The Regents of the University of California

COMMITTEE ON INVESTMENTS
INVESTMENT ADVISORY GROUP
September 9, 2016

The Committee on Investments met on the above date by teleconference at the following locations: Plaza Room, De Neve Plaza, Los Angeles campus; 1111 Broadway, 21st Floor, Oakland; 9500 Gilman Drive, Environment, Health and Safety Building, Room 401, San Diego campus; 1130 K Street, Suite 340, Sacramento.

Members present: Representing the Committee on Investments: Regents Kieffer, Makarechian, Pérez, Sherman, and Zettel; Staff Advisor Richmond

Representing the Investment Advisory Group: Member Crane, and Consultants Klosterman and Lehmann

In attendance: Regent Gould, Faculty Representative Chalfant, Staff Advisor Valdry, Secretary and Chief of Staff Shaw, General Counsel Robinson, Chief Investment Officer Bachher, and Recording Secretary McCarthy

The meeting convened at 1:30 p.m. with Committee Chair Sherman presiding.

1. **PUBLIC COMMENT**

There were no speakers wishing to address the Committee.

2. **APPROVAL OF MINUTES OF PREVIOUS MEETING**

Upon motion duly made and seconded, the minutes of the meeting of May 2, 2016 were approved, Regents Kieffer, Makarechian, Pérez, Sherman, and Zettel voting "aye."[1]

3. **UPDATE ON INVESTMENT PERFORMANCE FOR PERIODS ENDING JUNE 30, 2016**

[Background material was provided to the Committee in advance of the meeting, and a copy is on file in the Office of the Secretary and Chief of Staff.]

Chief Investment Officer (CIO) Bachher provided an update on investment performance for the quarter and fiscal year ending June 30, 2016. He stated that the UC Entity currently had assets of $101 billion, although it had been a disappointing investment year for endowments generally and for the Office of the CIO. Investment markets in 2015 and 2016 to date had been challenging, with extremely low interest rates, geopolitical risks,

[1] Roll call vote required by the Bagley-Keene Open Meeting Act [Government Code §11123(b)(1)(D)] for all meetings held by teleconference.

volatility in public equity markets, declining commodity prices, and slower growth in emerging markets, especially China. The Office of the CIO manages the $54 billion defined benefits pension plan, the $9.1 billion endowment, the $20.2 billion UC Retirement Savings Program (UCRSP), and $14.2 billion in working capital. As of July 1, the Office of the CIO had also assumed management of approximately $700 million in captive insurance assets for Fiat Lux. Each of these products has a different asset and risk allocation, and therefore a different implementation strategy.

The UC Entity is invested globally, 75 percent in the United States and $20 billion in other developed and emerging markets; 82 percent of assets are in public markets, including $49 billion in public equities and $31 billion in fixed income; $14 billion is invested in private markets around the world. As of June 30, $4 billion was held in cash.

Mr. Bachher discussed the backdrop of the 2015-16 global markets. Interest rates continued to be exceptionally low, with historically unprecedented persistence. Near-zero U.S. short-term interest rates represent the lowest levels seen since the Great Depression. Such low rates tend to reduce returns for all assets. This has caused three key risks globally: debt levels are too high; productivity growth is too low; and room for policy maneuvering is too narrow.

In the past two years, public equity markets have experienced alternating phases of calm and turbulence. Three periods were especially turbulent: July to September 2015; January to February 2016; and the period following June 24, 2016, when the British voted to leave the European Union, known as Brexit. For the past decade, China was seen as the global growth engine, leading to an increase in its equity prices. However, in July 2015, the Chinese economy experienced a sharp slowdown, resulting in a reversal in Chinese equities. Markets had stabilized by October 2015, but losses have not been recouped. In the U.S., continued strong economic data reinforced the expectation that the Federal Reserve would at last tighten monetary policy by December 2015. But again in January 2016, a second period of turbulence was triggered by news about China’s much slower growth, followed by data from other countries demonstrating slower growth globally. From the start of 2016 until mid-February, oil prices collapsed to below $30 a barrel and major global equity indices dropped ten to 20 percent.

Managing Director of Risk Management Richard Bookstaber observed that all of the issues referred to by Mr. Bachher had both market and geopolitical components. Oil prices are linked to changes in the Middle East and the immigration flowing into Europe. Immigration increased nationalism that contributed to Brexit, which would have implications for the Euro, credit markets, and the European economy. Slower growth in China has encouraged more adventurism by China, such as seen recently in the South China Sea. Restricted funding flows from China to emerging markets led to financial and geopolitical strains. There was increasing turmoil in both financial markets and geopolitics, and an integration between the two, adding substantial risk to the markets. He cautioned that, if the markets pass a tipping point, lack of liquidity could lead to a large systemic crisis, which standard risk management tactics would be unable to model and control.

Mr. Bachher stated that, in such an environment, hewing close to asset allocations would be important and it would be difficult for active management to produce returns above benchmarks. Implementation of the asset allocation would be increasingly important.

Regent Makarechian asked how the Office of the CIO would prepare for possible policy changes that could result from the upcoming U.S. presidential election. Mr. Bookstaber stated that the possible results of the election could be prepared for and would be resolved relatively quickly, but the move toward nationalism and away from globalism could be a major change with more extended risk for both the United States and Europe. The United States had moved toward global integration and globalization since World War II. Regent Makarechian asked if investments could be chosen that would benefit from increased nationalism. Mr. Bookstaber expressed his view that many investors worldwide would be looking to the United States and Canada as areas with lower geopolitical risk than other parts of the world, if their investment decisions were risk-based.

Senior Managing Director of Fixed Income Steven Sterman added that there was a growing consensus that the ability of monetary policy to push interest rates lower was coming to an end. Fiscal policy would be the replacement, but there was concern that more spending, while it could create more growth, could also could create more inflation. Small increases in interest rates create losses in what investors generally consider to be very safe assets.

Discussing performance of the endowment, Mr. Bachher said that, including the ten campus foundations, the total UC endowment currently stands at $15.4 billion, of which the General Endowment Pool (GEP) is $9.1 billion. The GEP has an annual payout of 4.75 percent and a nominal return target of 8.75 percent, which includes four percent inflation at educational institutions. In the fiscal year ending June 30, 2016, the GEP paid out $263 million; over the past decade, the GEP paid out $2.4 billion to UC with approximately 5,400 specific endowments within the University. During the past 2.5 years, for the first time in a long time, the GEP has had significant inflows of $1.2 billion.

For the year ending June 30, 2016, the GEP lost $300 million in market value, ending the year at $8.9 billion despite cash inflows of $500 million. However, by the end of August 2016, GEP market value rebounded to $9.4 billion. In addition to difficult market conditions during the fiscal year, UC's external active public equity managers had very poor performance affected by returns in China, and biotechnology and healthcare stocks. Many of those same external public equity managers had outstanding performance for the University in prior years. UC's external hedge fund managers also had poor performance. About 46 percent of the GEP is invested in public equities, nine percent in fixed income, 18 percent in absolute return or hedge funds, 12 percent in private equity, eight percent in real assets, and a high cash balance of 7.5 percent. Part of the cash balance was from new inflows.

Since Mr. Bachher became CIO, the number of external public equity managers had been reduced from 80 to 14 in the GEP. He expressed his view that the number of external managers could be further reduced. Committee Chair Sherman asked what portion of the public equity portfolio was actively managed. Mr. Bachher responded that 75 percent of the GEP public equity portfolio was actively managed. Committee Chair Sherman asked about Mr. Bachher's plans regarding active versus passive management of the public equity portfolio. Mr. Bachher said that he planned to reduce the proportion of actively managed public equities in the GEP to about 40 percent.

Regent Pérez asked why cash inflows to the GEP had increased. Mr. Bachher explained that UCLA invested its $526 million proceeds from its sale of royalties of the drug Xtandi, used to treat prostate cancer, in the GEP, to be paid back to the campus over a 12-year period. In addition, over the past two years, slightly more than $500 million had been invested by UC campuses electing to create Funds Functioning as Endowments in the GEP to invest longer-term campus funds that had been invested in the Total Return Investment Pool (TRIP).

Discussing asset allocation in the GEP, Mr. Bachher said it was intentionally six percent underweight in absolute return. For the fiscal year, the GEP lost 3.4 percent, underperforming the policy benchmark by 1.7 percent. A significant portion of the underperformance came from public equities active management and the hedge fund portfolio, and a minor amount from real assets, driven by an almost 40 percent decline in oil prices. Of those who have reported to date, most of UC's peer institutions have reported negative returns for the fiscal year. Returns of UC campus foundations have ranged from negative 2.2 percent to negative 5.1 percent. The GEP returned 2.9 percent for the 12 months ending September 1, 2016, 7.1 percent annually for the past three years, 7.7 percent a year for 20 years, and has an annual payout of 4.75 percent. Adding the four percent annual inflation at educational institutions, meeting the 8.75 percent estimated nominal return target would be challenging.

Regent Makarechian asked if the 7.7 percent annual returns for 20 years included cash inflows. Mr. Bachher said cash inflows were not included; the returns were market returns.

Investment Advisory Group consultant Lehmann asked how the asset allocations of UC's peer institutions compared with UC's. Mr. Bachher responded that peer institutions had ten to 25 percent higher allocations to private assets.

Regent Pérez asked about management costs of passive management compared with active management. Mr. Bachher said that management costs for the GEP were approximately 1.2 percent. He estimated that the Office of the CIO pays approximately $600 million annually in active management fees, including both performance and management fees. Specifically, for the 14 remaining external managers in the GEP public equity portfolio, he viewed the cost structure as very expensive, averaging approximately one percent management fees and 12 percent performance fees. In moving from 80 external managers to 14, the Office of the CIO was able to eliminate those with shorter lockup periods and whose portfolios were more indexed. Managers with more concentrated portfolios have longer lockup periods, which Mr. Bachher viewed as more appropriate for hedge funds than public equities. In comparison, public equity index fund fees are less than five basis points. In the future, his office would start with passive management and would add an active manager only when it would clearly be worth paying higher long-term fees to generate better performance.

Investment Advisory Group consultant Klosterman commented that one area of stellar performance was private equity, with the GEP's private equity portfolio returning 14.4 percent, within which the return on buyouts was 30.6 percent. He asked why private equity returns in the UC Retirement Plan (UCRP) were dramatically lower than in the GEP. Mr. Bachher agreed that private equity had been a bright spot in both the GEP and the UCRP. The private equity portfolios in the GEP and UCRP are different, while they had been identical two-and-a-half years prior when he became CIO. The private equity portfolio for the UC Entity is approximately $4 billion. As part of the rationalization of the portfolios, $1.7 billion of private equity assets were sold in the secondary market over the past 2.5 years, taking advantage of high valuations. Currently the GEP has only eight private equity managers whose funds have buyout, venture capital, and co-investment components. Within buyouts, two funds had investments that had very healthy returns during the course of the fiscal year, a performance that was not necessarily repeatable. UC's co-investments, approximately 45 percent of the GEP private equity portfolio, have no management or performance fees. Mr. Bachher estimated the overall fee structure of the private equity portfolio to be one percent management and ten percent performance fees, well below the industry standard two percent management and 20 percent performance fees. Buyout returns in UCRP private equity were not as high as those in GEP private equity.

Mr. Bachher suggested that the Committee consider realistic objectives for the GEP payout for the upcoming 20 years. In a low-return environment, fiscal prudence would indicate lowering the payout ratio.

Mr. Bachher reported that UCRP, the University's defined benefit pension plan with 220,000 participants, began the fiscal year with $55 billion in assets and lost $1.1 billion by the end of the fiscal year. In the two months since then, returns had improved and the UCRP currently had assets of $57 billion. UCRP's asset allocation is 55 percent public equities, 23 percent fixed income, and 17 percent other investments, including 4.8 percent hedge funds, five percent private equity, 5.7 percent real estate, and 1.8 percent real assets. Overall, fixed income performed very well. The portfolio also holds five percent cash, which would be redeployed as good private market opportunities present themselves. The UCRP asset allocation approved by the Regents in May suggests that another $5 billion to $6 billion should be invested in private assets in order to meet the expected annual return target of 7.25 percent. In the current investment environment, Mr. Bachher cautioned that, rather than simply taking on more risk in private assets to earn higher returns, the Regents should reconsider expected UCRP long-term returns and set realistic expectations with UC's stakeholders.

Regent Makarechian asked about the effects of the new pension tier with the defined contribution option. Mr. Bachher confirmed that, since the new tier came into effect at the beginning of July, inflows to the defined contribution plan had increased. He anticipated that the UCRSP could increase from its current $20 billion to $30 billion or $40 billion in the upcoming ten years. Regent Makarechian asked what proportion of new hires was enrolling in the defined contribution plan. Mr. Bachher said he could obtain that information. Regent Pérez asked if highly compensated employees were choosing the defined contribution plan at a higher rate than lower compensated employees. Mr. Bachher said he could also provide that information.

Mr. Bachher reported that UCRP returned a negative two percent for the fiscal year, a combination of policy benchmark returns of negative 0.8 percent plus negative 1.2 percent of underperformance. UCRP was affected by the same market conditions as the GEP. Additionally, the timing of the reduction in the number of active external managers in the public equity portfolio had a negative effect on returns. The hedge fund portfolio also underperformed, as it did in the GEP. Mr. Bachher said he would like to move the UCRP public equity portfolio to 80 percent passive management over time. The reduction in costs would be significant. UCRP public equity management costs were currently roughly 0.8 percent management fee and ten percent performance fee, compared with five basis points total fee for passive management. At some point in the future, active management would be more likely to achieve excess returns.

The UCRP fixed income portfolio included close to $1.3 billion in emerging market debt, which had been managed internally by the Office of the CIO. Mr. Sterman had decided to move the emerging market debt to an indexed fund with a cost of less than ten basis points.

Committee Chair Sherman pointed out that the biggest factor determining returns is asset allocation. Implementation, whether positive or negative, determines a relatively modest fraction of performance.

Mr. Bachher continued, noting that, as of September 1, one-year UCRP returns were 5.1 percent. For the period ending June 30, 2016, the UCRP returned 6.3 percent annually for three years and 7.2 percent for 20 years. He pointed out that UCRP's discount rate had been 7.5 percent and was reduced to 7.25 percent. He would recommend further reducing it to seven percent, even though that would be controversial, and possibly even lower in the future. Regent Pérez agreed that it would be prudent to adjust the discount rate, but asked what the implications would be for the contribution rate. Mr. Bachher said that reducing the anticipated rate of return to seven percent from 7.25 percent would increase liabilities by $2 billion. To earn $2 billion on a $50 billion portfolio would require an additional four percent return. Many stakeholders would have to be consulted on this complicated issue.

The UCRSP, with assets of $22 billion, is the second largest defined contribution plan in the United States. The UCRSP has 300,000 participants with an average age of 41 years.

Mr. Sterman discussed the working capital portfolios, which held $14.2 billion at the beginning and end of the fiscal year. The goal for TRIP and the Short Term Investment Pool (STIP) is to maximize risk-adjusted returns within the constraints of rating agency liquidity requirements. The working capital portfolios had $200 million in market gains, with no value added. TRIP has returned seven percent annually since its inception in August 2008. During that period, STIP earned 2.2 percent annually. TRIP's performance earns more for UC campuses. During the past year, the Office of the CIO moved approximately $1.4 billion from STIP to TRIP.

Regent Makarechian asked if more funds would be moved from STIP to TRIP to take advantage of TRIP's higher returns. Mr. Sterman advised that the University is constrained by requirements of the rating agencies. The University must hold a total of $2.5 billion in U.S. Treasury bonds across STIP and TRIP to fund immediate liquidity needs. For its long-term credit rating, the University must hold a minimum of $5 billion in STIP. The Office of the CIO and the Office of the Chief Financial Officer are collaborating on ways to encourage the rating agencies to view STIP and TRIP holdings in their entirety and ascribe some liquidity to TRIP. He agreed that it would be beneficial to move more working capital to TRIP to earn higher returns. Mr. Bachher added that UC campuses have moved close to $1.2 billion from STIP to TRIP over the past two years.

Committee Chair Sherman asked about TRIP's liquidity. Mr. Sterman responded that TRIP's asset allocation included 50 percent fixed income, much of which is liquid, investment-grade paper. TRIP also holds $900 million in U.S. Treasury bonds. The rating agencies give little liquidity credit for holdings other than U.S. Treasury bonds. He believed a strong argument could be made to the rating agencies that TRIP holds $1 billion of liquid assets, which would enable the University to move an additional $1 billion from STIP to TRIP.

Mr. Sterman described TRIP's asset allocation, changed a year prior to reduce risk, of 35 percent public equities, 50 percent fixed income, and 15 percent absolute return. In the past fiscal year, the number of external public equity managers was reduced from 17 to six, resulting in lower costs and less volatile strategies. In the upcoming year, TRIP's public equity portfolio would be moved to 100 percent passive management. At fiscal year's end, TRIP held only 11.8 percent absolute return, 3.2 percent underweight. Mr. Sterman was working to build a lower-cost, lower-volatility absolute return portfolio within TRIP, with management fees from 75 to 100 basis points and no performance fees. Committee Chair Sherman asked if those absolute return holdings had any significant lockup periods. Mr. Sterman replied that the strategies would be more liquid.

TRIP returned 30 basis points for the fiscal year, underperforming its benchmark by 1.1 percent, primarily the result of underperformance in actively managed public equities. In the longer term, TRIP has met its goal of providing higher returns for working capital.

Mr. Sterman said STIP ended the fiscal year with $5.3 billion in assets, with a negative cash flow of $1.6 billion, including $1.4 billion moved to TRIP and $563 million loaned to UCRP. In the current fiscal year, $480 million of STIP funds would be lent to UCRP, with an additional $400 million already approved to be lent to UCRP in the following fiscal year. There were no significant changes in STIP's asset allocation during the fiscal year; the investment strategy remains the same to maintain the liquidity needed by the University. The past year continued the trend of lower returns because of lower interest rates. For each $1 billion that can be moved from STIP to TRIP, the University could expect to earn an additional $30 million in income.

Mr. Bachher stated that Mr. Sterman and his team manage the $31 billion fixed income portfolio internally. Mr. Bachher summarized that the past fiscal year has been challenging. Given the risk environment, there is a potential for the turbulence to continue. Realistic long-term expectations should be set for investment returns.

4. **REVIEW OF REGENTS POLICY 6109: SHORT TERM INVESTMENT POOL INVESTMENT GUIDELINES**

[Background material was provided to the Committee in advance of the meeting, and a copy is on file in the Office of the Secretary and Chief of Staff.]

Senior Managing Director for Fixed Income Steven Sterman reviewed proposed changes to the Short Term Investment Pool (STIP) Investment Guidelines, developed by the Office of the Chief Investment Officer in consultation with Mercer Consulting, Inc. The Guidelines were last reviewed in 2012. The proposed changes would not fundamentally alter the way STIP is managed, but would mainly refresh and streamline the Guidelines.

The proposed changes would make the STIP Investment Guidelines a stand-alone Policy, rather than an Appendix to the General Endowment Pool and UC Retirement Plan Investment Policy Statements. The Total Return Investment Pool Guidelines were made a stand-alone Policy a year prior. The risk objective for STIP would be updated to reflect the preservation of capital and to avoid negative returns, instead of the current 75 basis point tracking error limit. The proposed change would also add a three-year duration limit. The portfolio currently has a 5.5 year maturity cap, but no duration limit.

These proposed changes would be brought for action to a future meeting.

5. **INVESTMENT EARNINGS ASSUMPTIONS AND DISCOUNT RATES OF PENSIONS**

[Background material was provided to the Committee in advance of the meeting, and a copy is on file in the Office of the Secretary and Chief of Staff.]

Investment Officer Susie Ardeshir introduced this discussion of expected investment returns, discount rates, and a review of the current environment for pensions. UC's is a quasi-public plan, not explicitly mandated by State rules. This review would include public U.S. pension plans, private U.S. corporate plans, and plans in other nations. Generally, corporate and global plans set earnings assumptions based on more realistic assessment of market conditions. Public plans have traditionally used expected returns on assets as the discount rate. Public plans' expected returns on assets range from 6.5 percent to 8.5 percent. Private pension plans use much lower discount rates, ranging from three to six percent. Globally, the Netherlands public pension assets use 2.4 percent; the United Kingdom uses 6.4 percent.

The discount rate is the rate at which expected future benefit payments are discounted when measuring pension liabilities and is a key factor determining the level of contributions. The expected investment return, which is used as the discount rate by U.S. public pensions, is different from actual investment returns. Ms. Ardeshir displayed a table showing that average realized rates of return have fallen while average expected rates of return are still above seven percent.

Investment Advisory Group member David Crane defined the role of the discount rate and the completely different role of the investment return assumption. The discount rate is used to measure and report the size of the obligations owed. Everywhere else in the world, except under U.S. pension accounting, the discount rate is used to reflect creditworthiness of the obligor. The discount rate measures unconditionally owed obligations to UC employees and, in Mr. Crane's view, should not reflect anything about the investment environment. The investment return assumption, or the expected rate of return, is used to determine the contributions that should be made to the pension fund to meet its obligations, and does not reflect the creditworthiness of the obligor. The expected rate of return reflects assumptions about what assets are going to earn over the duration of the time that the liabilities must be paid. Only in U.S. public pension fund accounting are public pension funds allowed to use the expected rate of return as the discount rate. For decades, this has allowed public pension funds to understate the true size of their liabilities, but liabilities that are discounted at a high rate would later accrete drastically.

Mr. Crane expressed his view that the main issue that must be addressed is why the University is discounting its pension obligations at its expected rate of return. The traditional reason that has been used by public pension funds for using expected rates of return as discount rates is that, unlike corporations, they are perpetual entities that will not go out of existence. This is true of states, which cannot declare bankruptcy, but not of municipalities in states which permit municipalities to declare bankruptcy, and it is also not true of the University of California where the employees do not have a State guarantee of their pension. The liability is owed by the University, not the State of California. After the discount rate is addressed, then the proper expected rate of return should be set to establish contribution levels.

Committee Chair Sherman said that questions raised by Mr. Crane about the discount rate are apt, but he pointed out that the discount rate is not set by this Committee.

Regent Kieffer expressed support for addressing the questions raised by Mr. Crane, which are reflected in many national debates. Committee Chair Sherman commented that these topics should be addressed by the Board.

Ms. Ardeshir summarized that in the current low-return, low-growth environment estimates of expected rates of return of 7.4 percent are aggressive and even five to six percent could be optimistic. Many other pension funds are reviewing this issue.

Committee Chair Sherman asked what other public universities are using as expected rates of return. Ms. Ardeshir said she could provide that information.

Regent Makarechian commented that the Netherlands plan could have a 2.4 percent discount rate because it received much higher contributions. It would be important to learn what rates were being used by universities similar to UC. Mr. Lehmann expressed his view that the even if the assumed rate of return were lowered, it would be unlikely that the Committee would want to alter investment asset allocations significantly, indicating that the problem is with the liabilities. Investment Advisory Group consultant Klosterman expressed his view that the discount rate should always be lower than the expected rate of return.

Regent Gould stated that this issue deserves full consideration by the Board.

Managing Director of Asset Allocation Samuel Kunz pointed out that Segal, UC’s actuarial consultant, and Mercer Consulting, Inc. (Mercer), UC’s investment consultant, arrived at different expected nominal return figures because of different underlying assumptions such as projected inflation rates. Mercer’s expected nominal return of 7.2 percent is less than the current expected rate of return of 7.25 percent. Even a 7.2 percent return would be a best-case scenario. Mr. Kunz displayed a slide showing the decline in ten-year Treasury bond rates. If fixed income, currently 20 percent of the asset allocation, yields only two percent, the rest of the allocation needs to generate returns of 8.6 percent to achieve target returns of 7.25 percent. As expected investment returns have remained elevated, pension funds have increased their proportion of equity-like assets, thus increasing risk. Mr. Kunz expressed his view that increasing risk in a time of high valuations is not desirable. He displayed a graph with data from the National Association of State Retirement Administrators Public Fund Survey demonstrating that pension average funding ratios have declined from 100.8 percent in 2001, to 80 percent in 2009, and further to 73.7 percent in 2014.

6. **UC VENTURES PROGRAM**

[Background material was provided to the Committee in advance of the meeting, and a copy is on file in the Office of the Secretary and Chief of Staff.]

Director of Private Equity Michele Cucullu presented an update on the UC Ventures Program, which focuses on compelling venture opportunities originating from UC research. The approach is multifaceted and includes larger investments with strategic partners who would target the broader UC ecosystem and smaller investments with local funds focusing on seed and pre-seed opportunities on specific UC campuses. This strategy is creating network opportunities between these two groups. Ms. Cucullu cited examples of impressive opportunities across the University.

The UC Ventures Program has made commitments to two strategic partners in the past year: Vivek Ranadivé's Bow Capital, which would target investment opportunities across the UC system, and Column Group, a UCSF-based fund focusing on biotechnology across UC. UC Ventures has also invested in three local funds, including The House Fund based at UC Berkeley, led by founder and Managing Partner Jeremy Fiance.

Mr. Fiance, a UC Berkeley graduate and entrepreneur, reported that he had raised $6 million for The House Fund, which would target software and technology opportunities developed by UC Berkeley students, faculty, and alumni. He stated that The House Fund is the first fund fully focused on UC Berkeley. He recounted his venture work there as an undergraduate. UC Berkeley has produced the most venture-backed startups of any university in the nation. The House Fund is a pioneering early-stage venture fund and has already supported a startup that developed a smart stethoscope named by *Time Magazine* as one of the top inventions of 2015, and the world's first flying camera, which had the best startup hardware pre-sale in history. The House Fund's companies would leverage UC Berkeley's cutting-edge research and technology advantages in areas such as artificial intelligence, robotics, data science, and genomics. Some of these companies have already been validated by some of the leading venture funds. The House Fund will give back to the Berkeley campus and recently announced The House, a 7,000-square-foot startup space located across the street from UC Berkeley, would provide free resources to the campus community, and was backed by $200 million in philanthropic commitments. Mr. Fiance affirmed The House Fund's mission to build a great fund that would enable world-changing companies to create jobs, grow the local economy, and create an outstanding startup ecosystem at UC Berkeley.

Ms. Cucullu introduced Mr. Ranadivé, an entrepreneur, investor, author, and owner of the National Basketball Association's Sacramento Kings. Mr. Ranadivé expressed his view that the current era is one of information and service, with information, data, and imagination as its raw materials. No place has more of these than the University of California. He considered it a great honor to partner with UC to create Bow Capital, with the mission of helping to grow companies that use UC technology to advance society. He hoped Bow Capital would accelerate the path of UC science to society.

Ms. Cucullu said that future updates would be provided as the UC Ventures Program progresses.

7. **UC RETIREMENT SAVINGS PROGRAM**

[Background material was provided to the Committee in advance of the meeting, and a copy is on file in the Office of the Secretary and Chief of Staff.]

Director of Defined Contributions Products Marco Merz reported that, starting in July, UC's 1,280 new hires were eligible to choose between a defined contribution or the defined benefit pension plan. Of those, 260 have made a choice and 70 percent of those chose the defined contribution plan. Those who did not make a choice were automatically defaulted to the defined benefit pension plan. Among new faculty hires, 75 percent of those choosing opted for the defined contribution plan.

Mr. Merz provided an update on the UC Retirement Savings Program (UCRSP), the nation's second largest public defined contribution plan, serving more than 300,000 participants and with assets of $20.2 billion at the end of the fiscal year and more than $21 billion currently. Its 403(b) plan is the largest in the nation. Of the asset base, $5.5 billion is invested in the Target Date Fund Series, the default option. In addition, UCRSP offers 15 core investment options for participants who want to build their own retirement portfolios. Options include stand-alone U.S. equity, international equity, and fixed income portfolios. For participants who seek further choice, the plan includes a brokerage window option.

In response to a question from Committee Chair Sherman, Mr. Merz explained that a very healthy 60 percent of UC participants would be able to replace 80 percent of their income in retirement, the industry standard for maintaining one's lifestyle. The average retirement plan contribution in the U.S. is six percent employee and employer combined, compared with UC's savings rate of seven percent employee and eight percent employer, for a total contribution of 15 percent. Ultimately the savings rate is the most important component of saving for retirement. Regent Pérez asked how the income replacement rate of employees in the defined contribution plan compared with those in the defined benefit plan. Mr. Merz observed if an employee saves 15 percent, the chance of reaching a replacement ratio of 80 percent is quite high.

Investment Advisory Group consultant Lehmann asked if UC professors saved at a higher rate. Mr. Merz responded that faculty save more and differently, being less invested in Target Date Funds and more in other core fund options.

Staff Advisor Valdry asked if the figure that 60 percent of UC employees are able to replace 80 percent of their income at retirement is based on pension plus defined contribution savings. Mr. Merz answered in the affirmative.

Mr. Merz displayed a chart showing participants' holdings in UCRSP's $14.1 billion 403(b) plan, its $2.1 billion 457(b) deferred compensation plan, and its $4 billion defined contribution plan. The 403(b) and 457(b) plans are voluntary for employees; a seven percent employee contribution to the defined contribution plan would be mandatory under the new pension tier for employees who choose that option. Allocation strategies of participants are relatively uniform across these three plans, at 30 percent public equities, 40 percent pathway funds, 25 percent fixed income, and five to six percent in the brokerage link. An outlier is that 44 percent of the defined contribution plan is invested in fixed income.

Regent Pérez asked why the defined contribution plan had assets of $4 billion and 272,720 participants if it had been an option for new hires only since July. Mr. Merz said the defined contribution plan had been in existence for a long time and was originally implemented as a savings vehicle for UC employees ineligible for the pension plan, such as part-time employees or employees who wished to save in addition to the pension plan. Investment Advisory Group consultant Klosterman suggested limiting the proportion of an employee's savings that could be held in the brokerage link at ten percent as a protection against an employee making unwise investment decisions. Mr. Merz said UC employees' investments were in line with the industry average of six percent of 401(k) investments held in the brokerage window.

Associate Chief Investment Officer Arthur Guimaraes observed that six investment choices hold almost 90 percent of UCRSP assets. Target Date Funds with holdings of \$5.5 billion have more than doubled in size in the past five years. In 2014 the Target Date Fund Series became the default option and as of July 15, 2015 a streamlining of investment choices moved more than \$1 billion into the Target Date Fund Series. Historically, the Office of the CIO has managed the Target Date Fund Series' asset allocations, rebalancing, and some elements of operational trading, which involves a certain amount of operational and implementation risk. In the industry, most plans use a third-party manager to help with those activities.

The UC Savings Fund, in existence since 1967, has assets of \$4.2 billion and was the default option until 2014. The UC Global Fund is a 100 percent equity fund, with 85 percent U.S. equities and 15 percent international equities. Both the UC Global Fund and the UC Balanced Growth Fund have a static allocation to risk, since their asset allocation, unlike a Target Date Fund, does not change. Target Date Funds have a glide path, which gradually shifts the asset allocation from equities to fixed income as an employee approaches retirement. The UC Balanced Growth Fund, launched in 2004, was originally designed to mirror UC's pension plan.

Throughout its history, the UCRSP has focused on offering adequate investment choice, fee competitiveness, and participant outcomes. The plan now offers 16 investment options, reduced from more than 200 options just a few years ago, and in line with the industry average of 20. The Office of the CIO has aggressively pursued fee competitiveness and the average fee across the UCRSP is just 14 basis points. Changing the default investment to the Target Date Fund Series was consistent with practices in 75 percent of all defined contribution plans. The Office of the CIO had made slight adjustments in the Target Date Fund Series' glide path based on recommendations from Mercer Consulting, Inc.

Mr. Guimaraes advised that outsourcing management of the Target Date Fund Series would have the benefit of shifting the fiduciary responsibility of the plan to the third-party manager. Chief Investment Officer Bachher expressed support for using a third-party manager. Mr. Guimaraes commented that the 100 percent equity UC Global Fund had 14 percent volatility, which is higher than the General Endowment Pool and equal to the most aggressive Target Date Fund. Of the \$4.1 billion held in the UC Global Fund, \$1 billion is held by participants who hold only that fund, which does not have the risk benefit of the glide path as the participant approaches retirement. Mr. Guimaraes expressed the view that the risk/return characteristics could be improved by moving the UC Global Fund into the Target Date Funds.

Regent Pérez asked if participants who are invested only in the UC Global Fund have any common characteristics. Mr. Merz commented that the risk of the UC Global Fund is steady over time and many defined contribution plan investors do not adjust their holdings as they age. The Target Date Fund Series automatically reduces participants' risk as they approach retirement. For younger participants, the Target Date Fund Series' allocation would be similar to the UC Global Fund, but the risk would be rolled down over time. Mr. Guimaraes said the underlying asset allocation of the UC Balanced Growth Fund is similar to a Target Date Fund, but with no glide path. He expressed the view that the risk/return characteristics of this fund could also be improved by rolling it into the Target Date Funds.

Mr. Lehmann commented that some participants may never want to draw down their defined contribution account, perhaps planning to leave it to their heirs. Committee Chair Sherman stated that such participants could elect a more aggressive Target Date Fund.

Committee Chair Sherman asked about plans to outsource management of the Target Date Funds. Mr. Guimaraes said a publicly procured Request for Proposals would be issued. Rolling the UC Global Fund and the UC Balanced Growth Fund into the Target Date Funds Series would result in a $10 billion portfolio, which he anticipated would generate very competitive bids with attractive fee structures. He expressed his view that the process could result in lower fees and better returns.

Regent Makarechian asked who provides investment education to UC employees. Mr. Guimaraes responded that employees can make personal appointments with Fidelity Investments (Fidelity) representatives on UC campuses to seek investment guidance. He added that a third-party manager could also provide educational services. Regent Makarechian asked if such third-party representatives would have a fiduciary relationship with UC employees or if they might seek business for their own company. Mr. Guimaraes commented that they should be neutral, and investing in the Target Date Fund Series would naturally allocate a participant's investments over time. Mr. Klosterman pointed out that brokers are not fiduciaries until a new law takes effect in 2017. Mr. Merz said his office has frequent discussions with Fidelity regarding increasing the educational component of their services, particularly when the new pension tier came into effect for new hires in July. Staff Advisor Richmond stated that, while Fidelity offers investment education and personal advice, many employees do not take advantage of it.

Committee Chair Sherman asked if the fees for the various Target Date Funds are similar. Mr. Guimaraes responded that currently fees vary according to the underlying investments. The Office of the CIO could seek similar fees for all Target Date Funds with a third-party manager. Committee Chair Sherman observed that a consistent fee structure could help eliminate bias in recommending investment options. Mr. Guimaraes added that increasing passive management in the Target Date Funds would lower costs.

Regent Zettel asked about the Office of the CIO's oversight of performance of any third-party managers. Mr. Guimaraes said that Employee Retirement Income Security Act of 1974 regulations require the University to monitor third-party managers. Mr. Merz added that the Office of the CIO meets with any third-party managers at least annually.

The meeting adjourned at 4:15 p.m.

Attest:

Secretary and Chief of Staff