The (financial) State of UC
Post-Employee Benefits

The views expressed here are mine and do not reflect those of the UC Regents, UCOP, the UC Chief Investment Officer, Systemwide Faculty Welfare, or the Task Force on Investments and Retirements

David Brownstone, March 12, 2018

This handout is edited to remove material that I am not sure I can release.
• UC Defined Benefit Pension is healthy!
• Retiree health benefits are threatened.
• At least 1/3 of new employees are making bad pension choices
  • Need better counseling from all of us!
• Future retirees will depend more on “defined contribution” (403B)
• UC Defined Contribution plan is now world-class
  • But very few of us know this!
Pension Definitions

- **liabilities**: this is the discounted stream of the payments required to meet the obligations. For example if my pension is initially $100,000/yr, my contribution to the UC pension liability is $100,000 + COLA_1 \times 100,000 / \text{discount}_1 + \ldots \text{ (until I die). Currently $73 billion.}

- **Discount Rate (currently 7.25%)**: This is the assumed long-run rate of return on pension system assets (currently $62 billion).

- **Funding Ratio** = assets/liabilities (currently 85%)

- **Normal Cost** = amount needed to keep the funding ratio constant - currently about 22% of payroll (8% employee, 14% employer)

- **Actuarial Required Contribution** = Normal cost + cost to retire unfunded liability ($11 billion) over 20 years (28% of payroll)

Note that the difference between Actuarial Required Contribution and normal cost (currently 6% of payroll) is being met by borrowing from UCOP’s Short Term Investment Pool (STIP). Campuses are assessed by UCOP to repay this borrowing.
Average annual pension payout is $43,600

The dark box covers 50% of the indicated group, and the dots above the vertical line comprise about 2% of the indicated group.
This slide is deleted since I don’t have permission to release it, but it shows that the Actuarial Required Employer Contribution starts at 20% of payroll in 2017, declines to 17% in 2021, 14% in 2028, and 12% in 2036. If employer contributions continue at current 14% rate, they will be sufficient to fully fund contributions by around 2028. All of this assumes constant 3% inflation and 7.25% annual rate of return on pension assets.
Pension Guarantees

• Once you retire, pension is guaranteed by the assets plus legal opinions giving pensioners first claim on UC Assets.

• (If plan was 100% funded and shut down, then assuming 7.25% investment return and 3% inflation, assets would be sufficient to pay all claims).

• Retiree health benefits have no guarantee, and no assets (pay as you go)

• Monthly pension payments are subject to incomplete cost of living adjustment.
Pension Benefits

- If you took the money currently being contributed to the UC Pension system (22% of salary) and invested in 80% equities and 20% bonds, you would likely (about 80% probability) be able to beat the current UC Pension system.

- But the UC Pension provides valuable insurance against 1) investment return risk, 2) inflation (partial), and 3) the risk of living too long. (but deferred annuities may be added to defined contribution menu)

- The size of the pension + endowment portfolio (currently $110 billion) may allow UC to earn superior investment returns.

The calculation in the first bullet point assumes 80% in S&P 500, 20% in 10-yr US Treasury bonds and a 4% real distribution each year. I split the annual returns from 1945 – 2017 into 6-year “chunks” and randomly resampled these chunks to generate the probability of beating the UC pension scheme.

Although UC may be able to earn superior returns, their current performance is about what you would get with 80% S&P 500 and 20% Treasure Bonds.
The slide says draft, but all of the numbers are in the UCRP annual report!
### Net Returns (%)

<table>
<thead>
<tr>
<th></th>
<th>As of December 31, 2017</th>
<th></th>
<th></th>
<th>Annualized Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 Month</td>
<td>Fiscal YTD</td>
<td>1 Year</td>
<td>3 Year</td>
</tr>
<tr>
<td>UC Pension</td>
<td>3.8</td>
<td>7.5</td>
<td>16.7</td>
<td>7.6</td>
</tr>
<tr>
<td>UC Pension Benchmark</td>
<td>3.9</td>
<td>7.7</td>
<td>16.2</td>
<td>7.2</td>
</tr>
<tr>
<td>Value Added</td>
<td>(0.1)</td>
<td>(0.2)</td>
<td>0.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>

### Net Returns (%)

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UC Pension</td>
<td>14.5</td>
<td>(2.0)</td>
<td>4.5</td>
<td>17.4</td>
<td>11.7</td>
<td>0.4</td>
<td>22.4</td>
<td>12.7</td>
<td>(18.8)</td>
<td>(5.7)</td>
<td></td>
</tr>
<tr>
<td>UC Pension Benchmark</td>
<td>12.7</td>
<td>(0.8)</td>
<td>2.2</td>
<td>17.1</td>
<td>10.7</td>
<td>(0.5)</td>
<td>21.6</td>
<td>11.6</td>
<td>(18.9)</td>
<td>(4.7)</td>
<td></td>
</tr>
<tr>
<td>Value Added</td>
<td>1.8</td>
<td>(1.2)</td>
<td>2.3</td>
<td>0.3</td>
<td>1.0</td>
<td>1.0</td>
<td>0.8</td>
<td>1.1</td>
<td>0.1</td>
<td>(1.0)</td>
<td></td>
</tr>
</tbody>
</table>

* The Policy Benchmark is a weighted average of investment policy targets.
Slide shows UCRP Pension portfolio holdings as of Dec. 2017. “High Yield” = junk bonds, TIPS = Treasury Inflation Protected Securities, “Absolute Return” = hedge funds. Note relative to Regent’s approved policy weight we have too much in cash and equities.

<table>
<thead>
<tr>
<th>Relative Weight</th>
<th>Market Value in $ Billions</th>
<th>Percentage</th>
<th>Over/Underweight Relative to Policy</th>
<th>Policy Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Equity</td>
<td>38.0</td>
<td>57.1%</td>
<td>4.9%</td>
<td>52.2%</td>
</tr>
<tr>
<td>Liquidity (Income)</td>
<td>13.6</td>
<td>20.4%</td>
<td>-1.1%</td>
<td>21.5%</td>
</tr>
<tr>
<td>Core - Opportunistic</td>
<td>8.3</td>
<td>12.4%</td>
<td>-1.0%</td>
<td>13.4%</td>
</tr>
<tr>
<td>High Yield</td>
<td>2.1</td>
<td>3.1%</td>
<td>0.2%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Emerging Market Debt</td>
<td>1.5</td>
<td>2.3%</td>
<td>-0.1%</td>
<td>2.4%</td>
</tr>
<tr>
<td>TIPS</td>
<td>1.7</td>
<td>2.6%</td>
<td>-0.2%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Other Investments</td>
<td>9.9</td>
<td>14.9%</td>
<td>-8.8%</td>
<td>23.5%</td>
</tr>
<tr>
<td>Absolute Return</td>
<td>3.1</td>
<td>4.7%</td>
<td>-2.6%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Private Equity</td>
<td>2.8</td>
<td>4.3%</td>
<td>-3.2%</td>
<td>7.5%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>3.0</td>
<td>4.4%</td>
<td>-1.9%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Real Asset</td>
<td>1.0</td>
<td>1.5%</td>
<td>-0.9%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Cash</td>
<td>5.1</td>
<td>7.8%</td>
<td>4.8%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Total</td>
<td>60.6</td>
<td>100.0%</td>
<td>0.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
Slide deleted since I don’t have permission to share it. It shows that the UC Employer contribution to retiree health benefits (currently $7000/retiree or 2.9% of payroll). If UC continues to fund retiree health at the current level then this will rise to 4% of payroll in 2024 and 5% of payroll in 2032.
• Increase in retiree health costs due to 1) medical cost inflation (7% tapering down to 5%) and 2) increase in number of retirees.

• But retiree health is the cheapest form of post-retirement benefit since it is double tax-free!

• Current retiree health is 22% of post-employment compensation and equivalent to about $162,000 lump sum at retirement.

• UC’s total employer post-employment benefit costs are projected to peak at 22% of payroll in 2018, remain around 21% though 2024, then slowly decline to 15.9% of payroll in 2032.

• These costs are manageable and don’t constitute a crisis!
PAYGO versus Funding

- PAYGO is more efficient as long as there is growth in the underlying funding entity.
  - Implies PAYGO Social Security is efficient in U.S. but not Japan.
- But PAYGO schemes are vulnerable to current workers reneging on obligations to retirees. (high turnout of elderly voters counteracts this effect for US Social Security).
  - The tendency for young to not properly discount future makes this worse.
- Funding retiree health starting now would be prohibitively expensive.

PAYGO = pay as you go. This means current employees are paying for retiree health care, just like current workers are (largely) paying for retirees’ Social Security Benefits.
2016 Pension Tier Problems

- Employees hired after July 1, 2016 choose between a capped defined benefit ("pension") or a defined contribution ("savings") scheme.
- Defined benefit capped at “PEPRA Cap” – currently $120,000/yr
- Defined contribution includes 8% UC and 7% employee contribution to 403B
- New employees have 90 days from hiring to choose.
- After 90 days defaulted into pension, but they lose 90 days of service credit and 90 days of UC contributions!
- About 1/3 of new faculty (and staff hires) default.
2016 Pension Tier Cont.

- Pension choice is irrevocable, but there may be an opportunity to switch from savings to pension after 5-7 years. But no service credit for time in savings.
- Pension choice includes a 5% UC contribution to 403B for faculty (just 3% on amount above PEPRA cap for staff).
- The pension choice is probably better for faculty who get tenure.
- But waiting to default to pension choice is throwing away $$$$.  
- For more information see:  
UC Retirement Savings Program Facts

- Established in 1967
- Over 320,000 Participants
- $23.8 billion in assets
- 3 Plans: 403(b), 457(b), DC Plan
- 2nd largest public DC plan in the US
- Largest 403(b) plan in the US
- Target Date Fund (Pathway) default since 2014
- $8.8 billion in Target Date Funds

$23.8 billion across 3 plans

- Tax Deferred 403(b) Plan: $16.7B (71%)
- 457(b) Deferred Compensation Plan: $2.7B (11%)
- Defined Contribution Plan: $4.4B (18%)
Defined Contribution

- UC Investment Office is switching to “white label” funds that allow UC to use bargaining power to reduce fees.
- New fee structure charges everybody about $30/year to cover administrative costs ($20/yr goes to Fidelity, the rest to UC Human Resources).
- Investment fees on core index funds are the lowest anybody has heard of (e.g. .005% for US Index vs .03% for equivalent Vanguard or Schwab fund).
- UC will likely allow Exchange Traded Funds purchased through Fidelity Brokerage Window.
- Should consider moving IRA funds into UC 403B!
Defined Contribution Problems

• UC Planning tools are simplistic and not consistent with Fidelity planning tools.
• Fidelity planners are required to use the Fidelity retirement and investment planning tools (available through Netbenefits).
• Fidelity planning tool does a good job of representing investment uncertainty.
• But Fidelity tool does not properly account for the partial cost of living adjustments in our pensions – this is relevant whenever inflation is above 2%. 
Free Investment Advice

• Buy (and read) Burton Malkiel A Random Walk Down Wall Street.

• As you near retirement treat your UC pension like a partially inflation-indexed bond when deciding your portfolio allocation.

• Your equities should be 50% UC Domestic Equity Fund and 50% UC International Equity Index Fund.

• You should consider a lump sum cashout if 1) you have at least 10 times your salary in additional savings, 2) you are male, and 3) you expect to die young.

• Treat every investment “professional” as you would a used car salesman. If it sounds too good to be true, it probably isn’t.

• If you want to gamble, try online poker or Las Vegas.

Remember that free advice is usually worth what you paid for it! The source of this wisdom can all be found in Malkiel’s book. Full disclosure – Malkiel hired me for my first job at Princeton, but I rarely speak to him these days and get no profits from his book sales.

Note that until you are close to retirement you salary (and therefore pension amount) is uncertain and may be correlated with the stock market and the California economy. However once you retire then the pension amount is guaranteed and so should be treated like a partially inflation-protected bond coupon payment. Before you retire your pension based on your current salary almost certainly a lower bound on your eventual pension.
As a rule of thumb, multiply your annual UC pension by 25 to get the market value of the “bond” implied by the pension. Note that the Pathway glide paths shown in the slide are designed for people whose only retirement money comes from their Pathway investments. It is therefore too conservative for those with substantial defined benefit pension payments.
Why foreign equities and bonds?

This shows that the US Dollar is overvalued against most currencies. If the dollar loses value against other currencies then stocks and bonds denominated in those currencies go up in dollar value.
This is why you need a big buffer to live off a portfolio mostly comprised of global equities.
Note that the real price index for global equities ended at 38700 in 2017! Of course housing provides valuable housing services – just not a good investment!

This just looks at price appreciation and does not account for taxes or maintenance expenses. It also does not account for the housing services you get from home ownership.
Note that wine (Premium-Cru Bordeaux), violins (Stradivarius and Guarneri), and art all have substantial storage (about 1%/year) and selling costs not included in figure!

The conclusion is that there is no asset that beats global equities in the long run!