The Regents of the University of California

INVESTMENTS SUBCOMMITTEE
March 14, 2017

The Investments Subcommittee met on the above date at UCSF–Mission Bay Conference Center, San Francisco.

Members present: Representing the Investments Subcommittee: Regents Elliott, Kieffer, Sherman, and Zettel; Ex officio member Makarechian; Chancellor Block; Faculty Representative White

Representing the Investment Advisory Group: Member Rogers

In attendance: Secretary and Chief of Staff Shaw, Chief Investment Officer Bachher, Executive Vice President and Chief Financial Officer Brostrom, Deputy General Counsel Friedlander, and Recording Secretary McCarthy

The meeting convened at 2:00 p.m. with Subcommittee Chair Sherman presiding.

1. **PUBLIC COMMENT**

There were no speakers wishing to address the Subcommittee.

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

Upon motion duly made and seconded, the minutes of the meeting of October 26, 2016 were approved.

3. **UPDATE ON INVESTMENT PRODUCTS**

[Background material was provided to the Subcommittee 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 stated that the UC Entity held $103 billion in assets as of December 31, 2016. By February 28, 2017, the UC Entity had increased to $106 billion, including $60 billion in the UC Retirement Plan (UCRP); $21.5 billion in the Retirement Savings Program; $10.3 billion in the General Endowment Pool (GEP); $9 billion in the Total Return Investment Pool (TRIP); and $5.8 billion in the Short Term Investment Pool (STIP). Five years ago, the UC Entity totaled $76.4 billion; since that time it had grown $30 billion. Half of its holdings were in public equities; 30 percent in fixed income; and the balance in other investments including real estate, private equity, real assets, and absolute return. Performance of public equities had been the key driver of returns. The Office of the CIO held a higher-than-normal position in cash for the past three years, $3.6 billion at the end of 2016, which Mr. Bachher said was a natural hedge against highly valued markets.

Senior Managing Director Scott Chan reported on public equities, which enjoyed a robust rally in the first six months of the current fiscal year, with global equities up roughly seven percent. This is in stark contrast with the past two fiscal years during which global equity markets declined about 3.5 percent. In the current fiscal year to date, all major equity markets in all major regions rose. In contrast, in the two prior fiscal years, only the U.S. equity markets rose while those in all other regions fell. Cyclical sectors such as materials, technology, financial, and energy stocks led the rally; defensive stocks such as consumer staples, utilities, and telecommunications detracted. Mr. Chan expressed his view that the rally was caused by corporate optimism and growth expectations around the world. In the U.S., the prospect of lower tax rates, reduced business regulation, and increased fiscal spending boosted corporate optimism. A big question involved normalization, whether the economy was moving from an environment of low interest rates and quantitative easing driving stock values to fiscal and corporate spending driving earnings growth and propelling stock prices higher. Other major drivers in support of the equities rally were the stabilization of commodity prices and Chinese markets. Mr. Chan cautioned that this optimism must be tempered by consideration of risk, since stock markets were highly valued. The potential for interest rate increases would increase the discount rate and affect stock values. A number of geopolitical risks exist.

Managing Director Edmond Fong discussed the GEP, which began the fiscal year with assets of $9.1 billion and ended 2016 with $9.9 billion, a result of $430 million in market gains, $210 million above its benchmark, and net cash inflow of $110 million. The GEP asset allocation was four percent overweight public equities and six percent overweight cash. The Office of the CIO was using a new framework to analyze underlying risks. GEP risk equaled its policy benchmark risk. GEP forecast volatility was 8.7 percent and the volatility of its current asset allocation was 8.5 percent. Even with the GEP's large cash position, the portfolio was not under-risked. As of the end of 2016, for the fiscal year the GEP experienced robust returns of 7.1 percent, 2.4 percent above its benchmark. These returns were largely driven by public and private equity returns, which contributed 85 percent of return. Every asset class contributed positively to performance and outperformed its benchmark. While asset allocation is crucial to investment strategy, implementation is equally important. The Office of the CIO had made great strides in reducing its number of external managers from 175 two-and-a-half years ago, to 65 managers currently, allowing it to be more proactive in its key relationships and to mine opportunities more precisely.

Interim Chief of Staff and Managing Director Sam Kunz discussed UCRP, which began the fiscal year with assets of $54 billion and increased to $57 billion by the end of 2016. During that six-month period UCRP had $2.5 billion in market gains, and $570 million in performance above its benchmark. Cash flow was positive, a result of $480 million of borrowing from STIP, $170 million in contributions, and $580 million paid out in benefits. Five years prior, the UCRP had assets of $37 billion; the increase to its current $57 billion was largely attributable to increases in equity markets. Similarly, performance in the six-month period ending December 31, 2016 was driven largely by equity. The UCRP ended that period with a 3.7 percent overweight to public equity, balanced by a 2.4 percent overweight to cash. The overweight to public equity was roughly balancing

UCRP's 2.8 percent underweight to private equity. The current position would allow the UCRP to benefit from any further market gains, and its cash position would provide the flexibility to take advantage of a market correction. UCRP returned 5.5 percent for the six-month period ending December 31, 2016, one percent above its benchmark. Most of the performance was driven by public equity, accounting for 90 percent of returns. The added value attributable to the overweight in public equity contributed half of the returns above the benchmark.

Senior Managing Director Steven Sterman commented on fixed income, which comprised 50 percent of TRIP's asset allocation and 100 percent of STIP's. In the fiscal year to date, interest rates had been rising, and at an accelerating pace since the presidential election in November 2016. Given data on inflation and employment, Mr. Sterman anticipated that the Federal Reserve Board would hike the discount rate the following day and continue to normalize rates over the upcoming few years. He expected rates for shorter term instruments of up to five years to be most affected, and ten-year treasury bonds to stay around current rates of 2.3 percent to 2.75 percent. Over the upcoming year or two, the Federal Reserve's continuing to increase rates would result in a flatter yield curve. Mr. Sterman said the strong demand for corporate bonds had resulted in spreads tightening significantly over the past six to nine months, somewhat off-setting interest rate increases, and providing better returns to those overweight in spread product and underweight treasury bonds. Mr. Sterman anticipated that increasing interest rates cause STIP's yield to move higher over time from its current 1.3 percent. He anticipated STIP's yield to increase to about 1.5 percent over the upcoming six to 12 months. TRIP's overweight to spread product had helped it outperform its benchmark.

Total working capital assets as of December 31, 2016 were $15.3 billion, a significant amount that was important for UC campuses' ability to forecast their spending. TRIP's asset allocation had been steady, very close to its target allocation of 50 percent fixed income, 35 percent equities, and 15 percent absolute return. In the past six months, Mr. Sterman's focus had been on simplifying the portfolio and reducing costs. The move to 100 percent passive implementation of the public equity portfolio had been completed and would allow those assets to be managed at very low cost. Over the prior three to six months, the number of external managers in the absolute return portfolio had been reduced from five to three, with an average implementation cost of 64 basis points (bps), estimated to save approximately $20 million annually. Mr. Bachher added that the overall cost of managing TRIP was 25 bps, reduced from roughly 60 bps three years prior.

Subcommittee Chair Sherman asked about reductions in management costs in GEP and UCRP. Mr. Bachher responded that two years prior GEP management costs had been close to 1.2 percent; he anticipated the GEP management costs would be reduced by the end of the current fiscal year. UCRP management costs were roughly 70 bps, with the greatest cost driver being U.S. public equities. Mr. Bachher stated that his office had hired an external consultant to analyze the cost structures of its defined benefit and defined contribution plans for the past three years in comparison with peer institutions'. That study indicated that UC's U.S. public equity management costs offered the greatest

opportunity to achieve cost reductions. Further reducing UCRP's number of public equity external managers would reduce costs another 20 to 30 bps.

Regent Makarechian asked if funds allocated to external public equity managers who would be eliminated would be managed in house. Mr. Bachher said his office would both move funds into passively managed funds and would increase allocations to the remaining external public equity managers. Subcommittee Chair Sherman added that the remaining public equity, private equity, and absolute return external managers had hurdle rates that they would have to exceed in order to earn management fees.

Mr. Sterman reported that TRIP returned 2.1 percent for the fiscal year to date, with value added above the benchmark for every time period. TRIP was fulfilling its intended purpose of providing higher returns than STIP for campuses' working capital. Since its inception TRIP had returned seven percent annually, while STIP had returned two percent. STIP holdings continued to be of very short duration; its average credit rating had improved from A to A+. During the past quarter Mr. Sterman's team had worked along with Executive Vice President and Chief Financial Officer Brostrom's external finance group to increase the University's flexibility in fulfilling the rating agencies' $5 billion liquidity requirement for STIP. The University would be able to use $1 billion of high-quality public fixed income assets in TRIP to fulfill part of STIP's liquidity requirement. He commented that the TRIP payout rate was currently 4.75 percent of unit value with a 60-month lookback period. He expressed his view that it would be important to ensure that TRIP's asset allocation could realistically support this stable payout to the University. Modeling was currently being conducted to examine various scenarios. He anticipated a gradual reduction of the payout ratio from 4.75 percent to around 3.75 percent to four percent. This would be considered at a future meeting.

Associate Chief Investment Officer and Chief Operating Officer Arthur Guimaraes reported that the UC Retirement Savings Program's (UCRSP) defined contribution (DC) plans had assets of $20.8 billion and had continued to grow as a result of strength in equity markets. Of the 4,000 new employees who joined retirement plans since the July 1, 2016 beginning of UC's new pension tier, two-thirds were in the defined benefit (DB) plan and one-third in the DC plan. For those new employees making active selections, 29 percent had selected the DC plan compared with 23 percent who selected the DB plan. The one-quarter of new employees who made no choice were defaulted into the DB plan. These numbers were similar for both staff and faculty. As of December 31, 2016, the UCRSP target date funds held $5.8 billion, having doubled in the past five years. These funds are the centerpiece of the DC program and the default investment option, consistent with most of the industry. The Office of the CIO had issued a Request for Proposals to find a third-party fiduciary manager of its target date funds and would work through that process for the balance of the year.

UC's DC plan had reduced participants' investment options to 14 core funds and the Office of the CIO continued to look for further opportunities to streamline options, possibly by eliminating the UC Global Fund and the UC Balanced Growth Fund. Since the UC Global Fund holds a static 100 percent allocation to equities, the Office of the

CIO believes that participants' risk could be reduced by moving those holdings into a target date fund, which provides an automatic glidepath to reduced risk as a participant approaches retirement. The UC Balanced Growth Fund, launched in 1990, was designed to mirror UCRP, but it also had no reduction of risk over time. His office would also recommend moving these holdings to the target date funds.

Regarding cost reduction, the DC plan had achieved the most cost savings in its Emerging Markets Fund, which had increased to more than $1 billion from its initial $80 million. Costs had been reduced from 70 bps to less than half of that for the first $1 billion, and half again of that for amounts above $1 billion, saving $5 million annually for fund participants.

Chief Risk Officer Richard Bookstaber discussed risk, noting that, while the portfolio did not contain any exposures notably divergent from benchmarks, there were four areas with slightly elevated risk: equities, possible market volatility, fixed income interest rates, and the dollar. A sell-off in equities could occur if President Donald Trump failed to fulfill campaign promises. Another risk could be an unanticipated lowering of interest rates by the Federal Reserve Board rather than the anticipated increase. These factors could interact in a negative manner. In addition, there was much focus in markets on factor strategies and those funds were levered and very concentrated. A change in a particular strategy, such as a momentum strategy, could have a cascading effect across equity markets, commodities, and foreign exchange markets.

Regent Kieffer asked how UC's asset allocation compared with similar academic institutions'. Mr. Bachher stated that, for endowments, a higher allocation to private assets relative to public equities would provide some protection from public equity risk, because the market drop in private markets would lag a decline in public equities. UCRP's allocation to public equity was generally similar to that of other large U.S. pension plans, which generally had a 45 percent to 50 percent allocation to public equities. However, the GEP had roughly twice as much allocated to public equities as other prominent university endowments, which started earlier to increase their allocations to private equity.

Mr. Bachher stated that his office continued to explore ways to invest using its framework on sustainable investment considering environmental, social, and governance (ESG) issues. The Office of the CIO sold its positions in coal companies and oil sands focused companies in September 2014 and had continued the process of de-risking the portfolio in areas with higher sustainability risk. Another $150 million of holdings in the fossil fuel industry had been sold. In addition, the Office of the CIO had invested almost $200 million in newer areas of renewable energy, including sustainable agriculture, developmental infrastructure, and climate infrastructure assets. To de-risk the portfolio, the Office of the CIO had sold a portion of its bond holdings in Energy Transfer Partners and Sunoco Logistics and would sell the balance. Subcommittee Chair Sherman noted that the Office of the CIO would continue to review all holdings in light of ESG issues, and supply and demand factors. These decisions are, above all else, economic. Mr. Bachher stated that his office was not divesting, but was making sound economic

decisions. Sustainable investing must be considered as part of decision-making, not in isolation.

Regent Makarechian asked about a chart showing UCRP cash flow and asked about the increase in employer contributions and total benefit payments from 2011 to 2016. Investment Officer Susie Ardeshir explained that benefit payments had increased because the number of retirees had been increasing and was projected to continue to increase over the upcoming ten years. The funding contribution level is set annually by the Regents and had been at a relatively flat rate since contributions were reinstated in 2009. Employee contributions were seven percent and employer contributions 14 percent. The ratio of active to retired employees was 3:1 in 2000, was currently 2:1, and was projected to stabilize at that rate. Ms. Ardeshir said that actuarial data can be used to project the numbers of retirees through 2025 and would be informative for broader financial considerations for the University. Regent Makarechian said it would be helpful to have information about projected benefit payments further into the future. Mr. Bachher commented that there were two options to meet increasing benefit payments: either increase investment returns or increase contributions. Regent Makarechian expressed his view that it would be unrealistic in the current environment to expect increases in returns that would keep pace with projected increases in benefit payments. Mr. Bachher commented that UCRP returns over 20 years had averaged seven percent.

4. **GENERAL ENDOWMENT POOL ASSET ALLOCATION REVIEW AND RECOMMENDATIONS**

The Chief Investment Officer and Cambridge Associates recommended that Section A of Appendix 1 of the University of California General Endowment Pool Investment Policy Statement be amended as shown in Attachment 1, effective July 1, 2017.

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

Chief Investment Officer Bachher recalled that the Subcommittee discussed the asset allocation of the General Endowment Pool (GEP) at its prior meeting. Mr. Bachher displayed a graph showing the GEP’s asset allocation since 2000. UC’s endowment currently had twice as much allocated to public equity and half as much to private equity as its top 20 peer university endowments. Mr. Bachher recalled Regents’ questions at the prior meeting about implementation of an increased allocation to private equity, the effects of leverage within private equity holdings, and running Monte Carlo simulations to assess downside risk of the proposed allocation under various scenarios. This presentation would address those questions. Mr. Bachher stated that the main changes to the GEP asset allocation that his office was recommending were to reduce the public equity allocation from 42.5 percent to 30 percent and to increase the private equity allocation from 11.5 percent to 22.5 percent.

Interim Chief of Staff and Managing Director Sam Kunz discussed the reasons for this recommended change in asset allocation. UC campuses do not rely heavily on the GEP

for their operating budgets, so the cash flow needed from the GEP is relatively low compared with some of UC's peers. A study of the GEP asset allocation by Cambridge Associates showed that the GEP asset allocation was closer to that of a pension than to peer endowments. Among the best performers of UC's peers' endowments, half of their returns were the result of their implementation of their asset allocation. The Office of the CIO concluded that, because of the GEP's long-term investment horizon and UC's ample liquidity, UC was in a position to take advantage of the illiquidity premium of private equity. In addition, simplifying the asset allocation and focusing on implementation would be productive. The proposed changes, while quite substantial, would result in similar GEP risk profile, a slight decline in volatility, and a marginal increase in expected returns from 5.8 percent to six percent.

Mr. Kunz discussed how his office arrived at the proposed allocation's projected six percent return. The effect of the current market environment was minimized and analysis was based on long-term returns. Mr. Larry Chang of Cambridge Associates explained that expected returns could be based on either long- or short-term forecasts, depending on the purpose. He expressed his view that using very long-term return expectations was the most useful for setting long-term decisions such as investment policy. He displayed a chart showing expected returns for various asset classes over the very long term, much longer than ten years. In response to a question from Subcommittee Chair Sherman, Mr. Chang said he did not anticipate that these projected returns would likely be achieved over the upcoming few years, given current market valuations, but would hold over the longer term.

Regent Makarechian asked whether current political changes would affect anticipated returns. Mr. Kunz responded that projections of long-term returns were used so that they would include several political administrations and neutralize shorter term effects. Regent Makarechian asked for realistic return assumptions over the upcoming five years. Mr. Bachher anticipated that returns for fewer than ten years would be lower than longer-term returns.

Regent Makarechian asked about the motivation for changing the asset allocation. Subcommittee Chair Sherman commented that relative returns and risk among asset classes were important to consider in arriving at an asset allocation. Mr. Bachher noted that the recommended 11 percent change from public to private equity was significant. Subcommittee Chair Sherman added that the change would reduce liquidity in the GEP, but that the GEP was of sufficient size to absorb that. Mr. Bachher agreed that the GEP required payout of about $270 million annually was small enough to allow it to hold more illiquid assets. He noted that it would take time, particularly in the current market, for his office to find attractive private equity assets. Implementation would be extremely important and his office would be highly opportunistic on an asset by asset basis. Compared with the best-performing endowments, UC has lagged in its allocation to private equity.

Regent Kieffer asked about the implications for UC Retirement Plan (UCRP) funding policies if long-term returns were projected at roughly six percent. Mr. Bachher agreed

that these projections could have serious implications for the University. He expressed his view that future investment returns would likely not equal those of the past and the University would have to consider shifting its expectations in the current low-return environment.

Regent Makarechian asked when the Regents would receive an actuarial report detailing UCRP demographic projections of future payouts. Mr. Bachher said that report is typically presented at the November meeting. He suggested that the Subcommittee review asset allocations of all products annually and prior to the actuarial report so that the actuaries would have updated earnings projections.

Mr. Kunz said that the new asset allocation would require buying $370 million to $420 million of private equity assets over a three-year period. Mr. Bachher briefly discussed the size of assets he anticipated adding to the private equity portfolio. Mr. Bachher emphasized that the implementation would be cautious and highly opportunistic. Managing Director Edmond Fong would manage the GEP.

Upon motion duly made and seconded, the Committee approved the CIO's and Cambridge Associates' recommendation.

Investment Advisory Group member Rogers commented that, in addition to the $10 billion GEP, another $4.5 billion is managed by UC campus foundations. Mr. Rogers said that in the past three years the GEP had earned 1.66 percent more than the campus foundations, which he said amounted to about $75 million per year with no increase in risk. The difference in returns for UC Berkeley alone would be about $30 million annually. He acknowledged that the campus foundations may prefer to manage their funds locally, but there could be a variety of ways to approach the campuses about this issue. For example, the campus foundations could invest in the GEP as if it were a mutual fund. The size of the GEP gave it investment advantages over the campus foundations. Regent Kieffer agreed that it would be appropriate to address this with the campuses, perhaps through meetings. Subcommittee Chair Sherman expressed agreement, noting that the comparative returns speak for themselves. Particularly in private equity, the size of possible GEP investments would create opportunities unavailable to the campus foundations investing on their own. An inclusive approach to the campus foundations might be effective. Mr. Bachher added that campuses had already moved almost $1.2 billion to the GEP. The interaction between the Office of the CIO and the campus foundations had improved over the past three years.

Subcommittee Chair Sherman asked Mr. Bachher to update returns through the end of February. Mr. Bachher stated that for the year ending February 28, 2017, UCRP returned 14.9 percent; the GEP returned 14.6 percent; the Total Return Investment Pool returned 9.7 percent; and the Short Term Investment Pool returned 1.2 percent. The UC Entity returned 13.3 percent. For the five years ending February 28, 2017, UCRP returned 7.7 percent; the GEP returned 8.4 percent; TRIP returned 6.2 percent; and STIP returned 1.6 percent.

The meeting adjourned at 3:45 p.m.

Attest:

Secretary and Chief of Staff

Additions shown by underscoring; deletions shown by strikethrough

APPENDIX 1
Effective: ~~May 12, 2016~~ July 1, 2017
Replaces Version Effective: ~~July 19, 2012~~ May 12, 2016

ASSET ALLOCATION,
PERFORMANCE BENCHMARKS,
AND REBALANCING POLICY

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A. Strategic Asset Allocation and Ranges

	Target Allocation	Allowable Ranges	
		Minimum	Maximum
Global Equity	30.0%	20.0%	52.5%
US Equity	~~21.0~~ 15.7	~~16.0~~	~~26.0~~
Developed Non US Equity	~~14.0~~11.0	~~9.0~~	~~19.0~~
Emerging Mkt Equity	~~7.5~~3.3	~~5.0~~	~~10.0~~
~~US Fixed Income~~	~~5.0~~	~~2.0~~	~~8.0~~
~~High Yield Fixed Income~~	~~2.5~~	~~0.0~~	~~5.0~~
~~Emerging Mkt Fixed Income~~	~~2.5~~	~~0.0~~	~~5.0~~
~~TIPS~~	~~2.5~~	~~0.0~~	~~5.0~~
Private Equity	~~11.5~~ 22.5	~~6.5~~ 10.0	~~16.5~~ 32.5
Absolute Return (Strategic Opportunities)	~~23.0~~ 25.0	~~18~~ 15.0	~~28.0~~ 32.0
Real Assets	~~3.0~~ 12.5	~~0.0~~ 30	~~6.0~~ 17.5
~~Real Estate~~	~~7.5~~	~~4.5~~	~~10.5~~
Liquidity	~~0.0~~ 10.0	0.0	~~15~~ 17.5
TOTAL	100%		
~~Combined Public Equity~~	~~42.5~~	~~32.5~~	~~52.5~~
~~Combined Fixed Income~~	~~12.5~~	~~7.5~~	~~17.5~~
~~Combined other Investments*~~	~~45.0~~	~~30.0~~	~~60.0~~

~~* Other Investments category including, but not limited to: Real Estate, Private Equity, Real Assets, and Absolute Return Strategies~~

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