

COMPREHENSIVE ACTUARIAL REVIEW OF THE
CLERKS' OF COURT
RETIREMENT AND RELIEF FUND'S
2019 ACTUARIAL VALUATION



ACTUARIAL SERVICES
PRESENTED TO THE PUBLIC RETIREMENT SYSTEMS' ACTUARIAL COMMITTEE
FEBRUARY 12, 2020



LOUISIANA LEGISLATIVE AUDITOR
DARYL G. PURPERA, CPA, CFE

January 14, 2020

Ms. Debbie D. Hudnall, Executive Director
Clerks' of Court Retirement and Relief Fund
10202 Jefferson Highway, Building A
Baton Rouge, Louisiana 70809

Re: Comprehensive Actuarial Review of the 2019 Actuarial Valuation

Dear Ms. Hudnall:

To fulfill the requirements of R.S. 11:127(C) to the Public Retirement Systems' Actuarial Committee for 2019, the Louisiana Legislative Auditor has conducted a Comprehensive Actuarial Review for the Clerks' of Court Retirement and Relief Fund (Fund).

The remainder of this letter contains the results of our comprehensive review of your June 30, 2019 actuarial valuation (prepared by G.S. Curran & Company and dated November 19, 2019). More specifically, we have evaluated for reasonableness the actuarial assumptions and methods employed by the Fund and its actuary.

I would like to thank you and your staff for your cooperation and assistance with this review.

Sincerely,

Daryl G. Purpera, CPA, CFE
Legislative Auditor

DGP:JJR:ch

cc: G.S. CURRAN & COMPANY

LLA'S COMPREHENSIVE ACTUARIAL REVIEW OF CCRRF'S 2019 ACTUARIAL VALUATION

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Scope of Review

The June 30, 2019 Actuarial Valuation Report for the Clerks' of Court Retirement and Relief Fund (CCRRF or System) for funding purposes (2019 Funding Valuation) was prepared by the actuary for CCRRF's retirement board, G.S. Curran & Company (GSC), and dated November 19, 2019.

This Comprehensive Actuarial Review (CAR) of that report was prepared jointly by James J. Rizzo, Senior Consultant and Actuary employed by Gabriel, Roeder, Smith and Company (GRS), and by Piotr Krekora, Consultant and Actuary also employed by GRS. GRS is under contract with the Louisiana Legislative Auditor (LLA) to provide backup, research, calculations, actuarial services, and advice to the LLA.

This CAR includes evaluations for appropriateness of key actuarial assumptions and methods employed in the valuation report, as well as documented support for opinions presented herein.

However, a full actuarial valuation replicating the CCRRF actuary's results was not performed; nor was a full actuarial valuation performed using recommended assumptions and methods.

Summary of Findings

A summary of our findings follows. Additional details are addressed in the remainder of this report.

- 1. Optimistic Return Assumption.** We consider the System's 2019 investment return assumption to be optimistic considering the fund's asset allocation and cash flow. Refer to *Section 1: Optimistic Return Assumption* for more details.
- 2. Treatment of Cost-of-Living Adjustments (COLAs).** The cost of future COLAs is currently not included in the 2019 Funding Valuation. Given the prior use and magnitude of CCRRF's Funding Deposit Account balance, we consider this an acceptable treatment for CCRRF for this year's funding requirements. Refer to *Section 2: Treatment of Cost of Living Adjustments* below for more details.
- 3. Mortality Assumption.** Careful analysis was undertaken by the board's actuary, in compliance with current actuarial literature, in assessing the degree of plan-specific mortality experience that should be recognized in the mortality tables assumed for the 2019 Funding Valuation. However, in our opinion, the mortality table should be updated to rely on a more current mortality table as the standard reference table, without waiting for the next experience study. Refer to *Section 3: Mortality Assumption* for more details.
- 4. Financing Calculations.** We reviewed the 2019 Funding Valuation with additional emphasis on the exhibits presenting the financing calculations. All relevant and material financing calculations were complete and accurate.

Section 1: Optimistic Return Assumption

This section sets forth a disciplined process for setting a return assumption that ensures it is mainstream and defensible, and provides the details for how we arrived at 6.50% as the most appropriate net return assumption, compared to CCRRF's current 6.75% return assumption.

A Disciplined Process

The cost of being wrong is substantial, whether it is over a 10-year period or a 30-year period, and could be detrimental to both plan members and taxpayers. Consider the subsections below which describe a *process* for setting, recommending, evaluating, or defending a net return assumption that:

- a. is unbiased, objective, free of agency risk, and not influenced by what the participating agencies think is affordable;
- b. is disciplined and robust;
- c. is defensible; and
- d. improves intergenerational equity, contribution stability, and benefit security.

This is the framework of our evaluation of the CCRRF actuarial assumptions as adopted for the 2019 Funding Valuation.

Some of the most significant factors in setting or evaluating an assumed return are:

- a. the forecast-horizon over which net investment returns are expected;
- b. future rates of inflation (forward-looking), as expected by a *consensus of experts* in the field of inflation forecasting who are both independent and nationally recognized;
- c. current and future asset allocation percentages, by asset class;
- d. future investment performance (forward-looking) and other capital market assumptions for various asset classes, as expected by a *consensus of experts* in the field of investment forecasting who are both independent and nationally recognized; and
- e. expected benefit cash flow.

Forecast-horizons

There is an ongoing discussion over the time horizon for investment return forecasts that should be used to set the rate of return assumption for pension valuations.

Some have posited that pension plans are long-term propositions and their return assumptions should reflect a long-term horizon, for example, 30 years. Others believe that a shorter time horizon should be used. It is our opinion that a forward-looking mid-term horizon should influence the final choice of return assumptions. Investment forecasters generally issue 10-year horizon forecasts, while some issue 20- or 30-year horizon forecasts. Thus, the closest to a mid-term horizon would be to use the available 10-year horizon forecasts.

While it may be argued that reliance should be placed on the longest-term horizons, there are at least four reasons not to do so in an unqualified manner:

Reason #1: Underperformance in the mid-term is not sustainable.

If the forecasting experts are right, there may be a decade or two of lower pension plan returns, with a need for very high returns thereafter if their longer-term forecasts are to hold up.

In correspondence dated May 6, 2016, the U.S. Treasury Department denied the application of the Board of Trustees of the Central States, Southeast and Southwest Areas Pension Plan for rolling back benefits under the Multiemployer Pension Reform Plan Act of 2014 in order to avoid insolvency. One of the reasons given in the ruling¹ was that the 7.5% and other embedded return assumptions were “significantly optimistic” and were “not reasonable.” More specifically, the ruling stated that the return assumptions used to support the application were not reasonable or appropriate for the purpose of the measurement, did not take into account relevant current economic and investment forecast data, and had significant bias by being significantly optimistic. This three-fold denouncement was made primarily on the basis of the assumption’s failure to recognize the lower expected returns in the first 10 to 20 years of the longer-term horizon.

Repeated underperformance (for the next decade or so) of actual returns compared to the assumed return undermines the confidence in defined benefit plans. If the experts are right about the next 10 years, but the return assumption is significantly higher, legislators and taxpayers might insist on a retirement plan that transfers the investment risk onto the members. Repeated increases in contribution rates and repeated additions to the unfunded actuarial liability may not be tolerable.

In our opinion, it is better to be more conservative in the return assumption over the mid-term time horizon while experts are forecasting lower compound annual returns.

Reason #2: Over-reliance on reversion to mean returns.

Long-term investment return forecasts (20- to 30-year horizons) often use a different methodology than mid-term forecasts. They often rely on the concept of “reversion to mean returns.” While almost everything about the future is not known for certain, two things are widely accepted: (1) the long-term picture will not be like the past, and (2) neither will the steps leading through it. Reversion to mean returns depends on the future environment being like the past.

The number of heads we see in an unbiased coin-flip experiment exhibits reversion to the mean. Given a large enough number of coin-flips, we can reasonably expect the future number of heads to be approximately the same as in the past (half the number of coin-flips), because the coin is unbiased and the future is very much like the past. This cannot be said of investment markets.

¹ <https://www.treasury.gov/services/Responses2/Central%20States%20Notification%20Letter.pdf>

This weakness of long-term forecasts is not, by itself, sufficient to disregard experts' long-term forecasts of the future entirely. But it should inform us not to rely on it to the exclusion of mid-term forecasts.

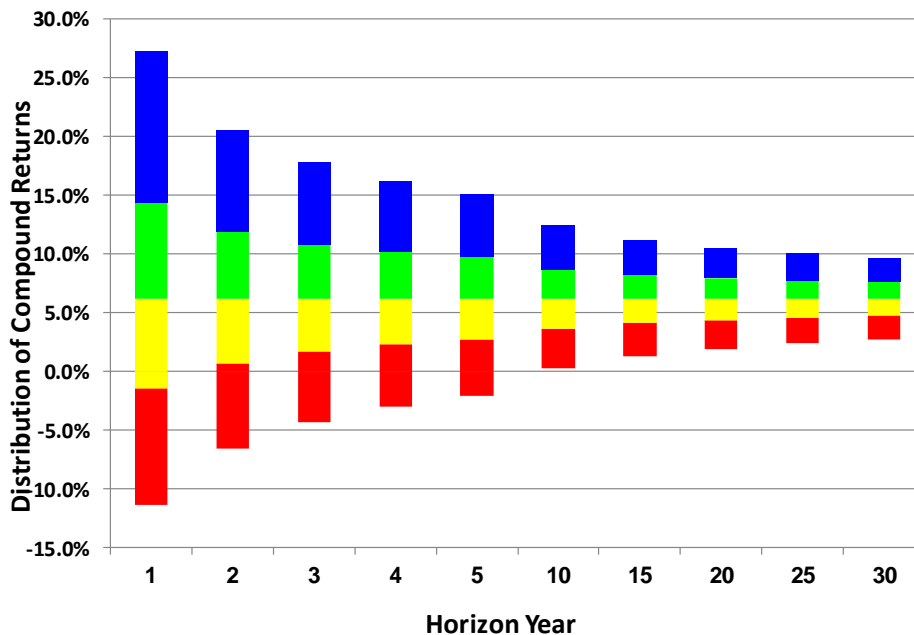
Reason #3: Return forecasts over a longer-term horizon are less reliable.

There is less certainty in the longer-term forecasts. Conventional risk management says that in the face of uncertainty, investors become more conservative. Thus, in our opinion decision-makers should consider being more conservative than the longer-term forecasts because the longer-term forecasts are more uncertain. This is a principle in any forecasting profession, whether investment forecasting, election forecasting or hurricane forecasting. Longer-term forecasts are less reliable than mid-term forecasts.

There are two types of statistical errors in forecasting:

1. error around the mean (some have called this "risk") and
2. error in the mean (and some call this "uncertainty").

Consider this graph of the expected dispersion of forecasted compound returns around the forecasted compound mean. This shows that the compounded error around the compounded mean decreases over time. But this type of error is not the one that brings the most uncertainty.



This dispersion graph *presumes* we know for certain what the statistical mean is for the ever-varying future investment returns, and illustrates merely what we think about how the varying returns will behave around that anchor-mean. The biggest uncertainty, here, is that no one knows for certain what the anchor-mean will be.

Many unexpected events will happen in the future that will throw off the anchor from our *presumption*. Even though the experts are reasonably accurate about the dispersion around the mean, they are likely to be off for their expectation of the future mean.

Many more events can insert themselves into our future over the next 30 years than over the next 10 years. Thus, when we say, “*Return forecasts over a longer-term horizon are the less reliable,*” we do not refer to the dispersion illustrated in this graph (which might be misunderstood as proving the opposite). We are referring to how confident (or not) we are in the mean itself.

We can mitigate some of the uncertainty by aggregating the opinions of several experts as to what the long-term compound annual return will be, i.e., calculate the average (or consensus) of their forecasts. However, the consensus of long-term forecasts is still more unreliable than the consensus of mid-term forecasts. There will be many events in years 1-10 that will undermine the mid-term outcome, making the final result either higher or lower than the mid-term consensus forecast. But add another 20 years on top of that (years 11-30) and many more events can insert themselves in years 11-30 to undermine any such long-term forecast.

Reason #4: The system’s own cash flow demands.

Possibly the most compelling reason *not* to accept the long-term forecasts, without regard to the mid-term forecasts, is a purely actuarial reason. It is fundamental in setting actuarial assumptions to incorporate (explicitly so) a retirement system’s own characteristics into the process.

- The most obvious factor is to incorporate a system’s own investment policy’s asset allocation, as required by Actuarial Standards of Practice (ASOP) No. 27 Section 3.8.3(a).
- Secondly, a system’s own cash demands upon the fund should explicitly be incorporated into the assumption-setting math, as required by ASOP No. 27 Section 3.8.3(f). The timing of when benefit and expense payments place a drain on the fund affects how much the fund should be expected to earn while those assets are still in the fund.

Experts currently forecast investment returns to be lower over the mid-term horizon (years 1-10) than over the long-term (years 1-30). This means they must expect the later years to boost the compound average over 30 years compared to the compound average over the first 10 years.

Furthermore, even the benefits expected to be paid out in years 11-20 will not be around for those last 10 years (years 20-30), and the first 10 years of earnings will drag down their average compounded return for the time remaining in the fund (years 1-20).

Cash Flow Hypothetical No. 1: Consider a newly formed retirement system (system A) that is expected to pay very little in benefits over the mid-term horizon and most of its benefits beginning in year 25. Consider another retirement system (system B) that is a “mature” retirement system. A mature retirement system is expected to pay a significant amount of its

current accrued benefits over years 1-10. Mature retirement systems often pay out more in benefits than they take in from contributions (from employees, employers, or other sources).

Retirement system A can comfortably adopt a longer-term horizon for its expected investment return assumption because it has a long time to make up for the lower earnings that are expected in the mid-term (e.g., years 1-10) before it has to actually pay benefits out of the fund.

A large portion of retirement system B's current assets will not be around in years 11-30. They will be paid out of the fund over the next 1-10 years. Those assets will be earning only what is available in the marketplace over the next 1-10 years. They will not be around to make up for the lower earnings that are expected in the mid-term (e.g., years 1-10).

One way to identify a "mature" retirement system is to compare the amount of benefits and expenses leaving the fund to the amount of contributions deposited into the fund. CCRRF is a mature system with a negative cash flow. Mature retirement systems should give more consideration to mid-term forecasts than to long-term forecasts.

Cash Flow Hypothetical No. 2: Consider a state-run program that has been operational for 50 years and is fully expected to continue in operation. It is a "long-term proposition" (as is often said to describe pension systems). Since inception, this program has received a large infusion of capital at the beginning of each of the past 10-year periods, then pays disbursements every month until the end of each 10-year period when the assets are depleted. This infusion and payout occur in each 10-year period and are expected to continue in the same pattern. While this state-run program is a long-term proposition, program managers should be using mid-term and short-term investment forecasts for their calculations because of the mid-term and short-term cash flows.

While the CCRRF is a long-term proposition, long-term expected rates of return should not be employed in forecasting future returns. The program's cash flows must be considered in estimating future returns.

Even if one were to accept a long-term horizon for setting return assumptions (which we do not), in disregard of the first three arguments outlined in the preceding pages, he or she would need to take into account the system's own benefit demands and adopt a return assumption somewhere between the mid-term and long-term expectations, so as to recognize the investment horizon or timetable for the benefit payments to be made over the next 10 years.

There are two actuarial calculations that take into account a plan's own cash flow and which support the use of a mid-term forecast-horizon:

1. *Duration of the Benefit Cash Flow Liability.* CCRRF's benefit "duration" is approximately 10 years. "Duration" is the present value weighted average length of time until the benefits are paid. This emphasizes the usefulness of the 10-year forecasts as representative of a mid-term outlook. Long-term horizon forecasts (e.g., 20-30 years) are useful for discussion purposes, but not to the exclusion of mid-term horizons. Pension funds are, indeed, usually long-term arrangements. However, this does not mean that a

long-term forecast-horizon is more appropriate for setting a return assumption for pension valuation.

2. *Single Equivalent Rate of Return.* Assume the experts are right that the next 10 years will provide much lower returns than the following 20 years (years 11-30). The present value of all benefit payments, discounted from their respective year of payment to the present based on the experts' expected return over each of those respective time frames would result in discounted benefit values at rates that range from the short-term to mid-term to long-term. The single equivalent rate would be a blend of short-term, mid-term, and long-term rates – closer to the mid-term rate, or possibly slightly higher. For the vast majority of retirement systems, that single equivalent rate would be slightly higher than the 10-year expected geometric return (or the 50th percentile of expected compound returns expected over the 10-year period), but less than the 20-30 year expected geometric return. This is consistent with the duration calculation discussed above.

In summary of Reason #4, a system's own cash flow should be explicitly integrated into the determination of a single return assumption for valuation, just as a system's own target asset allocations should be explicitly integrated into the determination.

Adopting a return assumption without recognizing a system's own expected cash flow and simply using investment consultants' broadly published long-term forecasts, even when that same forecaster publishes a mid-term forecast as well, is missing an important actuarial step.

Conclusion -- These four reasons suggest that using a 10-year mid-term forecast-horizon (or slightly higher) is most appropriate.

Perspectives

There are two types of perspectives to consider when determining assumptions for a future net rate of return of a pension fund and a future rate of inflation. Do we *look* more to historical rates to inform decision-makers or more to forward-*looking* forecasts of the future? Do we *look* more to what other retirement systems are doing or *look* more to what expert forecasters would expect for CCRRF's own portfolio in the future?

Historical rates of return and inflation are viewed more as mere information, than used to defend or determine a current net return or inflation assumption. The past is indeed useful for understanding historical relationships among various economic forces and various statistical metrics such as standard deviations, correlation coefficients, and P/E ratios; but even those have been known to change over time and may be different from their historical averages. Past performance should not be a driver in decision-making.

The current domestic and global environments are not like the past 10, 30, or 50 years; and the future domestic and global environments are certain to be different from the past. A forward-looking perspective should drive the defense or determination of a net return assumption for pension actuarial valuations. In our opinion, strategically selecting historical returns (an X-year

period ending on Y-date) to justify a net return assumption being applied to the next 10-, 20-, or 30-year period is not valid.

Past performance is not an indicator of future performance. The LLA takes a forward-looking perspective of inputs into the process of setting a return assumption.

Looking to what other peer retirement systems have adopted for their own net return assumptions should not be a driver in decision-making. Other retirement systems have their own asset allocation and expense structure and their own set of politics, protectionism, budget issues, and agency risk. They are not the best source for determination or defense of a system's net return assumption.

Independent, unbiased, expert sources of inflation and investment return forecasts are the best places to look for input when setting a net return assumption for pension valuations. These are much more objective and unfiltered sources – obtained directly from the experts themselves – to guide decision-makers.

Adopting a *process* that looks to a consensus of external subject matter experts' forward-looking forecasts is the best way to avoid political and budget pressures that sometimes distract or influence assumption-setters away from their primary duty to set return assumptions as their unbiased best estimate of the future performance of its pension fund.

Inflation

An assumed rate of future inflation is a major component of both the return assumption and the salary increase assumption used in a pension valuation. When expected inflation rates are lower, the expected return and salary increases should be lower (unless there is a coincidental change in real returns or real salary increases that offset it). Conversely, when expected inflation rates are higher, the expected return and salary increases should be higher. Expected future inflation is a critical component of the other assumptions as well. Therefore, much care and attention should be given to the expected future rates of inflation.

The CCRRF's 2019 Funding Valuation (page 39) states that the inflation rate assumption is 2.5%.

We find an inflation assumption closer to the 2.16% is more supported by the research on expected inflation rates as illustrated in the exhibits below.

Currently, expert professional forward-looking inflation forecasts generally lie between 1.67% and 2.58% across mid-term and long-term horizons. Actuaries are not generally qualified to forecast future rates of inflation. Therefore, consider the forward-looking forecasts from the following subject matter experts.

| Major National Inflation Forecasters | |
|---|--------------------------------------|
| Congressional Budget Office | Federal Reserve Bank of Cleveland |
| Federal Reserve Bank of Philadelphia (2) | Federal Reserve Bank of New York (2) |
| Federal Reserve Board | Social Security Trustees Report |
| Investment Forecaster Survey (GRS) | U.S. Department of the Treasury |

Some of these expert organizations provide multiple measures of inflation for different time horizons, making a total of 17 forecasts from 10 reputable sources.

| June 2019 Forward-looking Forecasts of CPI Inflation | | |
|---|----------------|----------------|
| Horizon | Average | Sources |
| 27 - 30+ yrs | 2.25% | 5 |
| 20 yrs | 1.81% | 2 |
| 10 -15 yrs | 2.16% | 10 |

Our preferred inflation assumption would currently be 2.16% for the mid-term horizon.

Consider the following exhibit, which shows the detailed inflation forecasts of these 10 large reputable expert organizations in the field of inflation forecasting. A 2.50% inflation expectation currently employed by the System lies at the upper end (or even above) of the range of professional forecasters presented in the summary table above and the detailed table below.

| 2019 Forward-looking Annual Inflation Forecasts (From Professional Experts in the Field of Forecasting Inflation) | |
|---|-------------------------|
| Federal Reserve Board's Federal Open Market Committee Current "Long-run" Price Inflation Objective (<10 years): Objective since Jan 2012; Personal Consumer Expenditures (PCE) Consumer Price Index Inflation Objective (CPI = PCE + approx 40 bps) | 2.00% 2.40% |
| Congressional Budget Office: <i>The Budget and Economic Outlook</i> Overall Consumer Price Index (January 2019; Ultimate) Overall Consumer Price Index (January 2019; 10 Years) | 2.30% 2.38% |
| 2019 Social Security Trustees Report CPI-W 10-Year Intermediate Assumption CPI-W 30-Year Intermediate Assumption | 2.53% 2.58% |
| Federal Reserve Bank of Philadelphia Livingston Survey: 10-Year Median Forecast (June 2019) Survey of Professional Forecasters: 10-Year Median Forecast (2Q2019) | 2.26% 2.20% |
| Federal Reserve Bank of New York's Trading Desk (June 2019) Survey of Market Participants: 10-Year Median Expectation Survey of Primary Dealers: 10-Year Median Expectation | 2.05% 2.16% |
| Federal Reserve Bank of Cleveland (July 1, 2019) 10-Year Expectation 20-Year Expectation 30-Year Expectation | 1.67% 1.88% 2.05% |
| U.S. Department of the Treasury (Ave in June 2019) 10-Year Breakeven Inflation 20-Year Breakeven Inflation 30-Year Breakeven Inflation | 1.70% 1.74% 1.90% |
| 2019 GRS Survey of Investment Consultants and Forecasters Median expectation among 14 firms (averaging a 10-year horizon) Median expectation among 6 firms (averaging a 26-year horizon) | 2.21% 2.41% |

Asset Allocation

It has been generally accepted for many years that a fund’s asset allocation is responsible for the vast majority of a fund’s investment performance. Therefore, CCRRF’s asset allocation is a core element in process of setting and evaluating assumed future returns.

In our development of a most appropriate return assumption for CCRRF, we first relied on the 12 target asset allocation percentages set forth in System’s formal Investment Policy Statement (IPS) last updated August 28, 2019.

| 2019 Clerks' Target Asset Allocation | | | |
|--------------------------------------|--------------|----------------------------------|---------------|
| Risk-oriented Assets | | Fixed Income Assets | |
| Large Cap Domestic Equity | 25.0% | Core Fixed Income | 17.0% |
| Non-Large Cap U.S. Equities | 8.0% | High Yield | 1.0% |
| International Large Cap Equity | 12.0% | Emerging Market Debt | 1.0% |
| International Small Cap Equity | 5.0% | Global Bonds | 1.0% |
| Emerging Markets | 5.0% | | |
| Real Estate | 10.0% | <i>Total Fixed Income Assets</i> | <i>20.0%</i> |
| Hedge Funds | 10.0% | | |
| Private Infrastructure | 5.0% | | |
| <i>Total Risk-oriented Assets</i> | <i>80.0%</i> | <i>Total Asset Allocation</i> | <i>100.0%</i> |

Source: Current 2019 Investment Policy Statement (dated August 28, 2019) and AndCo

Consensus of Professional Investment Forecasts

Listed below are the national firms in our 2019 GRS Survey. These are very large and reputable investment consultants and investment managers.

| Participating Investment Forecasters | | | |
|--------------------------------------|---------------------------|--------------------------|------------------------|
| Aon/Hewitt ^{IC} | Blackrock ^{IM} | BNY/Mellon ^{IM} | Callan ^{IC} |
| Cambridge ^{IC} | J.P. Morgan ^{IM} | Marquette ^{IC} | Meketa ^{IC} |
| Mercer ^{IC} | RVK ^{IC} | NEPC ^{IC} | Verus ^{IC} |
| | VOYA ^{IM} | | Wilshire ^{IC} |

^{IC} In the top 25 largest investment consultants, according to the most recent survey from P&I.

^{IM} In the top 75 largest investment managers, according to the most recent survey from P&I/WTW.

We applied CCRRF’s target asset allocations to the expectations of these 14 major national investment forecasters. Given the brevity of the descriptions of the asset classes identified, our mapping of CCRRF’s 12 asset classes to the investment forecaster’s asset classes may not be exact. We replaced the investment forecasters’ respective inflation assumptions with 2.16%, our preferred assumption based on the consensus of expert inflation forecasters’ expectations presented above in order to normalize for a consistent inflation assumption across all forecasters.

We reduced the respective forecasts for CCRRF's portfolio by the expected investment-related expenses and added alpha back in to replace active management expenses above expected passive management expenses, as permitted and limited by ASOP No. 27. This leaves a net reduction estimated to be for passive investments. This process results in normalized expected returns for any one given year in the forecast horizon (called the expected arithmetic return). Finally, we reduced the resultant one-year arithmetic returns for the correlation among asset classes and the volatility drag in the compound return expected over time, because pensions are all about compounding in a volatile environment over the horizon.

It matters not whether the field of forecasting is for hurricanes, earthquakes, elections, or inflation and investment returns; a *consensus average* of many reputable experts is proven to be more accurate than any one of those experts.

Below are the results of this process for the mid-term horizon.

| Investment Forecaster | Distribution of 10-Year Compound Average Percentile Expectations | | | Probability of exceeding 6.75% |
|-----------------------|--|--------------|--------------|--------------------------------|
| | 40th | 50th | 60th | |
| (1) | (2) | (3) | (4) | (5) |
| 1 | 3.45% | 4.47% | 5.49% | 28.71% |
| 2 | 4.15% | 5.16% | 6.18% | 34.62% |
| 3 | 4.62% | 5.61% | 6.60% | 38.52% |
| 4 | 5.03% | 5.80% | 6.57% | 37.72% |
| 5 | 5.09% | 5.88% | 6.68% | 39.17% |
| 6 | 5.15% | 6.12% | 7.10% | 43.55% |
| 7 | 5.35% | 6.27% | 7.19% | 44.73% |
| 8 | 5.36% | 6.29% | 7.23% | 45.08% |
| 9 | 5.50% | 6.44% | 7.39% | 46.74% |
| 10 | 5.39% | 6.46% | 7.54% | 47.28% |
| 11 | 5.72% | 6.54% | 7.36% | 47.39% |
| 12 | 5.82% | 6.75% | 7.70% | 50.03% |
| 13 | 6.33% | 7.23% | 8.15% | 55.37% |
| 14 | 6.36% | 7.33% | 8.31% | 56.06% |
| Average | 5.24% | 6.17% | 7.11% | 43.93% |

There are three important takeaways from the exhibit above:

- a. Over the mid-term horizon the range of expectations of the 50th percentile of compound average return runs from 4.47% to 7.33%.
- b. The 50th percentile consensus average mid-term forecast is 6.17%.
- c. The consensus of these experts is that there is only a 43.93% chance of achieving at least the current 6.75% adopted by CCRRF over the mid-term horizon. This does not mean a 43.93% chance of achieving the 6.75% assumption in any year during the horizon; it means that the compound return over the next 10 years has a 43.93% chance of achieving at least the 6.75% assumption.

This is why, actuarially speaking, the 6.17% rate of return is the preferred assumption for funding because it is the 50th percentile expectation of compound returns over a mid-term horizon. The consensus is that there is a 50-50 chance of returning at least 6.17% when compounded over the next 10 years.

For use in an actuarial valuation for pensions, where the entire measurement and funding model is built on compounding (present values and future values), we believe the 50th percentile compound or geometric expectation over a mid-term horizon is the most appropriate choice of a net return assumption.

Again, no one knows the future for certain. When in doubt, in our opinion it is best to err of the side of conservatism (lower return assumptions), relying on the experts to form those opinions.

Adjustment for Benefit Outflow

The section above on *Forecast-horizons* discusses four reasons not to use a long-term horizon for pension valuations. Reason #4 addresses how a plan's own expected benefit outflow should be recognized in the determination of the most appropriate return assumption.

Due to the limited nature of this CAR, only an estimate can be provided for recognizing the benefit cash flow. We estimate the cash flow adjusted return assumption would be raised from 6.17% to approximately 6.50%.

Based on this analytical process for setting the return assumption, we consider 6.50% to be the most appropriate net return assumption.

Conclusion -- Considering this analysis, we consider CCRRF's current return assumption for its 2019 valuation of 6.75% to be optimistic for funding purposes.

Section 2: Treatment of Cost-of-living Adjustments

The cost of future COLAs is currently not included in the 2019 Funding Valuation. Future COLAs are currently recognized in the calculations of costs and liabilities only after they are granted.

There are, basically, two broad categories of COLAs available to CCRRF:

1. “Gain-sharing COLA.” This is a COLA granted when the actuarial earnings exceed the actuarial assumption by a sufficient margin, and
2. “FDA COLA.” This is a COLA granted and paid out of funds that have accumulated in CCRRF’s Funding Deposit Account (FDA).

There are many other rules for COLAs relating to: How often and when they may be granted, minimum and maximum percentage and dollar increases granted, and who is eligible to receive the increases.

Whether and how *future* COLAs should be recognized in annual actuarial valuations for funding purposes and for accounting purposes depends on whether the future COLAs expected are of the “Gain-sharing COLA” variety or the “FDA COLA” variety.

Actuarial Treatment of “Gain-sharing COLAs”

When there is a reasonable expectation (not a guaranteed expectation) of “Gain-sharing COLAs” being granted in the future, an actuary should recognize the likelihood and magnitude of future “Gain-sharing COLAs” in the measurement of system costs and liabilities for both funding and accounting purposes. This is clear in both actuarial and accounting standards.

Actuarial Treatment of “FDA COLAs”

However, when there is a reasonable expectation that future COLAs will be of the “FDA COLA” type under Louisiana statutes, the actuarial treatment may be different:

- For funding purposes, future FDA COLAs are already being pre-funded by making higher contributions than what is required under a non-COLA version of the future. The excess contributions are set-aside and not counted as plan assets in the actuarial valuation until such time an FDA COLA is granted, when an equivalent amount is released from the FDA into the actuarial value of assets. Therefore, for funding purposes, if a reasonable expectation of future COLAs is that they would be granted from the balance in the FDA, then no actuarial advance-recognition is necessary.
- For accounting purposes, Governmental Accounting Standards Board (GASB) does not consider whether the contributions are exceeding a minimum calculation. They are not focused on funding, but on accounting. The GASB requires advance recognition of

future COLAs when there is a reasonable pattern expected for granting future COLAs (whether they are FDA COLAs or otherwise).

CCRRF differs from most other Louisiana state and statewide retirement systems in that it has accumulated a substantial balance in its FDA in recent years by way of contributions that exceed the minimum recommended net direct employer contribution. The FDA balance in CCRRF may be used to fund COLAs when otherwise permitted under the rules.

We expect that future COLAs granted for CCRRF would be of the “FDA COLA” type. The last COLA granted was an FDA COLA, effective January 1, 2018, at a time when a “Gain-sharing COLA” could have been granted; however, the board of trustees opted for financing a COLA with the balance in the FDA rather than with “excess” interest (i.e., gain-sharing).

The following exhibit illustrates the recent history of CCRRF’s COLAs.

COLA History for the Clerks' of Court Retirement and Relief Fund

| Actuarial Measurement Date | Statutory Conditions for Gain-Sharing COLA Under: | | Authorizing COLA Statute Pct and Recipients ² | | Authorizing Funding Deposit Account COLAs | | Amount Granted by Board | Date Approved by Board | Effective Date of COLA | Comments |
|----------------------------|---|---|--|--|---|--------------------|-----------------------------|------------------------|------------------------|---|
| | The Window Rule ³ | The Sufficient Actuarial Return Rule ⁴ | R.S. 11:1549 COLA [2.5%, to All Elg] | R.S. 11:246 COLA [2% or Nothing, to Elg Over 65] | Balance in the FDA | FDA Balance Spent? | | | | |
| 6/30/2019 | Not Satisfied (For YE 2020) | Not Satisfied (4.9% vs. 6.75%) | None Permitted [To All Eligibles] | None Permitted [To Elg Over 65] | \$9,429,752 | No | NA | NA | NA | None permitted for failure of both Rules |
| 6/30/2018 | Not Satisfied (For YE 2019) | Satisfied (7.1% vs. 7.0%) | None Permitted [To All Eligibles] | None Permitted [To Elg Over 65] | \$7,981,218 | No | NA | NA | NA | None permitted for failure of Window Rule |
| 6/30/2017 | Satisfied (For YE 2018) | Satisfied (7.6% vs. 7.0%) | 2.5% Permitted [To All Eligibles] | <u>2% Permitted</u> [To Elg Over 65] | \$9,388,977 | Yes: \$1(A+B) COLA | \$1(A+B) Granted to all Elg | NA | 1/1/2018 | COLA granted from Funding Deposit Account |
| 6/30/2016 | Satisfied (For YE 2017) | Not Satisfied (6.0% vs. 7.0%) | None Permitted [To All Eligibles] | None Permitted [To Elg Over 65] | \$7,741,426 | No | NA | NA | NA | None permitted for failure of Actuarial Return Rule |
| 6/30/2015 | Not Satisfied (For YE 2016) | Satisfied (10.2% vs. 7.25%) | None Permitted [To All Eligibles] | None Permitted [To Elg Over 65] | \$3,449,340 | No | NA | NA | NA | None permitted for failure of Window Rule |
| 6/30/2014 ⁵ | Not Satisfied (For YE 2015) | Satisfied (11.7% vs. 7.5%) | None Permitted [To All Eligibles] | None Permitted [To Elg Over 65] | \$1,739,546 | No | NA | NA | NA | None permitted for failure of Window Rule |

² Per R.S. 11:1549, the Board is authorized to provide a COLA of 2.5% (with a maximum of \$40 per month) to all eligible pensioners. Additionally, per R.S. 11:246, the Board is authorized to provide an additional COLA of 2% to eligible pensioners over age 65. No COLA may be provided during any fiscal year until the lapse of at least one-half of the fiscal year.

³ Per R.S. 11:243, the Board may grant a benefit increase if any of the following apply: (1) the system has a funded ratio of at least 70% and has not granted a benefit increase to retirees, survivors, or beneficiaries in any of the three most recent fiscal years, (2) the system has a funded ratio of at least 80% and has not granted such an increase in any of the two most recent fiscal years, or (3) the system has a funded ratio of at least 90% and has not granted a benefit increase to retirees, survivors, or beneficiaries in the most recent fiscal year. The funded ratio as of any fiscal year is the ratio of the actuarial value of assets to the actuarial accrued liability under the funding method prescribed by the office of the legislative auditor.

⁴ Per R.S. 11:1549, the Board is authorized to use interest earnings on investments of the system in excess of normal requirements to provide a supplemental COLA of 2.5% (with a maximum of \$40 per month) to all eligible pensioners. Additionally, per R.S. 11:246, the Board has the authority to provide an additional COLA of 2% to eligible pensioners over age 65 if there are sufficient excess interest earnings to fund the entire 2% additional COLA.

⁵ The 6/30/14 valuation date marks the first year that Act 170 applies, after the trustees elected to be covered under R.S. 11:243 by 12/31/13.

Unless the balance in the FDA is used repeatedly for other purposes (e.g., reducing the net direct employer contribution or reducing the present value of future costs), thereby depleting the balance available for COLAs, we expect that future COLAs would be financed by using the balance in the FDA. This opinion may not hold in future years for CCRRF and is not our opinion for other Louisiana retirement systems.

Conclusion -- For the 2019 CCRRF funding valuation, we accept the 2019 treatment of not recognizing future COLAs in the funding calculations of costs and liabilities as appropriate treatment in this situation.

Section 3: Mortality Assumption

The 2019 Actuarial Valuation (page 40) states that the mortality assumption for annuitant and beneficiary mortality is the “RP 2000 Healthy Annuitant Table set forward 1 year and projected to 2030 using Scale AA for males and projected to 2030 using Scale AA for females.”

To evaluate the reasonableness of the mortality assumption, we reviewed the base mortality (RP2000) separately from the projection scale (Scale AA).

The base rates were selected in an experience study (dated February 17, 2016) covering the period from July 1, 2009, through June 30, 2014. We reviewed the experience study report and found the section on mortality to be described with reasonable detail and careful recognition of relevant mortality experience.

Due to the small size of the experience group and low number of deaths during the study period, the results of the experience study were not fully credible. Only partial credibility was given to the results of the plan’s own experience. The assumed mortality rates for valuation purposes were developed as weighted averages of the group’s experience and that of a standard reference table.

While we find the process of setting mortality assumptions to employ reasonable applications of actuarial credibility principles, we find the RP2000 to be an outdated selection of the base mortality table.

We base our opinion on the fact that the Pub-2010 Mortality Tables, the most recently developed broad-based mortality tables, were issued by the Retirement Plans Experience Committee (RPEC) of the Society of Actuaries and published in January 2019. These tables constitute the most recent and reliable standard reference tables available for purposes of national estimates of mortality for public pension plans and include tables reflecting variations in mortality due to job category and above- or below-median income levels.

Furthermore, RPEC developed a set of newer scales for projecting future changes in mortality rates. The most recent such scale, MP-2019, was published in 2019 as an update to a previous version referred to as MP-2018. Those newer tables are based on more recent trends observed in mortality rates and modern longevity theory as compared to the Scale AA, which was derived from pre-2000 experience.

In addition, static projections of mortality changes are no longer considered as appropriate for actuarial valuations. The prevailing practice is to use generational mortality improvements in actuarial modeling.

Conclusion -- A more current approach to estimating mortality rates for valuation purposes would be to use PubG-2010(B) adjusted for partially credible plan-specific experience, then projecting generationally using MP2018 or MP 2019. Using the below-median rates (Table B) is suggested as a proxy for geographic category adjustments.

Actuarial Certification

This Actuarial Review report constitutes a Statement of Actuarial Opinion. It has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents information it is purported to present. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

James J. Rizzo and Piotr Krekora are members of the American Academy of Actuaries. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein.

The signing actuaries are independent of the Clerks' of Court Retirement and Relief Fund.



James J. Rizzo, ASA, EA, MAAA
Senior Consultant and Actuary
Gabriel, Roeder, Smith & Company

January 13, 2020

Date



Piotr Krekora, ASA, EA, MAAA, PhD
Consultant and Actuary
Gabriel, Roeder, Smith & Company

January 13, 2020

Date

APPENDIX

Actuarial Standards of Practice

ASOP No. 4 Section 3.5:

3.5 Plan Provisions - When measuring pension obligations and determining **periodic costs** or **actuarially determined contributions**, the actuary should reflect all significant **plan provisions** known to the actuary as appropriate for the purpose of the measurement. However, if in the actuary's professional judgment, omitting a significant **plan provision** is appropriate for the purpose of the measurement, the actuary should disclose the omission in accordance with section 4.1(d).

ASOP No. 4 Section 3.5.3:

3.5.3 Plan Provisions that are Difficult to Measure - Some **plan provisions** may create pension obligations that are difficult to appropriately measure using traditional valuation procedures. Examples of such **plan provisions** include the following:

- a. Gain sharing provisions that trigger benefit increases when investment returns are favorable but do not trigger benefit decreases when investment returns are unfavorable;
- b. Floor-offset provisions that provide a minimum defined benefit in the event a **participant's** account balance in a separate plan falls below some threshold;
- c. Benefit provisions that are tied to an external index, but subject to a floor or ceiling, such as certain cost-of-living adjustment provisions and cash balance crediting provisions; and
- d. Benefit provisions that may be triggered by an event such as a plant shutdown or a change in control of the plan sponsor.

For such **plan provisions**, the actuary should consider using alternative valuation procedures, such as stochastic modeling, option-pricing techniques, or deterministic procedures in conjunction with assumptions that are adjusted to reflect the impact of variations in experience from year to year. When selecting alternative valuation procedures for such **plan provisions**, the actuary should use professional judgment based on the purpose of the measurement and other relevant factors.

The actuary should disclose the approach taken with any **plan provisions** of the type described in this section, in accordance with section 4.1(i).

ASOP No. 27 Section 3.11.2:

3.11.2 Cost-of-Living Adjustments—Plan benefits or limits affecting plan benefits (including the Internal Revenue Code (IRC) section 401(a)(17) compensation limit and section 415(b) maximum annuity) may be automatically adjusted for **inflation** or assumed to be adjusted for **inflation** in some manner (for example, through regular plan amendments). However, for some purposes (such as qualified pension plan funding valuations), the actuary may be precluded by applicable laws or regulations from anticipating future plan amendments or future cost-of-living adjustments in certain IRC limits.