PUBLIC PENSION OVERSIGHT BOARD

Minutes

September 24, 2018

Call to Order and Roll Call

The 6th meeting of the Public Pension Oversight Board was held on Monday, September 24, 2018, at 1:00 PM, in Room 154 of the Capitol Annex. Representative Jerry T. Miller, Chair, called the meeting to order, and the secretary called the roll.

Present were:

Members: Senator Joe Bowen, Co-Chair; Representative Jerry T. Miller, Co-Chair; Senators Jimmy Higdon, Christian McDaniel, Gerald A. Neal, Dennis Parrett, and Wil Schroder; Representatives Ken Fleming, DJ Johnson, James Kay, Arnold Simpson, and Russell Webber; J. Michael Brown, John Chilton, Mike Harmon, James M. "Mac" Jefferson, and Sharon Mattingly.

Guests: Joe Newton and Danny White, GRS Retirement Consulting; Brad Gross and Bo Cracraft, Legislative Research Commission; David Eager, Executive Director, Kentucky Retirement Systems.

LRC Staff: Brad Gross, Jennifer Black Hans, Bo Cracraft, and Angela Rhodes.

Approval of Minutes

Representative Fleming moved that the minutes of the August 27, 2018 meeting be approved. Representative Johnson seconded the motion, and the minutes were approved without objection.

Trends in Investment Return Assumptions for Public Pension Plans

Joe Newton and Danny White, GRS Retirement Consultants, reviewed recent trends in investment return assumptions for public pension plans. The consultants discussed the purposes and use of assumptions in the annual valuation process, the standards of practice in place regarding the selection of assumptions, current economic conditions, along with a review of what an appropriate time horizon is for selecting assumptions.

Mr. Newton reviewed the historical distribution of assumptions used across large retirement plans from fiscal year 2001 to the present. He discussed how the majority of plans were utilizing an 8 percent assumption in 2001, but since 2008 and 2009, there has been a pretty consistent decline in assumptions across plans with fewer and fewer plans above 7.5 percent. Mr. White summarized plans that had conducted experience studies over

the past couple years and had continued to drop return assumptions with a median assumption of 7.33 percent.

In response to a question from Representative Miller regarding the trend going forward, Mr. White stated that GRS expected the downward trend to continue at least over the next five to six years.

Mr. White reviewed the purpose of an actuarial valuation and how assumptions factor into the valuation process. The primary purpose of a valuation is to assess the current funded status of the plan and identify historical trends. The valuation is more forward-looking with the intent to identify the future contribution requirements given a plan's current funding policy, fixed contribution rate, or the pattern of contributions. Several assumptions are incorporated into a valuation to help anticipate or manage the process, but over the long term, the true cost of the plan is borne by the cost of benefits and actual experience of the plan, not just the assumption.

In response to a question from Representative Miller regarding how plans tend to implement assumption changes, Mr. Newton noted that it was largely situation-dependent and many times subject to a plan's funding policy. Plans that began reducing assumptions earlier tend to be lower and can tolerate more incremental changes. Conversely, plans that have been slow to change will have a larger gap between where they are and where they need to be, so the changes have been more dramatic and bigger. Funding levels and health of a plan can impact, but small incremental changes are the desired outcome.

Mr. White explained the critical nature of the investment return assumption given it is used to predict at what percent a future benefit payment will be financed versus what contribution rate will be needed. The lower the return assumption, the higher the plan's required contribution rate. In addition, the investment return assumption is critically sensitive on impacting short term contribution rates as compared to other assumptions, like cost-of-living adjustments (COLA).

Mr. White and Mr. Newton reviewed the Actuarial Standards of Practice (ASOP) and several guidelines found within ASOP #27, regarding the Selection of Economic Assumptions, which outlines the process for selecting reasonable assumptions for investment return and rate of inflation. Mr. Newton said there is no exact or prescriptive approach, but one that often results in more than one estimate and involves professional judgement and estimates on future experience. Mr. White discussed how the process is designed to consider, but not place undue weight on, recent experience and how each individual assumption, along with the complete set of assumptions, must satisfy the standards of practice.

In response to questions from Senator Bowen with regards to why a system would take an overly optimistic approach, Mr. Newton said that, in general, all stakeholders of a

plan (members, employers, and sponsors) tend to benefit more when optimistic assumptions are used. In most cases, those involved in the process are all current stakeholders, so there is no representative to express concern or worry for future stakeholders. Changes have always tended to be slow. Expectations changed tremendously in the 2008-2011 time frame, but it took plans several years to respond with lower assumptions.

Mr. White discussed the components of selecting an investment return assumption. The assumption utilized a building block approach, which incorporated both an assumption for the rate of inflation combined with an expected real return for the plan. In evaluating the anticipated returns of a plan, the actuary often reviews investment data from third parties, such as investment consultants. The actuary cannot rely blindly on the judgment of investment consultants, but has to consider and use the broad range of data and other inputs available.

Mr. Newton addressed several economic factors that, on average, are leading to a decline in expectations and thus lower investment assumptions. Many investment professionals have the opinion that future expectations will be lower than historical experience. This discussion begins with the decline seen within treasury yields, which in theory represent a risk-free return. So, for example, a plan could purchase a bond in 1988 with a yield of just over 9 percent, which now has a yield of just under 3 percent. Therefore, the bond market is one of the biggest drivers of change within plan portfolios. Given the decline, for many pension plans, their fixed income assets, which might have earned 9 percent historically, are now being replaced with bonds that return 3 or 4 percent.

In response to a question from Representative Kay with regards to pricing the debt of a pension plan based on treasury rates, Mr. Newton stated there is an argument that the liability of a plan should be calculated today based on treasury yields, since benefit payments are guaranteed and treasury yields carry a similar credit risk. He outlined several counter arguments to that position, most notably the comparable volatility of treasury rates and balance of risk versus return. First, he noted the volatility of historic treasury yields and discussed how that could lead to a lot of volatility in contribution rates and funding levels from year to year. Secondly, he noted that using treasury rates assumes no risk, so there is a situation where being too conservative is a risk and asking current tax payers to take on more responsibility for the sake of future taxpayers. A proper balance might be found and some level of risk premium should be considered.

Mr. Newton discussed the equity side of markets. He introduced the Shiller Price to Earnings Ratio (S&P PE Ratio) metric, which measures the current earnings of the S&P 500 index compared to the current price. A historical chart demonstrated the rolling 20-year annual returns for the index dating to 1926 compared to its S&P PE Ratio on the beginning of each calendar year. The data shows that the higher the S&P PE Ratio, the lower the following 20-year return. Since 1926, the average 20-year return following a

January 1st date where the ratio was above 20 has been 4.3 percent. Looking at current markets, the S&P PE Ratio today is 32.3 percent, which is almost as high as before the Great Depression and, based on the data shown, would lead to only moderate returns out of equity markets.

Mr. Newton provided several simple examples of a plan's portfolio from 20 years ago to the current period. First, in 1998, when equity markets were returning 11 percent and bond yields were about 6 percent, an average pension plan portfolio of 60/40 stocks and bonds would have an expected return of 9.1 percent, which would easily exceed the median return assumption of 8 percent. Fast forward to 2018, where current bond yields are close to 3.5 percent and using an aggressive expectation of 8.5 percent return for equity markets, the same 60/40 portfolio of stocks and bonds now has an expected return of only 6.5 percent, which is below most assumptions. In response, what most plans have done is reduced their fixed income exposure for more risker assets. In their example, moving to an 80/20 portfolio mix of stocks and bonds would be expected to achieve a 7.5 percent return. Mr. Newton showed a chart provided by the Wall Street Journal depicting the average portfolio required for an investor to reach a 7.5 percent return in 1995, 2005, and then 2015. In 1995, the investor could have had a 100 percent bond portfolio with a standard deviation, which measures risk, of 6.0 percent. In 2015, in order to earn 7.5 percent, investors would have to reduce bonds to 12 percent with the remainder of the portfolio in equity, real estate, or private equity, resulting in a standard deviation of 17.2 percent, or almost 3 times the risk of 1995.

In response to a question from Representative Miller with regards to Kentucky Retirement Systems' (KRS) recent increase to fixed income assets, Mr. Newton stated that the change in allocation would bring the expected return down.

Mr. Newton reviewed historical 10-year expected returns by various asset classes and a simple total portfolio dating back to 1998. Looking at major asset classes, he discussed an overall trend downward, noting that in 1998 public equity expectations were about 10 percent for the next ten years, compared to around 6 percent currently. Fixed income, which has experienced an increase over the past 24 months, is still below expectations in 1998. Using the same asset class expectations and applying it to an average portfolio, Mr. Newton outlined how the expected portfolio return would have dropped from around 8 percent in 1998 to just under 6 percent in 2018. Much of the discussion surrounding lowered return assumptions are being driven by investment professionals lowering return expectations going forward.

Mr. Newton discussed time horizon and cash flow considerations, both of which he believed are often overlooked. Many of the capital market expectations provided are for a 7 to 10 year period, which is too short given that a retirement plan's liability stream is clearly longer than 10 years. On the other side, many in the industry claim a pension plan should have almost an infinite time horizon and only focus on very long term expectations,

but that brings its own issues. A more applicable time horizon for choosing an investment return assumption should incorporate the duration of a plan's liability, or by calculating a midpoint when all current benefit payments would be due. Mr. Newton provided an example using a large retirement plan, but also said that within the County Employees Retirement System (CERS) and Kentucky Employees Retirement System (KERS) plans, benefit payments due are being driven by current retirees, which would suggest using a time horizon of 15 to 20 years is the more optimal choice.

In addition to the duration of a plan's liability, Mr. Newton discussed how cash flow and the order of returns can have a significant impact on a plan's funding level. He provided an example of three different return streams, all which resulted in an annualized return of 7 percent on a geometric basis, but noted that returns resulted in very different funding levels. The reason was that order of returns matters in relation to cash flow. If a plan underperforms their assumption early in a period, assets decline faster than projected, so outperformance later in the period does not have as much an impact because the asset base is lower. On the opposite side, a plan which outperforms their assumption early in a period will see assets grow faster than expected, so underperformance later is not nearly as harmful to the funding level. A plan with large levels of negative cash flow should be more conservative with investment assumptions, given short term underperformance will have a more significant impact.

In response to questions from Mr. Jefferson regarding if a plan's funding level has more or less impact from short term returns, Mr. Newton stated that plans which have lower funded status should be getting more contributions, which should in turn reduce the negative cash flow and impact of short term results. However, if a proper funding policy is not in place, the worse funded a plan gets, the more impact short term underperformance can have. In response to a follow up question regarding if a poorer funded plan would be more prudent to choose a conservative assumption, Mr. Newton indicated it would depend on the plans funding policy and the plan's cash flow position. If poorly funded and using a 30-year period, then one likely would want to be more defensive. If a plan gets to a positive cash flow position and contributions are stable, there could be paths where a plan might look to take on a little more risk.

In response to a comment from Representative Miller regarding a more realistic time horizon, Mr. Newton agreed that 30 years was too long and 20 years was more realistic. The next five years, for plans like CERS, which are around 50 percent funded, will dictate if current 30-year projections end up being what actually happens. For a plan like KERS, which only has 15 cents on the dollar invested, the next five years will have less weight given that the impact of good or bad performance will be minimal on such a low amount of assets.

In response to a question from Representative Kay regarding the cash flow of KERS, Mr. Newton indicated that GRS's primary concern and goal was getting KERS out

of a negative cash flow situation. The KRS Board had a couple different options of getting there, such as reducing their payroll growth assumption, adjusting their funding policy, or changing a combination of assumptions. GRS was less concerned with the exact combination ultimately chosen as long as it resulted in a funding outcome that eliminated the negative cash flow and the changes were reasonable. Mr. White noted that adjusting the funding period was not an option, given it is outlined in state statute, but changing the investment return and payroll growth assumptions were options and also were reasonable when looking at actual experience.

Mr. Newton discussed the process used by the KRS Board in 2017 when they reviewed return assumptions and ultimately adopted their current assumptions. After choosing a desired asset allocation for each underlying plan, the board plugged in capital market expectations from several consultants and sources to develop a range of return expectations for each plans portfolio. KRS' ultimate choice fell in the middle of the range of expectations.

In response to a question from Representative Miller regarding their advice to other GRS clients, Mr. Newton stated that GRS is encouraging clients to adjust their assumptions lower and closer to around 7 percent.

In response to a question from Senator Higdon, Mr. White stated that GRS included the payroll growth assumption as a significant driver of contribution rates because, in general, it is not a material assumption with regards to the normal cost of a plan. Mr. White and Mr. Newton agreed that the payroll assumption should have been included in their presentation given the position of the KRS plans and the impact it has on employer rates.

In response to a question from Mr. Chilton regarding how relevant past performance is in setting an assumption, Mr. Newton stated that past performance is not completely irrelevant, but it would not be prudent to just assume history will repeat itself. Determining the balance is where an actuary's professional judgement comes into the process. Especially with economic assumptions, history has a low relevance, and more importance should be focused on what is expected to happen in the future.

Representative Kay discussed several other clients of GRS and noted that the KERS and CERS plans were well below the range of 6.85 percent and 7.68 percent recommended to other GRS clients. He expressed some concern, specifically with regards to CERS, that the assumption of 6.25 percent was overly conservative and had resulted in the board of KRS setting a portfolio asset allocation that took away some future upside opportunities. In response to comments from Representative Kay, Mr. White indicated he felt like CERS, while probably not falling on the optimistic side, was reasonable and provided some margin in the event short term performance did not turn out as expected.

Representative Miller also commented on the CERS assumption, stating that he had previously thought CERS might had aired slightly on the low side, but after seeing all the information provided, he expressed more comfort and belief that a 6.25 percent assumption was reasonable.

Senator Bowen commented that, while not refuting Representative Kay's point, one has to also consider the other side of the equation, which is the fact that Kentucky is assuming all of the risk. A lower return assumption reduces the risk of missing assumptions, which would create a situation where the state will have to step up and fund more.

Representative Kay responded that his comments were based off an argument that has been made by others, which is a concern that the KRS portfolios are being allocated to reach lower assumed rates of return and have little ability to provide stronger, more attractive returns in periods where markets are positive.

Mr. David Eager was asked to join the discussion and he began by commenting that the process begins with establishing the portfolio first, not the return assumption. A desired portfolio, based on liquidity needs, cash flow characteristics, and risk tolerance is established to determine what the plan can be expected to return and then those results lead to the 6.25 percent assumption.

Mr. Eager also made a comment with regards to a question from Senator Higdon during the KRS Administrative Subcommittee meeting, held previously during the day, about the increase in administrative cost of KRS. Administrative expenses increased just over 240 percent since 2001, but over the 17 year period, that growth resulted in just over 5 percent annually. Given inflation was around 2 percent, the real growth of administrative expenses was 3 percent. Membership growth over the same period of time was also 3 percent, so Mr. Eager stated expenses were held in line over that 17 year period, even with employer contribution rates for that period of time increasing from 6 percent of payroll to 49 percent of payroll.

Senator McDaniel commented on Representative Kay's earlier point. He agreed that everyone would like to see KRS achieve greater returns, but there has to be an offset for the amount of risk the plan can take. The risk in this case is all the people who are retiring and counting on the system. There could be some short term general fund pain if the plans are in fact shooting to low, but in the long term, the plan should have excess money from the greater contributions and outsized returns.

In response to questions from Mr. Jefferson with regards to plans surviving a 1 percent or 2 percent miss on their assumptions over a 10 year period, Mr. Newton indicated a plan that is better funded actually has a harder time passing the back-of-envelope test, given the amount of investment risk that comes with the amount of assets a fully funded

plan has. A plan that is 100 percent funded, but misses its return assumption by 2 percent over 10 years, will impact much more than a plan that is only 20 percent funded. In general, when looking at a plan, they need to be in a position where they can survive a 1 percent miss on their assumption over a 10 year period. If a plan cannot survive, then they need to reassess because no plan can survive a 2 percent miss.

Mr. Jefferson and Representative Miller both commented and expressed some concern with regards to the return assumption being used by the Teacher Retirement System (TRS) of Kentucky.

In response to a question from Representative Johnson with regards to KERS, Mr. Newton agreed that the short term goal for KERS should be asset growth and positive cash flow. Expected returns or actual returns will have little impact over the short term given its lack of assets. Mr. Newton said that the contribution rates included in the budget will put KERS in a positive cash flow situation.

Semi Annual Investment Review

Bo Cracraft began with a snapshot of total assets under management across all retirement plans administered by the state. On the pension side, TRS accounted for about 61 percent of the $32.7 billion in assets. The CERS nonhazardous and hazardous plans combined to account for about 29 percent, with the remaining plans accounting for 10 percent. Of the $6.2 billion in total insurance assets, the two CERS plans accounted for 58 percent, the KERS nonhazardous and hazardous plans account for 22 percent, and TRS accounts for about 17 percent.

Mr. Cracraft provided a general review of performance across markets and stated that the fiscal year ended June 30, 2018, much like the prior, was another positive year. Multiple asset classes were positive and many provided strong returns at or above return assumptions. Within the U.S., investors are experiencing the longest bull market in U.S. history, with markets up 320 percent since March 2009. Only high quality bonds fell short of posting positive returns during the fiscal year.

Mr. Cracraft provided a review of historical fiscal year returns over the last 22 years for each plan. Looking at the ten year returns, trailing returns are improving as 2008 and 2009 returns are replaced. However, with regards to trailing 20-year returns, strong returns from the late 90s will be difficult to replace an indicated there will be some downward pressure until the tech telecom bubble period of 2001-2002 has dropped off.

Mr. Cracraft also provided a summary of trailing period returns for each retirement plan over the most recent 1-, 3-, 5-, 10-, and 20-year periods compared to each plans assumed rates of return, benchmark, and peer group results. Mr. Cracraft discussed the three primary metrics of performance review for each plan, which include (1) how have they done versus their assumption, (2) how have they done versus their benchmark, and (3)

how have they done versus their peer groups. Over the short term, at a broad level, the plans exceeded their assumed rates of return, either met or outpaced their benchmark, and were close to the median returns for that time period. Looking out beyond 10 years, performance has been a little mixed.

Mr. Cracraft provided a snapshot of asset allocations as of June 30, 2018 for all eight retirement plans. Some of the differences that could be seen within the KRS plans, such as the KERS plans holding less equity and more fixed income. TRS had roughly 63 percent of their portfolio invested in equities and 21 percent in fixed income, which did include some below investment credit assets. The Judicial Form Retirement System (JFRS), which is managed by a single manager, had about a 70/30 split between U.S. large cap equity and fixed income.

Mr. Cracraft discussed the plans asset allocation in comparison to some of their peers. KERS and CERS have less equity than the peer groups, slightly more fixed income exposure, and a similar weight to alternatives. TRS and JFRS plans are above average equity exposure and similar fixed income.

Mr. Cracraft discussed investment expenses for the pension and insurance funds of TRS, KRS, and JFRS as of June 30, 2018. Management fees are expenses that are invoiced quarterly and easily reported. With passage of SB2, TRS and KRS are now required to attempt to identify any other fees or incentives, such as carried interest. KRS reported other fees, while TRS is unable to report as a result of managers not providing.

In response to questions from Representative Miller regarding why TRS fees were lower than KRS, Mr. Cracraft indicated there were two primary factors leading to lower fees for TRS. TRS manages more assets internally, specifically within fixed income, real estate, and public equity, which has helped keep fees lower. TRS has fewer managers and has utilized a strategy of selecting a few managers, but having larger portfolios or multiple portfolios with managers. In regards to a follow up question regarding how both systems fees relate to peers, TRS would likely fall on the low end while KRS is likely near the median for a plan its size.

Mr. Cracraft discussed the topic of carried interest, which is a method of compensating general partners for fund performance. While most partnerships allocate profit based on the initial capital provided by each partner, in a carried interest arrangement, the limited partners agree to allocate, or pay, a portion of a fund's net profit back to the general partner in exchange for performance. General partners prefer carried interest agreements due to preferential tax treatment and stated that management fees would definitely have to increase if carried interest did not exist or was eliminated.

In response to a question from Senator Bowen, Mr. Cracraft confirmed there was a management fee plus carried interest in most partnership level investments. In many cases the carried interest is not calculated until after the management fee has been returned.

Mr. Cracraft continued discussing carried interest and stated that SB 2 required the plans to request the data and report it if received. TRS has testified that managers have been asked for the data, but have not been able to report. KRS, has received the information from most of their mangers, and the dollar amount was reported on the prior slide. Mr. Cracraft provided an example of three states, who are reporting carried interest, to demonstrate how significant the dollar amounts can become and how many times carried interest might even double the management fee.

With no further business, the meeting was adjourned. The next regularly scheduled meeting is Monday, October 22, 2018.