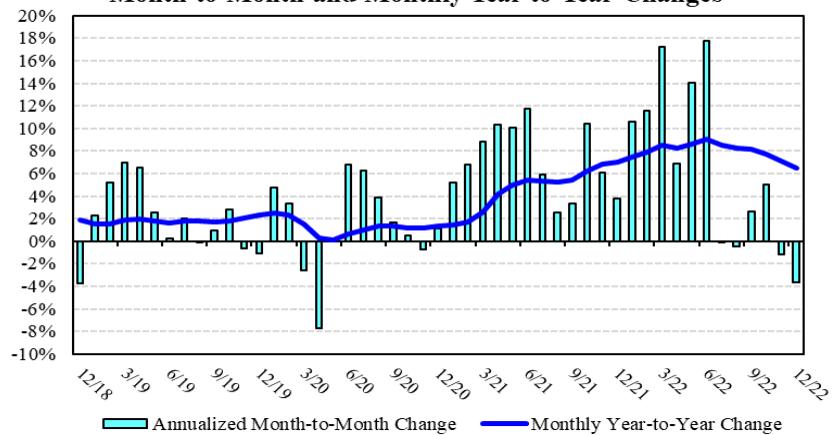


Exhibit 3 - CPI-U Month-to-Month Changes – Not Seasonally Adjusted												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	0.19%	0.42%	0.56%	0.53%	0.21%	0.02%	0.17%	-0.01%	0.08%	0.23%	-0.05%	-0.09%
2020	0.39%	0.27%	-0.22%	-0.67%	0.00%	0.55%	0.51%	0.32%	0.14%	0.04%	-0.06%	0.09%
2021	0.43%	0.55%	0.71%	0.82%	0.80%	0.93%	0.48%	0.21%	0.27%	0.83%	0.49%	0.31%
2022	0.84%	0.91%	1.34%	0.56%	1.10%	1.37%	-0.01%	-0.04%	0.22%	0.41%	-0.10%	-0.31%

Chart 2 shows annualized month-to-month CPI-U changes compared to the monthly year-to-year CPI-U changes for the last four years through December 2022.⁵

“Month-to-month measures of inflation might be a better indicator of current inflationary trends but are more volatile”

Chart 2 - CPI-U Month-to-Month and Monthly Year-to-Year Changes



³ The CPI-U “annual average” change is the change in the arithmetic average of CPI-U for consecutive 12-month calendar year periods. For example, for 2022: $292.655 / 270.970 - 1 = 8.0\%$.

⁴ $296.797 / 297.711 - 1 = -0.31\%$.

⁵ The CPI-U “month-to-month” changes for the current month to the prior month are annualized to compare with the monthly year-to-year CPI-U changes. For example, Chart 2 shows $1.0137^{12} = 17.7\%$ for the annualized June 2022 month-to-month change and 9.1% for the June monthly year-to-year change.

Some observers note recent month-to-month inflation statistics might be a better indicator of current inflationary trends than monthly year-to-year inflation statistics but they could also be more volatile since the economic and political environment could change from one month to the next. For example, a month-to-month measure might include recent volatility in energy and food prices. For some purposes, seasonally adjusted month-to-month inflation statistics might be more appropriate.

Core CPI-U

Chart 3 shows month-to-month CPI-U changes for energy and food separately from changes in CPI-U for all items for the last four years. It also includes Core CPI-U, which is CPI-U without energy and food inflation. Energy inflation tends to be volatile and “tugs” the CPI-U measure, the one most often used for pension plan COLA changes, in its direction. Energy represents almost 8% of CPI-U and food just under 14%. Energy inflation impacts other measures, such as food and services, but more gradually.

**Chart 3 - CPI-U
Month-to-Month Changes**

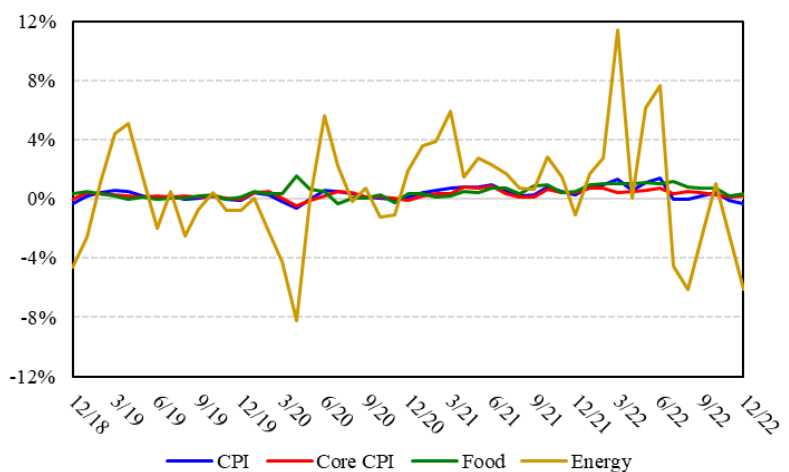
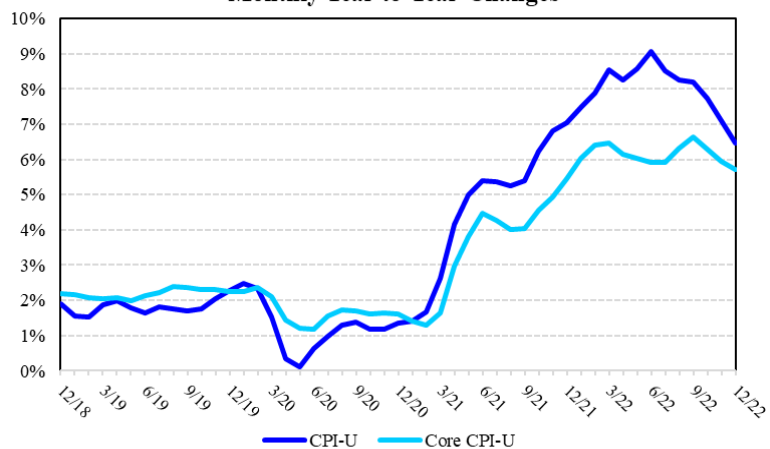


Chart 4 compares monthly year-to-year changes for CPI-U and Core CPI-U for the last four years. As expected, Core CPI-U shows less volatility than CPI-U.

**Chart 4 - CPI-U versus Core CPI-U
Monthly Year-to-Year Changes**



“Core CPI-U excludes the more volatile components of energy and food”

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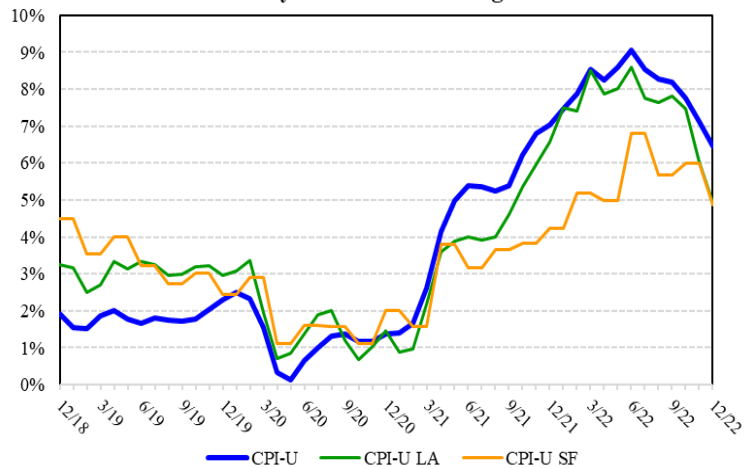


Regional CPI-U

For those in California, Chart 5 compares monthly year-to-year CPI-U changes for the Los Angeles and San Francisco areas to national CPI-U changes.⁶ Los Angeles and San Francisco generally showed higher increases during 2019 and 2020 but lower increases during 2021 and 2022 compared to national CPI-U.⁷

“Inflation varies by region and might differ from national inflation”

**Chart 5 - CPI-U
Monthly Year-to-Year Changes**

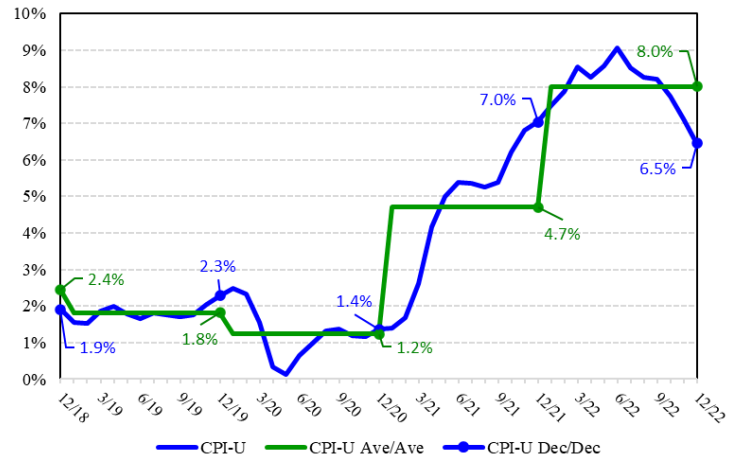


Cost-of-Living Adjustments

Exhibit 2 and Chart 6 show monthly year-to-year CPI-U changes (blue line) compared to annual average CPI-U changes (green line) for the last four years. For example, the change in the monthly year-to-year CPI-U for December 2021 was 7.0% (blue dot) while the change in the annual average CPI from 2020 to 2021 was lower at 4.7% (green dot).⁸

“COLA adjustments based on annual average CPI-U might differ from the most recently reported monthly inflation”

**Chart 6 - CPI-U
Monthly Year-to-Year & Annual Average Changes**



⁶ CPI-U for the Los Angeles-Long Beach-Anaheim, CA area is published monthly. CPI-U for the San Francisco-Oakland-Hayward, CA area is published bimonthly. BLS also publishes CPI-U for the Riverside, San Bernardino, and Ontario area and San Diego-Carlsbad area bimonthly. See <https://www.bls.gov/cpi/regional-resources.htm> for various regional CPI-U measures.

⁷ Note this chart shows changes in CPI-U and not relative prices between the areas shown.

⁸ $278.802 / 260.474 - 1 = 7.0\%$ and $270.970 / 258.811 - 1 = 4.7\%$.

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Retirement plan COLAs are often based on the change in the annual average CPI-U to reduce COLA volatility. Public pension plan sponsors of plans which base their COLAs on the annual average CPI-U with no or high COLA caps might have heard concerns from plan participants early in 2022 as they compared their COLAs to the levels of inflation they heard from the news media at the end of 2021. In an increasingly inflationary environment, retirees in a plan using the annual average CPI-U for the COLA might see any “missing” COLA in the following year. For example, while the change in the monthly year-to-year CPI-U for December 2022 was 6.5%, the change in the annual average CPI-U from 2021 to 2022 was higher at 8.0%.⁹

Plan sponsors of pension plans with low caps on COLAs, such as 2% for example, might receive similar calls from retirees, albeit at a lower volume, such as might have happened for 2020 COLAs when the change in the annual average CPI-U from 2018 to 2019, as shown in Exhibit 2, was 1.8% while the monthly year-to-year change for December 2019 was 2.3%. Note that pension plans might determine COLAs in other ways, such as COLAs related to CPI-W, investment performance, or the plan’s funding level.¹⁰

CPI-W

CPI-W is similar to CPI-U but includes only expenditures for those in hourly wage or clerical employment.¹¹ Exhibit 4 shows CPI-W data published by the BLS for 2018 through 2022.

Exhibit 4 - CPI-W													3 rd Qtr Average
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2018	241.919	242.988	243.463	244.607	245.770	246.196	246.155	246.336	246.565	247.038	245.933	244.786	246.352
2019	245.133	246.218	247.768	249.332	249.871	249.747	250.236	250.112	250.251	250.894	250.644	250.452	250.200
2020	251.361	251.935	251.375	249.515	249.521	251.054	252.636	253.597	254.004	254.076	253.826	254.081	253.412
2021	255.296	256.843	258.935	261.237	263.612	266.412	267.789	268.387	269.086	271.552	273.042	273.925	268.421
2022	276.296	278.943	283.176	284.575	288.022	292.542	292.219	291.629	291.854	293.003	292.495	291.051	291.901

CPI-W is used to determine Social Security COLAs by comparing the average CPI-W for the prior year’s third quarter to that of the third quarter for the last year a COLA was effective.¹² For example, Social Security benefits for December 2022 paid in January 2023 increased by 8.7%.¹³

⁹ $296.797 / 278.802 - 1 = 6.5\%$ and $292.655 / 270.970 - 1 = 8.0\%$.

¹⁰ See NASRA’s Issue Brief, “Cost-of-Living Adjustments, June 2022 at <https://www.nasra.org/colabrief>.

¹¹ CPI-W is based on the expenditures of urban consumers included in CPI-U for whom half of the households’ income is from clerical or wage occupations, representing 29% of the U.S. population. See <https://data.bls.gov/cgi-bin/surveymost?bls>.

¹² The Social Security benefit increase is generally determined by comparing the third quarter average CPI-W for the year prior to the effective date of the increase to that of the immediately preceding year, rounded to the nearest tenth of one percent, but could be based on an earlier year when the CPI-W change was negative and there was no COLA, as happened during 2015 for 2016 benefits.

¹³ $291.901 / 268.421 - 1 = 8.7\%$.

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CPI-U Medical

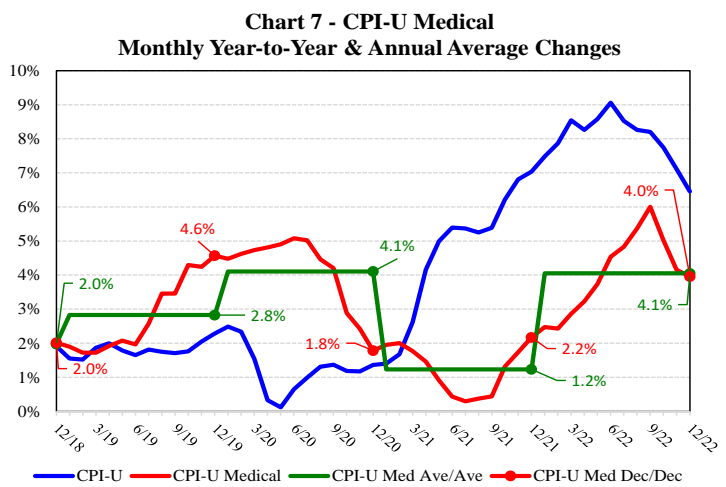
Exhibit 5 shows CPI-U medical care component data published by the BLS from 2018 through 2022 and Exhibit 6 shows the monthly year-to-year changes.

Exhibit 5 - CPI-U Medical – Not Seasonally Adjusted													Annual Average
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2018	481.060	482.897	483.984	484.034	484.853	486.019	485.193	484.172	484.708	485.269	486.886	487.409	484.707
2019	490.204	491.227	492.306	493.331	494.928	495.563	497.687	500.916	501.468	506.100	507.541	509.689	498.413
2020	512.149	513.923	515.605	517.053	519.194	520.734	522.686	523.295	522.528	520.725	519.848	518.766	518.876
2021	522.133	524.207	524.734	524.585	523.918	522.989	524.219	525.247	524.818	527.564	528.877	530.026	525.276
2022	535.048	536.932	539.739	541.515	543.488	546.717	549.562	553.429	556.323	554.043	550.844	551.002	546.554

Exhibit 6 - CPI-U Medical Monthly Year-to-Year Changes – Not Seasonally Adjusted													Annual Average
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
2019	1.9%	1.7%	1.7%	1.9%	2.1%	2.0%	2.6%	3.5%	3.5%	4.3%	4.2%	4.6%	2.8%
2020	4.5%	4.6%	4.7%	4.8%	4.9%	5.1%	5.0%	4.5%	4.2%	2.9%	2.4%	1.8%	4.1%
2021	1.9%	2.0%	1.8%	1.5%	0.9%	0.4%	0.3%	0.4%	0.4%	1.3%	1.7%	2.2%	1.2%
2022	2.5%	2.4%	2.9%	3.2%	3.7%	4.5%	4.8%	5.4%	6.0%	5.0%	4.2%	4.0%	4.1%

Chart 7 compares changes in the annual average CPI-U medical care component (red line) with changes in the annual average CPI-U (blue line) for the last four years. Chart 7 also compares the annual average change in the CPI-U medical care component (green dots) to the monthly year-to-year change for December of each year (red dots). For example, CPI-U medical increased by 2.2% for December 2021 while the annual average increased by 1.2% for 2021 compared to 2020.¹⁴ The annual average of 4.1% was close to the December increase of 4.0% for 2022 due to lower medical care inflation during the last quarter of 2022.¹⁵

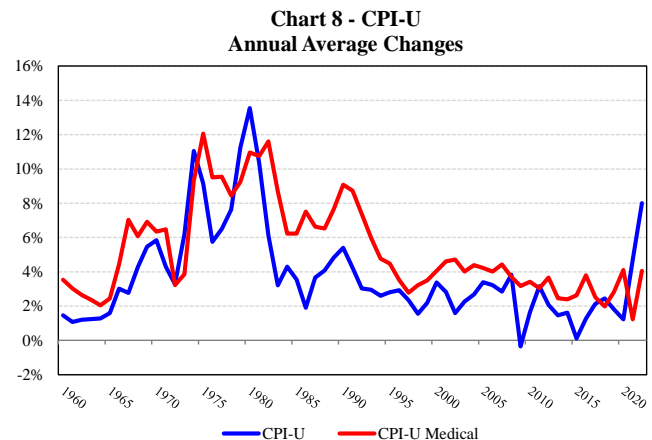
“A comparison of medical care inflation to CPI-U for recent years differs from historical expectations”



¹⁴ 530.026 / 518.766 - 1 = 2.2% and 525.276 / 518.876 - 1 = 1.2%.
¹⁵ 551.002 / 530.026 - 1 = 4.0% and 546.554 / 525.276 - 1 = 4.1%.

Changes in CPI-U Medical

Chart 7 shows the medical care component of CPI-U increased faster than CPI-U for most of 2019 and 2020 while the reverse was true for most of 2021 and 2022.¹⁶ Historically, we might anticipate medical care inflation to generally exceed CPI-U for all items. Chart 8 compares the change in the annual average medical care component of CPI-U to the annual average change in CPI-U, as shown earlier in Chart 1, for years since 1960. Several things that might have impacted a comparison between CPI medical and CPI-U for 2019 through 2022 are:



- Price changes impacting CPI-U might more slowly be reflected in the medical care component as the impact of energy cost changes work their way through other price changes, wages, and staffing, especially as some medical care prices as set in advance.
- Insurer costs are estimated for the medical care component of CPI-U based on a methodology that includes insurers' retained earnings rather than premiums, information that might lag data for the other components of CPI-U by about a year. In addition, insurers' retained earnings might have been impacted due to some healthcare services being postponed during years COVID stretched healthcare resources.
- BLS made methodology and data changes during 2018 through 2022, as in other years, to improve the medical care component of CPI-U.¹⁷

OPEB Employer Subsidy

OPEB plans might use CPI-U or the medical care component of CPI-U to adjust an OPEB employer subsidy. In California, CalPERS uses the medical care component of CPI-U to determine changes to the PEMHCA Minimum Employer Contribution Amount.¹⁸ CalPERS calculated the 2023 PEMHCA Minimum Employer Contribution Amount of \$151 per month by multiplying the 2022 PEMHCA Minimum Amount of \$149 per month by the 1.2% increase in the annual average medical care component of CPI-U from 2020 to 2021 and rounding the result to the nearest dollar. CalPERS is expected to calculate the 2024 PEMHCA Minimum Employer Contribution Amount by multiplying the 2023 PEMHCA Minimum Amount of \$151 per month by the 4.1% increase in the annual average medical care component of CPI-U from 2021 to 2022 resulting in \$157 per month rounded to the nearest dollar.

¹⁶ Medical care represented 6.8% and health insurance represented 0.8% of CPI-U for December 2022.

¹⁷ See <https://www.bls.gov/cpi/factsheets/medical-care.htm>.

¹⁸ "PEMHCA" is the California Public Employees' Medical & Hospital Care Act.

Actuarial Valuations

Changes in inflation expectations can result in changes to economic assumptions used for both pension and OPEB actuarial valuations and financial reporting. For example, higher inflation might result in greater investment returns, higher interest rates, increased payroll, and increased healthcare costs in addition to greater COLAs.

For determining funding contributions, your actuary might suggest changes to an actuarial valuation's economic assumptions or suggest no or minor changes if the impact of recent higher inflation is seen as temporary relative to the lifetime of the plan. You might then see the impact of recent inflation show up in the valuation's gains and losses. Note a change to an inflation assumption might have offsetting impacts. For example, a higher inflation assumption could result in increased pension benefits due to increased wage and COLA assumptions but might also suggest using a higher discount rate.

Higher interest rates will have a direct impact on unfunded retirement plan financial disclosures since spot discount rates as of the measurement date are used for disclosure even if other economic assumptions are not changed.

Conclusion

A rising inflationary environment raises many concerns in the daily lives of all of us. Among those concerns are its impact on the benefits, funding, and financial reporting of pension and OPEB plans. To manage this impact, plan sponsors should understand the link between the various measures of inflation and the COLAs and actuarial assumptions used for their retirement plans. This might be an important agenda item for your next meeting with your plan's actuary.

If you have any questions about this article, please feel free to contact the Actuarial Consulting Group at acg@actuarialcg.com.