The Regents of the University of California

INVESTMENTS COMMITTEE
May 14, 2019

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

Members present:	Regents Anderson, Anguiano, Leib, Makarechian, Morimoto, Park, Sherman, and Zettel; Advisory members Bhavnani, and Simmons; Chancellors Hawgood, and Khosla, Advisor Zager; and Staff Advisor Main
In attendance:	Staff Advisor Klimow, Secretary and Chief of Staff Shaw, Deputy General Counsel Nosowsky, Chief Investment Officer Bachher, and Recording Secretary Li

The meeting convened at 2:10 p.m. with Committee Chair Sherman presiding.

1. APPROVAL OF MINUTES OF PREVIOUS MEETING

Upon motion duly made and seconded, the minutes of the meeting of March 12, 2019 were approved.

2. CHIEF INVESTMENT OFFICER UPDATE ON FY2018–2019

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

Chief Investment Officer Baccher stated that he and members of the Office of the Chief Investment Officer (CIO) would present investment results from the beginning of the fiscal year to-date through March 31, 2019 and reviewed the topics to be discussed. He clarified that the anchor date for annualized numbers presented was March 31, 2019.

Mr. Baccher stated that the Office of the CIO manages $41 billion in passive equities, which are comprised of U.S. equities, represented by the Standard and Poor's (S&P) 500 index, and global equities, represented by the Morgan Stanley Capital International All Country World Index (MSCI ACWI). These make up 33 percent of the assets the Office of the CIO manages. Passive equities have delivered very strong returns since the bottom of the global financial crisis. Since the start of 2019, there has been a strong recovery in the global equity markets. Referring to a chart tracking U.S. and global equities, Mr. Baccher indicated an unprecedented surge between January and March 2019. Driven by company fundamentals and central banks not tightening materially, global equities are nearly at an all-time high. U.S. equity valuations are above historical averages; the U.S. has outperformed the rest of the world in any given time period. Mr. Baccher compared U.S., China, India, Europe, and global equities over the last ten years, the last five years, and the last year. In the last five years, the U.S. experienced some retrenchment, and Europe experienced a slowdown. Nine months into the 2018–19 fiscal year, U.S. equities swung from negative returns back to positive returns. In the last quarter up to March 31, 2019, U.S. equities had 14 percent returns, and global equities had 12.2 percent returns. While the Office of the CIO invests globally and benchmarks itself to how the global markets perform, the U.S. is still a great place for investment opportunities. Looking to the future, Mr. Bachher acknowledged that there is potential for a higher volatility environment in light of ongoing geopolitical risk, trade policy, and increased corporate borrowing. In the next five or ten years, the Office of the CIO must consider emerging markets and developing economies, because they may be the source of future returns.

Steven Sterman, Senior Managing Director of Fixed-Income Investments at the Office of the CIO, stated that, for a long period of time, the Federal Reserve (Fed) was on hold, was supportive of markets, had a zero rate, and provided liquidity. Over the last three years, the federal funds rate rose and the Fed withdrew liquidity, leading to tighter conditions and proneness to more volatility. The Fed has been and will continue to be a driver of volatility, something that the Office of the CIO must monitor. As the Fed tightened from December 2015 through December 2018, the two-year Treasury yield has risen lockstep with the federal funds rate, and the ten-year Treasury yield has stayed within the same narrow range, which means a flatter yield curve in the 2.25 percent to 2.5 percent range. Mr. Sterman predicted that the Fed would remain on hold. Inflation was in check, but whether inflation would increase or stay close to the Fed’s two percent target was unknown. Inflation numbers at the time of this meeting were weak, but the Office of the CIO believed the weakness to be temporary because the labor market continued to be strong. Methodology changes made some data unclear, and tariffs were inflationary. The Fed could potentially make a cautionary rate cut if inflation continued to lag, but the Office of the CIO found it unlikely.

Committee Chair Sherman asked what the United States’ relative allocation was compared to rest of the world with regard to equity exposure and whether the Office of the CIO had changed it in the last 12 months. Mr. Bachher replied that the Office of the CIO kept the pension plan close to the global market at 54 percent in the U.S. and 35 percent in developed markets, plus or minus three percent. In public equities, the Pension was half of UC assets and was at the benchmark. In the Endowment, there was a structural underweight growth of 11.5 percent, and the Office of the CIO was using the S&P 500 to narrow it back to three percent.

In response to a question by Advisory Member Zager about the Federal Reserve balance sheet and inflation, Mr. Sterman replied that the Fed was undergoing prescribed tapering and would close off earlier than anticipated but that the additional roll-off would not be significant. The market was large enough to manage the roll-off. He noted the pause on the rate side and stimulus from foreign central banks such as China.

Mr. Bachher stated that UC grew its Assets under Management by $5 billion over the last nine months and $31 billion in the last five years, which was 34 percent growth. In the last ten years, assets had grown 135 percent. He used these examples to illustrate that market dislocations were not necessarily times for UC to leave the markets.

Regent Makarechian asked how much of the growth from December 2018 to March 2019 was value-added and how much was inflow. Mr. Bachher stated that he would break down assets by product later in the presentation but offered that most of it had come from the markets. Passive markets had been so strong that a significant growth in assets had come from from market gains. $1 billion to $2 billion was value-added.

Mr. Bachher continued that this growth in the last five years meant that UC needed to rethink how it invested. It had not been easy, but Mr. Bachher embraced the challenge. With his team, he has navigated the commitments, their size, the number of managers, and how much to invest in active and passive equities. The team would also determine competitive advantages and where to deploy the capital. The newest financial product from the Office of the CIO was the Blue and Gold Pool, which launched on March 31, 2019 with $250 million in assets. The Blue and Gold Pool was a passive product that was low-cost, liquid, endowment-like, and meant for campuses and medical centers.

Mr. Bachher responded to Regent Makarechian's question in more detail. From December 31, 2018 to March 31, 2019, the Office of the CIO detracted $800 million in value added. There were net cash flows of $1.1 billion, with working capital being the biggest component. The General Endowment Pool (GEP) received about $200 million of net cash inflows through funds functioning as endowments. There was intra-quarter noise because UC has used public benchmarks, and its assets lagged one quarter and were privately valued. The trued-up value-added number would be available in June. Regent Makarechian asked whether the net cash flow included the Blue and Gold Pool. Mr. Bachher responded in the affirmative. Regent Makarechian asked whether the Blue and Gold Pool was new funds from UC employees. Mr. Bachher replied that the Blue and Gold Pool funds came from the Short Term Investment Pool (STIP) or the Total Return Investment Pool (TRIP). Regent Makarechian asked whether it was excess cash from UC's own operations, and Mr. Bachher answered in the affirmative. Regent Makarechian asked how this would look from December 2018 to December 2019 compared with UC's obligations. Mr. Bachher stated that obligations varied by product. The Pension, whose obligations would be liability payments, is roughly balanced between inflows and outflows. The Endowment, whose obligations would be the payout, has had stronger inflows than outflows in the last five years. For TRIP, four percent goes out of a base of $9.5 billion.

Mr. Bachher provided an overview of the Pension. From December 2018 to March 2019, the Pension grew from $63.3 billion to $68 billion mostly due to market gains. The bulk of the value added detracted was from the Pension. Over the last ten years, the Pension has grown from $29 billion to $68 billion. It was the largest pool of all assets, and the next largest was the UC Savings Program, which grew from $22.8 billion to $24.8 billion.

Edmond Fong, Senior Managing Director of Absolute Return Investments at the Office of the CIO, stated that the Endowment was established in 1933 and that the GEP was comprised of more than 6,000 individual endowments serving 250,000 students. The Endowment grew from $11.7 billion to $12.8 billion from December 2018 to March 2019, having experienced a robust rebound from a prior quarter. The minus $100 million of value added was noisy due to volatility. There were robust inflows of $200 million in the form of funds functioning as an endowment (FFEs). Due to increased engagement with campuses, UC had $3.3 billion in net inflows since 2014 against $1.8 billion in outflows. Prior to 2014, there were no meaningful inflows. Mr. Bachher asked Chancellor Khosla to share how he leveraged TRIP and the Endowment for the benefit of UC San Diego. Chancellor Khosla stated that, effective as of April, UCSD was investing 70 percent of the assets of its foundation in the GEP and 30 percent indexed to the market. UCSD would save 50 to 100 basis points. The analysis indicated that UCSD would beat the GEP and save money from not hiring consultants.

Committee Chair Sherman asked whether the UCSD endowments board opted for the heavier equity exposure. Chancellor Khosla responded in the affirmative, explaining that equities had 1,000 percent in the last 27 years and NASDAQ had risen 2,000 percent. UC San Diego was not investing on a short-term basis and was willing to make this investment.

Regent Makarechian asked which campuses were managing their endowments separately. Mr. Bachher replied that UCLA, UC Berkeley, and UCSF had healthy endowments and independent investment management companies. The Office of the CIO managed portions of endowments for campuses due to historical legacy. Like UCSD, UC Irvine had its own investment committee and elected the Office of the CIO as an outsourced CIO to manage a small portion of money in the GEP. The foundation at UC Davis managed $400 million and gave $200 million to a third-party CIO and $60 million to the Office of the CIO. UC Davis has put $300 to $500 million back into the Endowment through FFEs. The Office of the CIO managed all of UC Santa Barbara’s, UC Merced’s, and UC Santa Cruz’s endowments. UC Riverside had an outsourced CIO.

Regent Makarechian asked whether the Office of the CIO compares the performance of campus endowments and whether they could be shared. Mr. Bachher replied that the GEP had performed better than UC Davis’ combined endowment over the last five years. Regent Makarechian asked what the Committee could do to induce campuses to allow the Office of the CIO to manage their endowments. Mr. Bachher provided a comparison of his office’s performance with UCLA’s and UC Davis’ third-party manager performances, noting that some third-party managers had performed better net of fees than the Office of the CIO in the short term. He believed that campuses wanted control of their own assets and connectivity to donors; he also felt there were political reasons. On the other hand, Mr. Bachher has heard that large donors did not necessarily have an affinity for any one campus. The Office of CIO had been able to add value, offer synergies, and develop products unique to UC’s size. The Office of the CIO could offer many things at low to no cost. He felt that a softer touch was more productive and fruitful. Chancellor Khosla noted that the relationship with the Office of the President (UCOP) had improved significantly since Mr. Bachher’s tenure. He felt that the best investment managers were at the Office of the CIO. Committee Chair Sherman added that, ultimately, the Office of the CIO’s performance would go above and beyond the politics or donor demand. The Office of the CIO had performed significantly better than third-party managers, especially in absolute dollars.

Regent Leib noted that there was a significant amount of money left by campuses not using the Office of the CIO; it seemed obvious to him. Chancellor Khosla stated that, when UCSD was investing on its own, its liquidity was very limited. With the Office of the CIO, UCSD had enough liquidity for capital projects. Committee Chair Sherman indicated that it would be more difficult if UCSD had to turn its own isolated funds to cash. Chancellor Khosla responded in the affirmative and added that, with nearly $2 billion in investments, even a 50 basis point differential was $10 million, allowing UCSD to invest in startup packages, create equipment funds, or invest in deferred maintenance.

Regent Anderson stated that UC Riverside was strongly influenced by Mr. Bachher and his team to move investment to the Office of the CIO. The campus was hesitant early in Mr. Bachher's tenure, but Regent Anderson commended the current team's achievements.

Committee Chair Sherman stated that, if the Office of the CIO outperforms the campuses, then the chancellors would have to answer for why they did not move their investments to the Office of the CIO. Chancellor Khosla stated that he was a chancellor who was also president of the campus foundation, which gave him more say regarding investments. Committee Chair Sherman indicated that chancellors still had to answer for the decisions of their investment committees.

Chancellor Hawgood added that he was also president of UCSF's foundation, which used an outsourced CIO until about three years ago and was underperforming compared to the GEP. UCSF assembled a committee at the foundation board level and grew from about $1 billion to $1.5 billion with the Office of the CIO and transferred significant campus cash to the GEP. UCSF made a conscious decision to create its own investment company. There were dynamics other than just pure return; it was a way to engage with the foundation and board, and UCSF doubled its endowment because of that engagement. Committee Chair Sherman asked whether UCSF had communicated to foundation board members that managing the money would aid in expanding the contribution level. Chancellor Hawgood responded in the affirmative. UCSF had substantial donors who wished to manage their own endowments. Some donors had claimed that they could outperform the foundation or the Office of the CIO; UCSF was testing different options.

Mr. Zager reported that UCLA formed an investment company 6.5 years ago and currently had $2.5 billion. In this time, the company performed quite well. UCLA believed that the investment company was important with donors and deans, and the representation was important to UCLA as well. Mr. Bachher stated that there was much intentionality to strategy that the Office of the CIO had pursued in the last five years. Firstly, he changed the compensation internally so that 40 percent of compensation was tied to the Endowment's performance as opposed to ten percent. Secondly, he had attended 200 meetings with campuses; those grassroots efforts translated to results. Lastly, he had set a goal of improving the performance of the Endowment, because UC's top-ten Endowment had been in the bottom quartile of performance. According to the National Association of College and University Business Officers (NACUBO) index, the UC Endowment was now in the top quartile of performance. They were not popular decisions, took time, and brought about a lot of noise, but it made an impact to the University.

Mr. Sterman provided an update on Working Capital, which grew from $15.2 billion to $16.4 billion from December 2018 to March 2019. Market gains were housed in TRIP, and net cash flows were driven by the $800 billion in systemwide bond proceeds deposited in STIP. Working Capital would be significantly lower in June. The Office of the CIO had been collaborating with campuses to optimize Working Capital, TRIP, STIP, the Blue and Gold Pool, and GEP, setting a goal to move $870 million from Working Capital to the Blue and Gold Pool by the end of June. STIP was expected to be $4.5 billion by the end of June.

Sam Kunz, Senior Managing Director of Asset Allocation Investment Strategy at the Office of the CIO reported that Captive Insurance, or Fiat Lux, grew from $1.02 billion to $1.05 billion from December 2018 to March 2019, a growth of about $34 million mostly due to market gains. $2.9 million in value added was detracted.

Mr. Bachher stated that the Office of the CIO has added value to the campuses in other ways than investing their endowment money, such as advising on real estate investments. The goal was to have $1 billion in the Blue and Gold Pool on June 30, building incrementally by $250 million per month. The Pool was on target to have $870 million by June 1 and $1 billion by July 1. He encouraged campuses to contribute to this Pool. He acknowledged Chancellor Hawgood for contributing $150 million and Chancellor May for $100 million—the first $250 million. UC Santa Cruz, UC Irvine, and UC Davis had followed. The Pool was low-cost and had a stock and bond portfolio breakdown of 70/30. Advisory Member Zager added that UCLA used the Office of the CIO for its Working Capital and was committed to adding to the Blue and Gold Pool as well.

Committee Chair Sherman asked whether the Blue and Gold Pool was all passive investing, and Mr. Bachher responded in the affirmative, stating that the equities index used was the MSCI ACWI. The bond index was Barclays U.S. Aggregate Bond Index.

3. **UPDATE ON INVESTMENT PRODUCTS: ENDOWMENT, PENSION, RETIREMENT SAVINGS, WORKING CAPITAL, FIAT LUX, BLUE AND GOLD POOL**

[Background material was provided to Regents 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 reported on asset allocation. It has been an intentional strategy to manage each product differently due to different liabilities, risk profiles, and clients. In the last five years, the Office of the CIO had gone through all the products and their asset allocations, and it movedthe discount rate on the Pension Plan from 7.5 percent to 7.25 percent. In 2019, determining the discount rate would be a major decision for the Office of the CIO. Mr. Bachher believed that the inflation assumption used in the current discount rate was three percent, but it could be lower in this low-inflation environment. UC has invested globally, with 80 to 90 percent in developed markets five years ago and 85 to 90 percent today. In 2022, emerging markets and developing economies were estimated to comprise 63 percent of global gross domestic product (GDP).

During the last financial crisis, GDP was split evenly between developed countries and developing countries. India and China would be the main drivers, and the U.S. would lose GDP to other countries. A priority for his team was setting up infrastructure for finding opportunities in India and China. In the MSCI ACWI, China had 3.5 percent and India had 1.1 percent, so an increase was anticipated. This week, the MSCI ACWI added 15 new China shares and Saudi Arabia to its index. As developing countries become a greater part of the index, institutional investors would be investing in those markets.

Regent Makarechian asked whether the Office of the CIO was taking issues from companies in Shanghai or just those in the U.S. Mr. Bachher replied that he was taking issues from both; the Office of the CIO invested all external public equities through managers. Regent Makarechian asked whether he counted both for GDP. Mr. Bachher responded in the affirmative. As an example, Mr. Bachher stated that Apple could be viewed as a U.S. dollar company or one that had other currency risk attached to it. Ten years ago, the top ten companies in China and the U.S. were not technology companies; today, Chinese banks have been displaced by technology companies. He foresaw new companies in the next ten years. Committee Chair Sherman asked Mr. Bachher to break down the chart he was presenting by where investee companies were deriving their revenues for a future meeting. Mr. Baccher stated that reforming, bringing in foreign financial institutions to, and advancing capital markets would be central to China's evolution. There would be key opportunities there. In May, India would elect its next prime minister, but its economy has continued to grow regardless of the government. Reforms must continue in order to cleanse the financial and corporate markets. The U.S. was an exciting place to invest; UC should take advantage of it.

Mr. Bachher provided a breakdown of how the UC invested its $123.4 billion in assets. Public equities made up about 50 percent of UC's assets, and 30 percent of assets was in fixed income. Cash was about four percent; staying around five percent cash in the face of uncertainty was the right decision. With regard to the Pension, UC was near or at its target allocation regardless of the type of asset. UC was underweight in public equities and overweight in cash. The Office of the CIO did not plan to deviate from this asset allocation by much. In the UC Savings Program, the 310,000 individual participants control the asset allocation. The Office of the CIO did have an impact on the asset allocation of the target date funds, and they have kept them mostly in equities.

Edmond Fong, Senior Managing Director of Absolute Return Investments, explained the asset allocation in the Endowment, stating that UC was on target but slightly underweight in public equities and overweight in cash. Long-term targets were different; the Office of the CIO aimed for 30 percent public equities, ten percent liquidity, and 60 percent other investments. UC's greatest underweight numbers were in private equity at 12.5 percent; the long-term allocation goal was 25 percent. In light of valuations and capital, it would take some time to achieve long-term asset allocation. A change in environment or opportunities could change that pace. Still, there was a four percent increase in private markets during the quarter of December 2018 to March 2019. UC was 65 percent in active public equities and 35 percent in passive public equities, which was likely UC's position in the long term as well.

Steven Sterman, Senior Managing Director of Fixed-Income Investments, reported that, in the Total Return Investment Pool (TRIP), the asset allocation of 35 percent growth, 50 percent income, and 15 percent absolute return was approved in 2015, and TRIP has stayed near close to that allocation since then. There was slightly overweight growth due to public and private growth, as well as an underweight absolute return, which the Office of the CIO would cut by funding it from cash. The Office of the CIO was working on a private market allocation. Currently, five percent of TRIP was in private assets and had performed well. The Office of the CIO would continue to seek opportunities and interesting private assets. In the Short Term Investment Pool (STIP), commercial paper was higher from bond proceeds but would go back down in June, and the portfolio duration was about one year.

Sam Kunz, Senior Managing Director of Asset Allocation Investment Strategy, reported that Captive Insurance, or Fiat Lux, was still in its deployment phase. Hedge funds in absolute return led to a Captive Insurance allocation that went from zero to 7.5 percent, which was halfway to the Office of the CIO's goal. The portfolio's main objective was to protect against losses, and its major risks were equity and rates. Less than 15 percent in equity contributed to 70 percent of the risk. The performance was 50 basis points as a result. In August, the equity allocation would be raised to 17.5 percent, with a long-term target of 20 percent.

Regent Makarechian asked what portion of commercial paper was A-rated. Mr. Sterman replied that commercial paper was all A-rated. The average rating was a double-A. He would report back on the portion below an A rating. Due to a policy change, UC no longer carried below-investment grade products, so that portion was gone. UC did have some single-A and triple-B ratings in corporate.

Allen Kuo, Director of Investment Risk Management at the Office of the CIO, referred to a chart of volatility in the MSCI ACWI, explaining that volatility was a measure of fear in the market. The historical average of volatility was 15.3 percent. Volatility has been below that for the past several years, likely because of the low interest rate. The previous quarter, equities dropped and volatility increase. This quarter, volatility decreased to about 13 percent. The Office of the CIO remained concerned about global trade protectionism, not just trade wars between the U.S. and China. Protectionism could cause more fear in the financial markets. UC portfolios tended to be short duration, so, if interest rates dropped, then UC would lose money. Tariffs might be inflationary, so there might be global growth concerns. The Office of the CIO still believed in the long-term growth in China, so its position had not changed despite the trade war; there was still short-term risk faced quarterly in China. More was allocated to China in the Endowment compared to the UC Retirement Plan. Another key risk was Brexit, which was difficult to predict, but it was not a large, active risk factor as others had been.

Pension volatility was at nine percent, which was reflective of the possibility of loss. The Pension has been underweight in public equity and cash levels were high, which could hurt expected returns. There was a push and pull between risk and investment. The Office of the CIO preferred more cash in hand in case of liquidity issues. The Office of the CIO moved 17 pecent of its public equities to passive equities, taking less active risk. With regard to Endowment risk, return drivers were more diversified, and volatility was 9.6 percent, with a tracking error of two percent. More active risk was taken here. The Office of the CIO has moved to more passive equities, increasing them by about seven percent. Cash was increased by about three percent. The target was negative three percent volatility in China, and a trade war would affect public equities first, with an active risk lost in public equities of one percent and ten percent absolute loss. With regard to TRIP risk, most growth was in passive public equities, and the key risk was overweight growth.

Committee Chair Sherman asked whether UC was hedging currency risk. Mr. Kuo replied that currency risk was generally accepted as part of benchmarks in public equities. In absolute returns, managers sometimes did hedge. Mr. Bachher added that, over long term, there were three approaches: totally hedged, totally unhedged, and 50/50. He preferred totally unhedged. There was less than $1 billion active hedging per security or manager. UC's benchmarks had currency risk embedded in them.

Mr. Bachher reported on investment performance. Campuses who moved money from STIP to TRIP in the last ten years saw more money in their operating budgets due to the growth in TRIP. This was also the business case for the Blue and Gold Pool. Low global stock market returns were the reason for the low numbers as of March 2019, but Mr. Bachher was still surprised that UC had positive performance numbers. He then provided more detailed percentages for each of the asset classes, presenting recent numbers as well as those from several years ago. Mr. Bachher envisioned a 12 to 14 percent private equity investment allocation. Companies were staying private longer and value was extracted earlier. By the time these companies went public, returns would have been exhausted. Absolute return was a diversifying element in the overall portfolio. UC was still working through its real assets legacy portfolio.

Mr. Fong reported on Endowment performance and provided the most recent numbers. The Endowment saw an improvement of about 80 basis points over the policy benchmark. The drivers of absolute return were robust appreciation in private equity; stable returns in fixed income, real estate, and absolute return; flat real assets and public equity; value added from private equity and absolute return. The Office of the CIO did not believe that the market would return the same robust returns across all asset classes ten to 20 years from now. The Office of the CIO's goal was a 4.75 real rate of return over a five-year period. Since 1962, the Endowment has had a compounded annual growth rate of less than eight percent. Therefore, the validity of a real spending rate of 4.75 percent might need reconsidering. UC could not rely on asset allocation to solve its problems. Rather, UC needed to focus on its day-to-day implementation to add value beyond what was expected of its benchmarks.

Mr. Sterman reported on the performance of TRIP. UC had not hit its 4.25 percent target yet. With regard to STIP, the Fed raising rates over the last two or three years pushed portfolio yield up 2.5 percent. With the Fed on hold, Mr. Sterman stated that portfolio yield was unlikely to go higher. There was underperformance against the benchmark in the first six months of the fiscal year because of the Fed raising rates. With the Fed on hold, Mr. Sterman believed the gap between the portfolio yield and benchmark yield would close.

Committee Chair Sherman noted that the value added seemed to evaporate over the years and asked whether the Office of the CIO had changed its policy in short-term investments such that it was replicating the benchmark. Mr. Sterman responded in the negative and gave the following reasons: 1) a declining rate environment and longer duration than the benchmark locked in higher yields, and 2) an improved portfolio quality from a shorter duration and taking less risk to generate more return and better earning opportunities

Mr. Bachher closed the presentation by sharing areas of focus for the Office of the CIO: sustainable investing, technology opportunities, and drivers of performance, such as a philosophy of "less is more" and "risk rules." The Office of the CIO reduced its manager count in public and private equities, and performance had shown that this added value.

4. **UC INVESTMENTS INNOVATION**

[Background material was provided to Regents 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 introduced Vivek Ranadive, co-founder of Bow Capital, and Niket Desai, UC Berkeley alumnus and investment fellow at the Office of the CIO. This presentation would highlight how the Office of the CIO and its partners have leveraged the University's rich ecosystem of ideas and innovation through investment.

Mr. Desai stated his belief that the establishment of the University 150 years ago created one of the greatest innovation engines ever designed. UC first provided education and then provided research, which led to commercialization, value capture, prestige, and support in the form of money and people. UC has been a proxy for California, and California has been a proxy for the U.S. The University helped bring about venture capital through investments in the 1970s and 1980s. UC-affiliated companies were worth $1.5 trillion. He asked whether UC had done enough to invest and capture value and how it could do so. For example, UCLA's Kite Pharmaceuticals was sold for $12 billion, which was also the size of the UC Endowment. Mr. Desai provided an overview of trends. Innovation seekers have gone to universities in search of intellectual property and research. UC leads all other major institutions for patents. Technology has become a horizontal platform, and all companies and industries would be rebuilt to include technology or be replaced. Venture capital has become unbundled, with local funds like Vertical Venture Partners working with UC campuses. Companies have stayed private longer, which is a phenomenon known as a "private initial public offering (IPO)". Digital companies were growing globally before their IPO. Smaller seed funds have caused asset classes to blur. Today's entrepreneurs had entrepreneur capital, which included things like the network of people and access to research and technology. U.S. and Chinese technology companies were expected to become dominant forces. Entrepreneurs were catalysts for pulling research and intellectual property out of silos. Mr. Ranadive added that assets for today's top companies had moved from being physical to being in the cloud. Mr. Desai continued that UC must create partners, networks, and infrastructure to support entrepreneurs and that UC was uniquely suited compared with other finance institutions. UC could provide entrepreneurs with access to expertise, professors, research, and partners and had created capital sources of various time frames and risk flexibilities. With regard to local investing, the Office of the CIO has considered what makes a campus unique, who could tap into it, and how the Office of the CIO could create partnerships. UC had invested tens of millions of dollars, and portfolio companies from local funds have raised $6 billion in the last four to five years, which was 30 times UC’s leverage. UC had also made significant co-investment with The Column Group in leading pharmaceutical companies.

Mr. Ranadive began his presentation by providing background on his educational background at the Massachusetts Institute of Technology (MIT) and his previous businesses. Mr. Ranadive researched UC campuses and observed trillion-dollar industries emerge from UC. He launched Bow Capital, a fund integrated with UC and whose mission was to help technology companies advance society. He called this current point in history “Civilization 3.0.” The first phase of civilization was the agrarian revolution, followed by the industrial revolution, and this third phase of civilization was the age of information and service. Raw materials were data and imagination, and UC and other leading schools were the source. Civilization 3.0 was a period of exponential evolution with the explosion of data, rise of mobility, emergence of social networks, artificial intelligence, and math taking prominence over science. Bow Capital has teamed with UC to fund some of these companies, and its goal was to accelerate the path from science to society. Bow Capital was looking for companies with the potential to touch a billion people, such as GeneEdit, which used gene editing technology invented at UC Berkeley. Bow Capital used the UC ecosystem to close the deal and mentor the inventor of the technology. In another example Bow Capital worked with UC Davis researchers to develop a probiotic based on their research. Bow Capital has identified industry sectors that were ready for “disruption,” such as transportation and logistics. It had been mining the UC ecosystem to find the next generation of entrepreneurs. Three skills from Bow Capital that made it unique were: its ability to mine great opportunities; its playbook and mentorship of entrepreneurs; and sitting at the intersection of academia, enterprise, business, technology, sports, and entertainment. He believed that, in the next 15 to 20 years, more than half of the S&P 500 would be disrupted with these new companies. In the past, 70 to 90 percent of value was harvested in the public markets, but future value would be harvested from private markets.

Mr. Bachher added that he had observed a sea change in education and that the commercialization of education was an important part of economic development for universities. He challenged the fundamental notion of how to access venture capital. With funds like Bow Capital, UC was building an innovation portfolio. UC was in partnership other funds like The Engine and Osage as well. Innovation was not popular in any organization, especially in a public institution, which could be an easy target of criticism. Mr. Bachher believed that university innovation would be a new asset class in the next 20 years and that UC had enough capital to take these risks.

Regent Anguiano noted the lack of diversity in venture capital–funded entrepreneurs and asked how UC would break that cycle. Mr. Ranadive, as owner of the Sacramento Kings basketball team, replied that more than half of the team's executives were women or minorities. He believed Bow Capital could find amazing companies with diverse entrepreneurs. Bow Capital and UC launched Arrow Capital at UC Berkeley, which was run by a young minority woman. Mr. Bachher added that the Office of the CIO developed a database of diverse and women-owned venture capital firms and planned to host an event for venture capitalists who wished to invest in women-owned businesses. Mr. Ranadive stated that there were companies that only a woman could have started, such as feminine products. Diverse demographics presented a great opportunity. Mr. Desai added that the way to break this cycle was to provide capital to diverse investors. Women have received low single-digit dollars of total venture capital spend, and women who found companies or sit on boards also made more money. Generally, diversification was fundamental to good finance. He stated that observing the Office of the CIO's weighted distribution of dollars spent on diverse managers was one way to hold it accountable.

Regent Anguiano, citing UC's public mission to ensure that the economy serves all Californians, asked how investment would evolve to include individual investors. Mr. Desai replied that the question of whether some companies perform better by staying private was open for debate. Companies staying private was more a function of the current financial landscape. Methods of access were changing. UC had to find talent that wanted to get involved and push these companies to show their returns in order to encourage adoption at a higher level. UC also had to work on more direct revenue models, and providing more avenues of participation prior to companies going public. Mr. Ranadive added financial inclusion, reducing friction, and increasing the ease of participation.

Regent Makarechian asked whether UC could put aside some financial gains to help international students who could not afford to pay nonresident tuition. He also asked how Bow Capital or the Office of the CIO worked with Innovation Services at the Office of the President (UCOP) and whether they had recommendations for restructuring and streamlining it. Innovation Services was not advertising UC innovations and patents. Mr Bachher stated that the Office of Innovation and Entrepreneurship at UCOP was under Provost Brown, and Mr. Bachher needed to build talent internally in order to work with Provost Brown. Mr. Ranadive would commit to creating a data platform. Mr. Desai added that each school had its own culture that was partly based on the type of work it did. Intellectual property and licensing was also evolving. UC had to learn what cutting-edge licensing groups were doing in order to replicate their approach and then educate each of the ten campuses. UC also had to develop a unified database. Different types of research or intellectual property were commercialized differently, and this was a computational problem for someone with data science experience.

Regent Morimoto asked about Bow Capital's run rate for the number of investments on an annual basis. Mr. Ranadive responded that Bow Capital would have invested in 30 to 40 companies over the course of the fund, which equaled five to ten annually. Bow had done well with Series A and Series B funding. Arrow Capital issued up to $25,000 checks. Morimoto asked whether Bow Capital could support companies going through multiple funding series. Mr. Ranadive responded in the affirmative because companies were staying private longer, with value being realized after ten or 20 years. UC should find ways to get involved. Mr. Bachher added that UC could work with Vertical Venture Partners and Bow Capital to grow smaller companies. He looked forward to the future. Mr. Ranadive stated that the Office of CIO was very entrepreneurial and collaborative. Mr. Bachher also suggested tapping into the alumni network.

Regent Leib stated his belief that capital could address issues of UC accessibility, affordability, and the quality of education. He asked what could be done to help smaller campuses access capital Mr. Ranadive responded that it was Bow Capital's goal to have an equivalent of Arrow Capital at every UC campus. Regent Leib spoke in favor of establishing a culture to send founding shares to UC after companies were established. Mr. Ranadive stated that Berkeley entrepreneurs had been separately generous with the campus but agreed that it needed to be done. Mr. Desai stated that it would takes time to develop that culture. He did not feel as supported as an entrepreneur while studying at Berkeley, but that was changing. Infrastructure was also needed. Mr. Ranadive stated that the new generation of entrepreneurs were very committed to better the world. Regent Leib asked why UC did not fund people to solve problems. Mr. Ranadive responded that campuses were doing that. UC Davis was solving food supply problems, and UC San Diego was inventing new materials.

Committee Chair Sherman asked whether UC had examined its own process. Mr. Ranadive stated that he discussed this frequently with Chancellor May. Bow Capital had recently invested in the Lambda School, which created a tuition-free software coding curriculum that then took a cut of students' salary for their first three years of work.

The meeting adjourned at 5:15 p.m.

Attest:

Secretary and Chief of Staff