UNIVERSITY OF CALIFORNIA
RETIREMENT PLAN

ASSET AND RISK ALLOCATION POLICY

Approved March 15, 2018

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POLICY SUMMARY/BACKGROUND

The purpose of this Asset and Risk Allocation Policy ("Policy") is to define the asset types, strategic asset allocation, risk management, benchmarks, and rebalancing for the University of California Retirement Plan ("UCRP"). The Investments Subcommittee has consent responsibilities over this policy.

POLICY TEXT

ASSET CLASS TYPES

Below is a list of asset class types in which the UCRP may invest so long as they do not conflict with the constraints and restrictions described in the UCRP Investment Policy Statement. The criteria used to determine which asset classes may be included are:

- Positive contribution to the investment objective of UCRP
- Widely recognized and accepted among institutional investors
- Low cross correlations with some or all of the other accepted asset classes

Based on the criteria above, the types of assets for building the portfolio allocation are:

1. **Public Equity**

   Includes publicly traded common and preferred stock of issuers domiciled in US, Non-US, and Emerging (and Frontier) Markets. The objective of the public equity portfolio is to generate investment returns with adequate liquidity through a globally diversified portfolio of common and preferred stocks.

2. **Fixed Income**

   Fixed Income includes a variety of income related asset types. The portfolio will invest in interest bearing and income based instruments such as corporate and government bonds, high yield debt, emerging markets debt, inflation linked securities, cash and cash equivalents. The portfolio can hold a mix of traditional (benchmark relative) strategies and unconstrained (benchmark agnostic) strategies. The objective of the income portfolio is to provide necessary liquidity for payment obligations and portfolio rebalancing needs, while investing in higher yielding and less liquid income opportunities with excess liquidity.

3. **Private Equity**

   Private equity includes, but is not limited to, venture capital and buyout funds, direct investments, and co-investments in private companies. This includes investments in privately held companies and private investments in public entities which are illiquid. The objective of the portfolio is to earn higher returns than the public equity markets over the long term and take advantage of the illiquidity premium.

4. Private Real Estate

Private real estate includes, but is not limited to, core, value-add, opportunistic strategies that are characterized by development, repositioning and leverage. Investments are typically comprised of commercial properties in various operating segments (e.g. office, retail, hotel, industrial, student housing and multi-family). The objective of the real estate portfolio is to contribute to the diversification of the portfolio, generate returns through income and/or capital appreciation, and protect long-term purchasing power.

5. Real Assets

Real assets includes, but is not limited to, natural resources, timberland, energy, royalties, infrastructure, and commodities related equity and debt related investments. The objective of the real assets portfolio is to contribute to the diversification of the portfolio, generate returns through income and/or capital appreciation, and provide protection against unanticipated inflation.

6. Absolute Return / Strategic Opportunities

Absolute return investments are expected to generate long-term real returns by exploiting market inefficiencies. The portfolio invests in a collection of strategies that includes, but is not limited to, strategy types such as Relative Value, Event Driven, and Strategic Opportunities. The objective of the portfolio is to provide diversification and generate capital appreciation.

7. Derivatives

A derivative is a contract or security whose value is derived from another security or risk factor. There are three fundamental classes of derivatives – futures, options and swaps – each with many variations; in addition, some securities are combinations of derivatives or contain embedded derivatives. Use of derivatives to create economic leverage is prohibited, except for specific strategies only. Permitted applications for derivatives are: efficient substitutes for physical securities, managing risk by hedging existing exposures, to implement arbitrage or other approved active management strategies.

Each asset class is assigned a benchmark that represents the opportunity set and risk and return characteristics associated with the asset class. For some private or more complex asset classes the benchmark serves as a proxy for the expected level and pattern of returns rather than an approximation of the actual investment holdings.

RISK MANAGEMENT

There are three principal factors that affect a pension fund's financial status: 1) contributions, 2) benefit payments, and 3) investment performance. Only the last factor is dependent upon the investment policy and guidelines contained herein. However, the Subcommittee's level of risk tolerance will take into account all three factors. At certain levels of funded status, it could be impossible for the investments to achieve the necessary performance to meet the promised liabilities. The result is that either benefits have to be reduced, contributions increased, or risk tolerance changed.

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The **principal risks** that impact the UCRP, and the parties responsible for managing them are as follows:

- Capital market risk is the risk that the investment return associated with the Subcommittee's asset allocation policy is not sufficient to provide the required returns to meet the UCRP's investment objectives. Responsibility for determining the overall level of capital market risk lies with the Board and Subcommittee.

- Investment style risk is associated with an active management investment program. It is the performance differential between an asset category's market target and the aggregate of the managers' benchmarks within the asset category weighted according to a policy allocation specified by the Chief Investment Officer. This risk is an implementation risk and is the responsibility of the Chief Investment Officer.

- Manager value-added risk is also associated with an active management investment program. It is the performance differential between the aggregate of the managers' actual (active) portfolios and the aggregate of the managers' benchmarks. This risk is an implementation risk and is the responsibility of the Chief Investment Officer (and indirectly the investment managers retained by the Chief Investment Officer).

- Tactical/strategic risk is the performance differential between (1) policy allocations for UCRP's asset categories and its investment managers and (2) the actual allocations. This risk is the responsibility of the Chief Investment Officer.

- Total active risk refers to the volatility of the difference between the return of the UCRP policy benchmark and the actual return. It incorporates the aggregate of the risks above, and is thus the responsibility of the Chief Investment Officer.

- Surplus risk refers to the volatility of the change in the dollar value of UCRP assets versus the change in the dollar value of the liabilities. The latter represents the ultimate investment objective of the Plan. Because the asset allocation articulates the Regents' risk tolerance, and because the Regents determine the Plan's benefits and liabilities, this risk is the joint responsibility of the Board and the Subcommittee.

Although the management of investment portfolios may be outsourced, investment oversight and risk management are primary fiduciary duties of the Board that are delegated to and performed by the Chief Investment Officer. The Chief Investment Officer shall report on risk exposures and the values of the several risk measures to the Board.

UCRP Product level (Board, Investments Subcommittee, and Office of the Chief Investment Officer)

- Surplus Risk (insufficient assets to meet liabilities)
  - Measures the risk of inappropriate investment policy and strategy
- Total Investment Risk (volatility of total return)
  - Measures the risk of asset allocation policy

Implementation level (Office of the Chief Investment Officer)

- Active Risk or "Tracking Error" (volatility of deviation from style or benchmark)
  - Measures the risk of unintended exposures or ineffective implementation

Risk Measures: UCRP will use various risk analysis tools (e.g. factor analysis, simulation modeling) to measure the portfolio risks noted below. These metrics are intended to be used as one of many inputs in the asset and risk allocation process and are not intended to be used as benchmarks to measure actual results.

- **Funded Ratio:** Funded Ratio, defined as the ratio of plan assets to liabilities. Plan assets shall be measured at current market value as well as using actuarially smoothing. Liabilities shall be measured as the actuarial accrued liability (AAL). Liabilities, and hence this metric, are formally re-estimated only annually, but should be reviewed quarterly (change in liabilities estimated using liability duration and change in bond yields, as well as accruals for service cost and benefits paid).
  - The funded ratio projected over a ten year forecast period, using an actuarial model of assets and liabilities
  - The expected shortfall, defined as the expected loss experienced in worst case market scenarios

The Office of the Chief Investment Officer (OCIO) is responsible for managing both total and active risk and shall implement procedures and safeguards so that the combined risk exposures of all portfolios taken together are kept within risk bands. Further, within limits of prudent diversification and risk budgets, total and active risk exposures are fungible. That is, the OCIO may allocate risk exposures within and between asset types in order to optimize return.

STRATEGIC ALLOCATION

The purpose of the Strategic Asset Allocation is to reflect UCRP's long-term purpose and objectives, as well as the investment beliefs and organizational capability of the OCIO. The actual portfolio exposures will deviate from the Strategic Asset Allocation as a result of price drifts, opportunity set, and value adding activities of the OCIO. This is underpinned by the recognition that investment opportunities come and go, values rise and fall and, that implementation must be dynamic in order to benefit from this fluctuation. This belief is critical to add value to UCRP. We follow a risk allocation process to ensure that the attractiveness of all opportunities is assessed on a consistent basis and that will meet the objectives set.

The investment strategy of UCRP will be based on a financial plan that will consider:

- The financial condition of the Plan, i.e., the relationship between the current and projected assets of the Plan and the projected benefit payments, and the current Funding Policy.
- Future growth of active and retired participants; expected service costs and benefit payments; and inflation and the rate of salary increases. (Together these are the principal factors determining liability growth.)
- The expected long-term capital market outlook, including expected volatility of and correlation among various asset classes.

Below are the strategic asset allocation long-term weights and allowable ranges:

	Target Allocation		**Allowable Ranges**	
			Minimum	**Maximum**
Global Equity	50.0		40.0	60.0
US Fixed Income	13.0		10.0	16.0
High Yield Fixed Income	2.5		0.0	5.0
Emerging Mkt Fixed Income	2.5		0.0	5.0
TIPS	2.0		0.0	4.0
Private Equity	10.0		5.0	15.0
Absolute Return	10.0		0.0	20.0
Real Assets	3.0		0.0	6.0
Real Estate	7.0		2.0	12.0
Liquidity	0.0		0.0	10.0
TOTAL	100%			
Combined Public Equity	50.0		40.0	60.0
Combined Fixed Income	20.0		10.0	30.0
Combined Other Investments*	30.0		20.0	40.0

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

BENCHMARKS

The following criteria have been adopted for the selection of benchmark indices. It is understood that not all benchmarks will meet the entire list of criteria, but ideally, benchmarks that meet most of the criteria will be selected. There may be instances where tradeoffs are made between benchmarks that meet some of the criteria but not others.

1. **Unambiguous**: the names and weights of securities comprising the benchmark are clearly delineated.

2. **Investable**: is possible to replicate the benchmark performance by investing in the benchmark holdings.

3. **Measurable**: possible to readily calculate the benchmark's return on a reasonably frequent basis.

4. **Appropriate**: the benchmark is consistent with investment preferences or biases.

5. **Specified in Advance**: the benchmark is constructed prior to the start of an evaluation period.

6. **Reflects Current Investment Opinion**: investment professionals in the asset class should have views on the assets in the benchmark and incorporate those views in their portfolio construction.

Benchmarks are a tool against which to measure the effectiveness of investment strategy either at a total fund level, at an investment class or strategy level, or at the mandate level. Based on the benchmark selection criteria, the following strategic policy benchmarks have been chosen:

Table 2

Asset Class	Benchmark
Global Equity	MSCI All Country World Index (ACWI) Investable Market Index (IMI) Tobacco Free - Net Dividends
Core Fixed Income	Barclays US Aggregate Index
High Yield Fixed Income	Merrill Lynch High Yield Cash Pay Index
Emerging Market Fixed Income	JP Morgan Emerging Markets Bond Index Global Diversified
Treasury Inflation Protected Securities (TIPS)	Barclays US TIPS Index
Private Equity	Russell 3000 + 3% [1]
Absolute Return / Strategic Opportunities	HFRI Fund of Funds Composite
Real Assets	Actual Real Assets Portfolio Return
Real Estate	NCREIF Funds Index – Open End Diversified Core Equity (ODCE), lagged 3 months

The **Total UCRP Portfolio Benchmark** is a weighted average consisting of each of the monthly returns of the benchmarks noted above weighted by the Policy Allocation percentages. The policy benchmarks may differ from the target allocations in Table 1 until implementation reaches the long-term strategic asset allocation.

REBALANCING

There will be periodic deviations in actual asset weights from the strategic target weights. Causes for periodic deviations are market movements, cash flows, tactical tilts, and asset selection. Significant movements from the asset class policy weights will alter the intended expected return and risk of UCRP. Accordingly, UCRP may be rebalanced when necessary to ensure adherence to this policy and the Investment Policy.

[1] As the OCIO transitions the benchmark into the portfolio, it will use 150 basis points illiquidity premium for the first year starting in July 2017.

The OCIO will monitor the actual asset allocation. The Board directs the OCIO to take all actions necessary, within the requirement to act prudently, to manage the asset allocation in a manner that ensures that UCRP achieves its long-term risk and return objectives.

The OCIO shall assess and manage the trade-off between the cost of rebalancing and the active risk associated with the deviation from policy asset weights. The Chief Investment Officer may delay a rebalancing program when the Chief Investment Officer believes the delay is in the best interest of UCRP.

COMPLIANCE/DELEGATION

The UCRP Asset and Risk Allocation Policy Statement should be reviewed at least annually and updated as necessary. The Investments Subcommittee may recommend action which will be placed on the Consent Agenda for approval by the Board.

NO RIGHT OF ACTION

This policy is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the University of California or its Board of Regents, individual Regents, officers, employees, or agents.

PROCEDURES AND RELATED DOCUMENTS

Investment Implementation Manual

Changes to procedures and related documents do not require Regents approval, and inclusion or amendment of references to these documents can be implemented administratively by the Office of the Secretary and Chief of Staff upon request by the unit responsible for the linked documents.