

# The (financial) State of UC Post-Employee Benefits

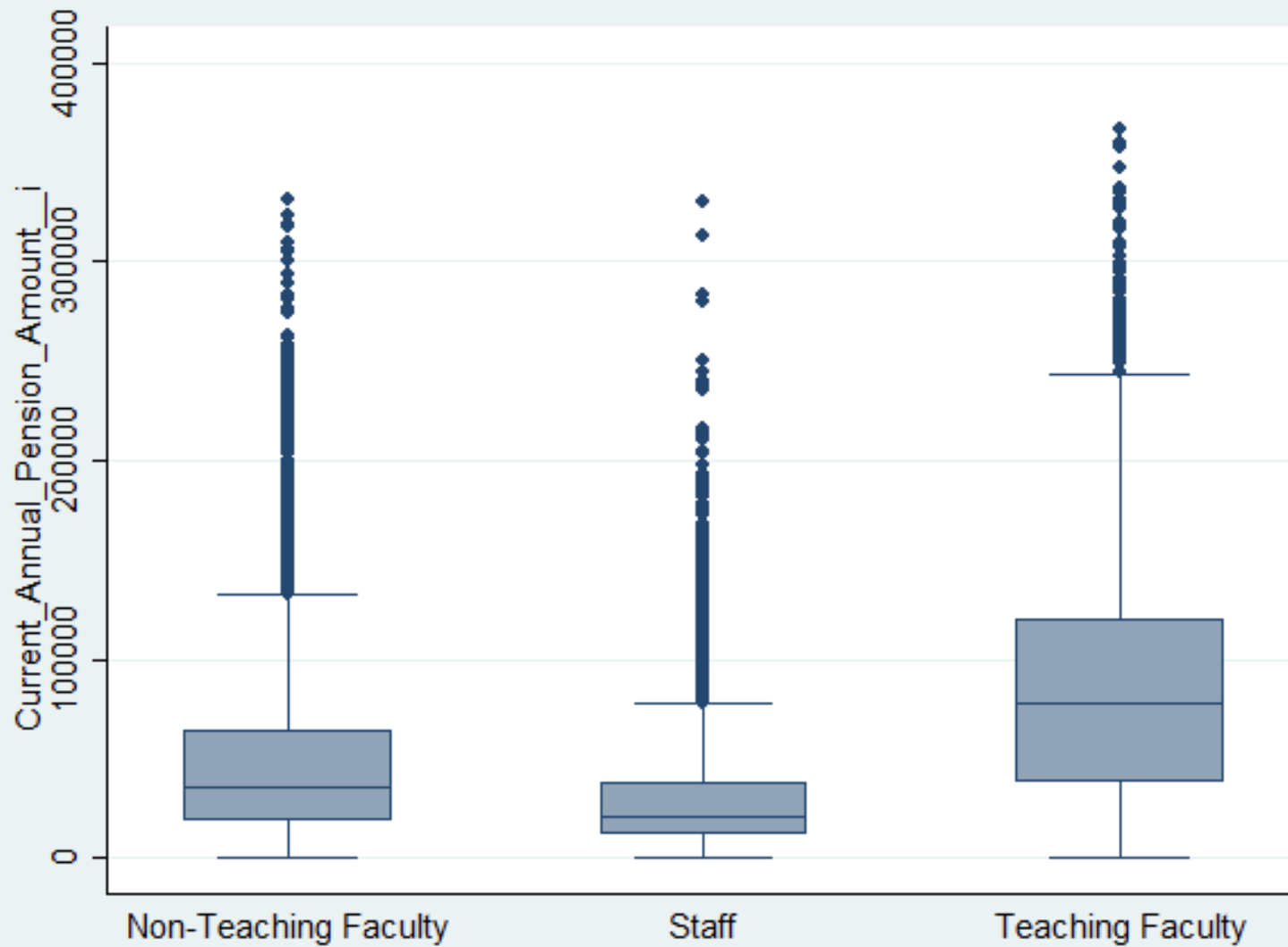
The views expressed here are mine and do not reflect those of the UC Regents, UCOP, the UC Chief Investment Officer, Systemwide Faculty Welfare, or the Task Force on Investments and Retirements

David Brownstone, March 21, 2018

- 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!

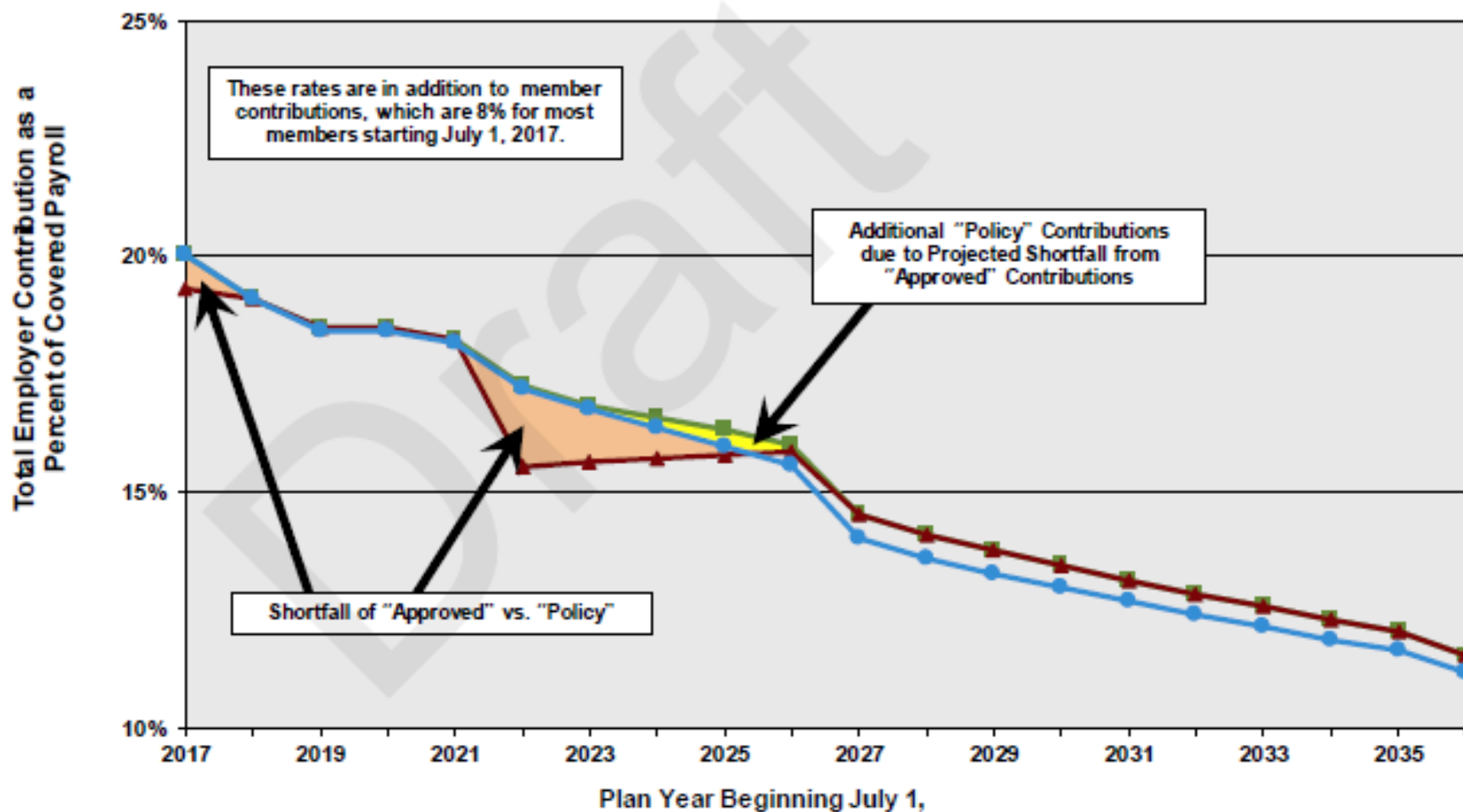
# Pension Definitions

- **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  $100,000 + \text{COLA}_1 * 100,000 / \text{discount}_1 + \dots$  (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)



Average annual pension payout is \$43,600

### Projected UCRP Employer Contributions - Campus and Medical Center Segment Only



<p><b>Campus and Medical Centers Only</b></p> <ul style="list-style-type: none"> <li>-Assumes active member population grows by 0.7% per year.</li> <li>-Assumes a 7.25% market value return per year starting July 1, 2017.</li> <li>-Includes State Funding for 2017/2018.</li> <li>-Includes approved STIP transfers through 2021/2022.</li> <li>-Includes 2016 Tier (20% "Savings Choice" Election).</li> </ul>	<ul style="list-style-type: none"> <li><span style="color: green;">■</span> Total Funding Policy Contribution - Assumes Approved Contributions Made</li> <li><span style="color: red;">■</span> Total Approved Contributions (Includes UAAL Surcharge)</li> <li><span style="color: blue;">■</span> Total Funding Policy Contribution - Assumes Funding Policy Contributions Made</li> </ul>
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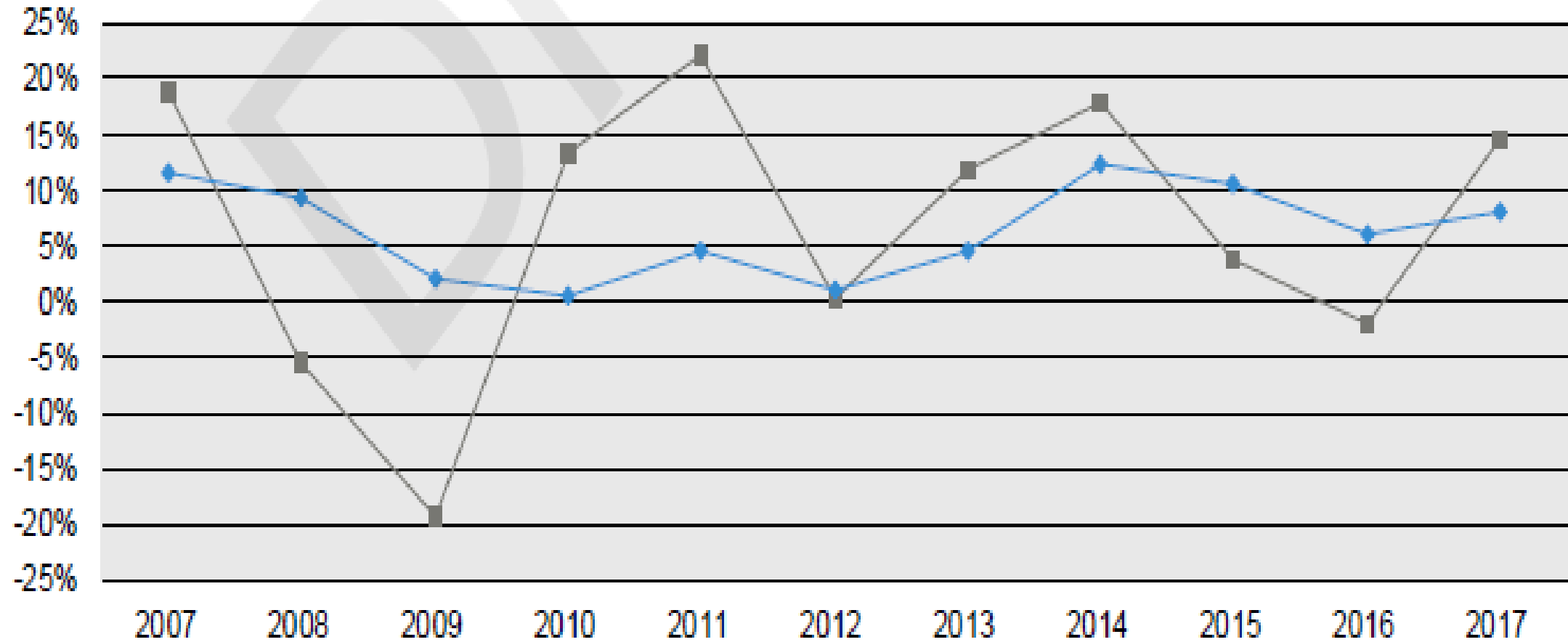
# Pension Guarantees

- 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.

## Market and Actuarial Rates of Return for Years Ended June 30, 2007 - 2017





Net Returns (%)	Annualized Returns							
	As of December 31, 2017	3 Month	Fiscal YTD	1 Year	3 Year	5 Year	7 Year	10 Year
UC Pension	3.8	7.5	16.7	7.7	9.0	8.3	5.6	6.6
UC Pension Benchmark	3.9	7.7	16.2	7.2	8.3	7.5	5.0	6.2
<i>Value Added</i>	(0.1)	(0.2)	0.5	0.5	0.7	0.8	0.6	0.4

Net Returns (%)	One Year Returns									
	As of June 30, 2017	2017	2016	2015	2014	2013	2012	2011	2010	2009
UC Pension	14.5	(2.0)	4.5	17.4	11.7	0.4	22.4	12.7	(18.8)	(5.7)
UC Pension Benchmark	12.7	(0.8)	2.2	17.1	10.7	(0.6)	21.6	11.6	(18.9)	(4.7)
<i>Value Added</i>	1.8	(1.2)	2.3	0.3	1.0	1.0	0.8	1.1	0.1	(1.0)

- The Policy Benchmark is a weighted average of investment policy targets

Relative Weight As of December 31, 2017

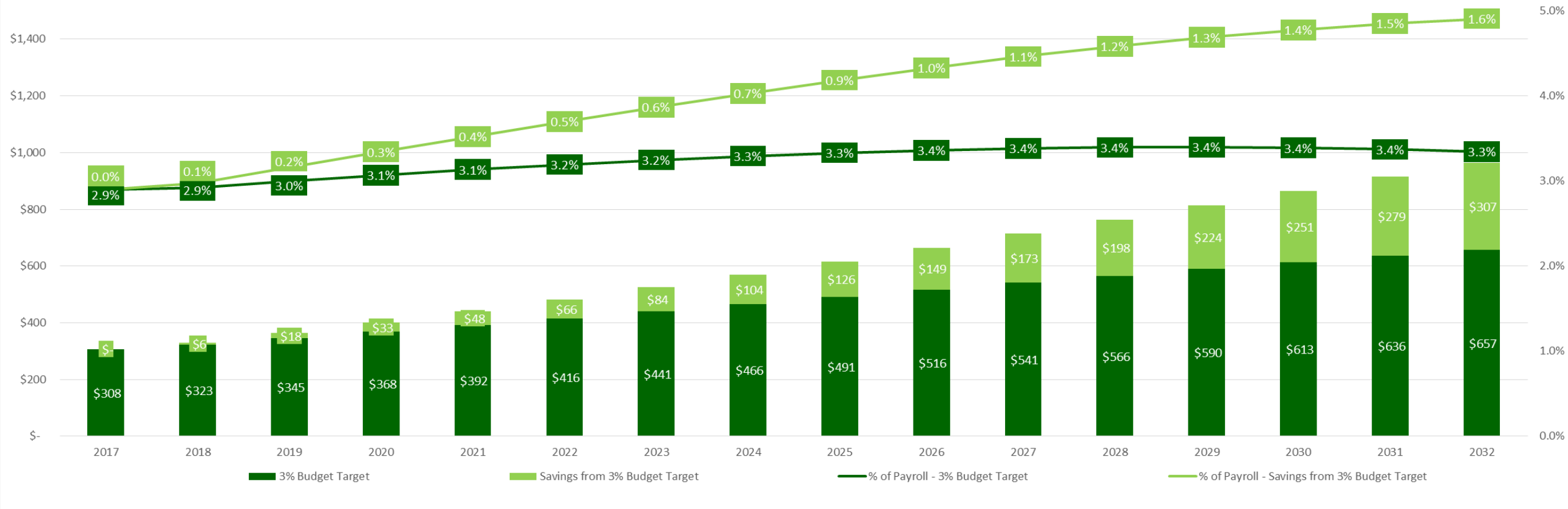


	Market Value in \$ Billions	Percentage	Over/Underweight Relative to Policy	Policy Weight
Public Equity	38.0	57.1%	4.9%	52.2%
Liquidity (Income)	13.6	20.4%	-1.1%	21.5%
Core + Opportunistic	8.3	12.4%	-1.0%	13.4%
High Yield	2.1	3.1%	0.2%	2.9%
Emerging Market Debt	1.5	2.3%	-0.1%	2.4%
TIPS	1.7	2.6%	-0.2%	2.8%
Other Investments	9.9	14.9%	-8.6%	23.5%
Absolute Return	3.1	4.7%	-2.6%	7.3%
Private Equity	2.8	4.3%	-3.2%	7.5%
Real Estate	3.0	4.4%	-1.9%	6.3%
Real Asset	1.0	1.5%	-0.9%	2.4%
Cash	5.1	7.6%	4.8%	2.8%
Total	66.6	100.0%	0.0%	100.0%



# Retiree Health (current annual cost about \$7000/retiree)

Impact of 3% Budget Target on Pay-As-You-Go Costs (\$ Millions)\*



- 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% through 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 renegeing 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.

# 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.**

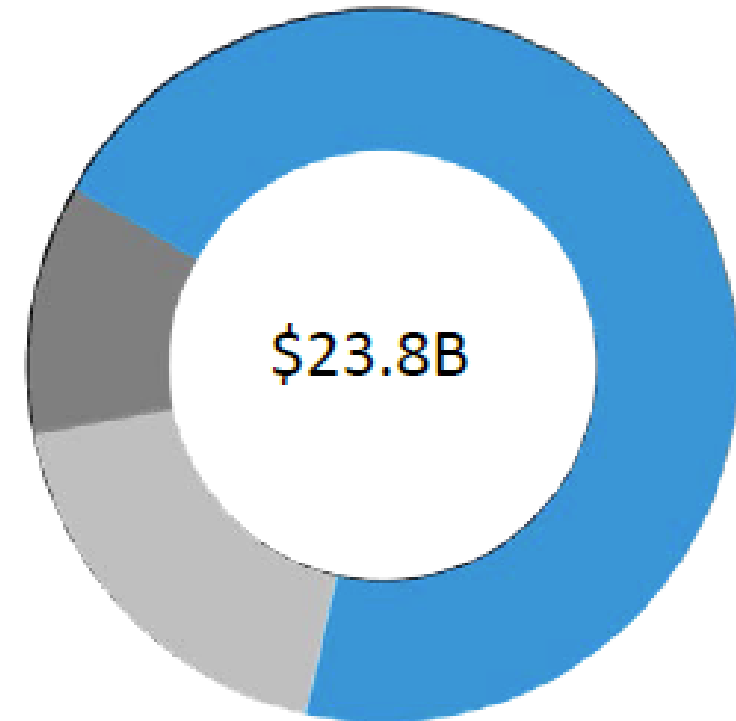
# 2016 Pension Tier Cont.

- 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 PEPR 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:  
<http://ucnet.universityofcalifornia.edu/compensation-and-benefits/retirement-benefits/2016-retirement-choice/index.html>

## 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
- ▶ 2<sup>nd</sup> 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!

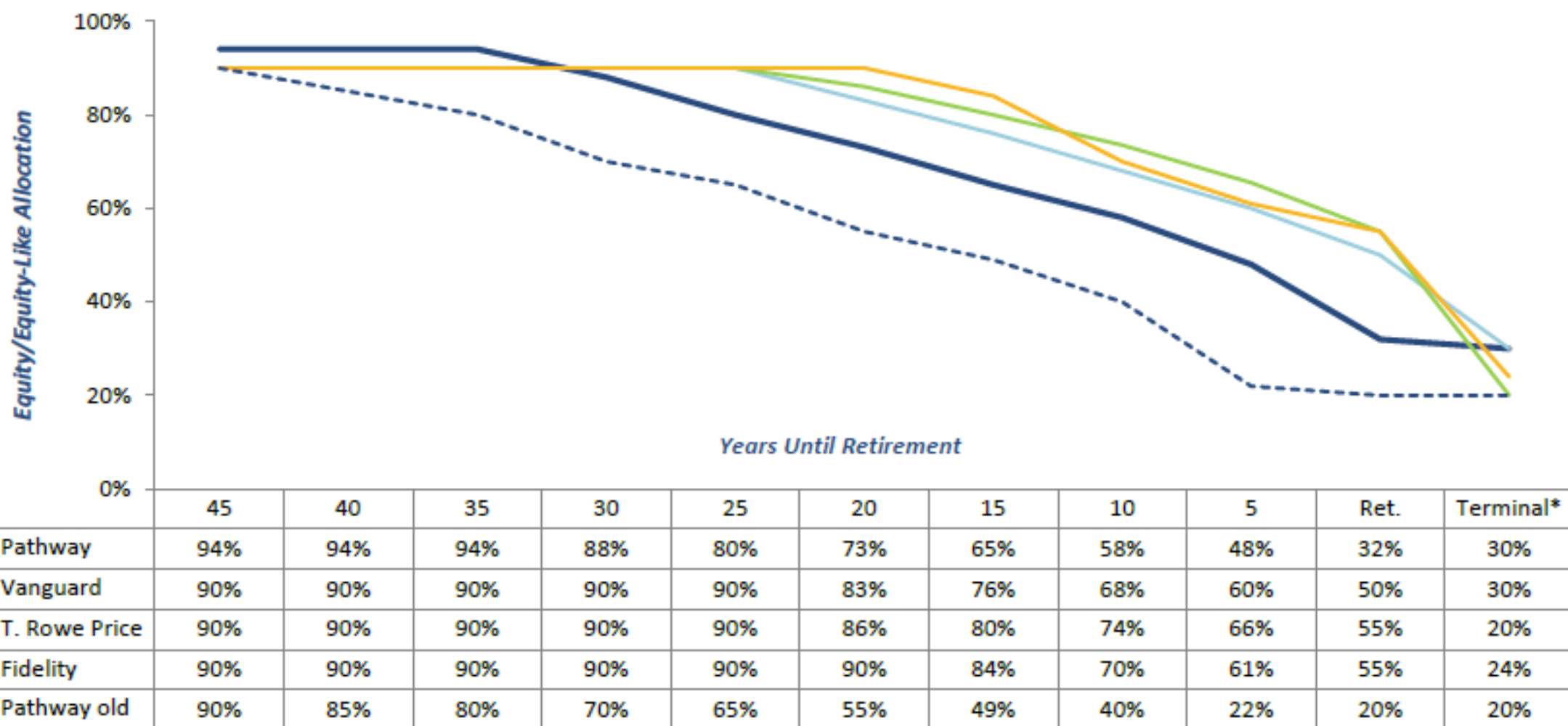
# Defined Contribution Problems

- 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.

## Pathway Target Date Fund vs. Top 3 TDF providers



# Why foreign equities and bonds?

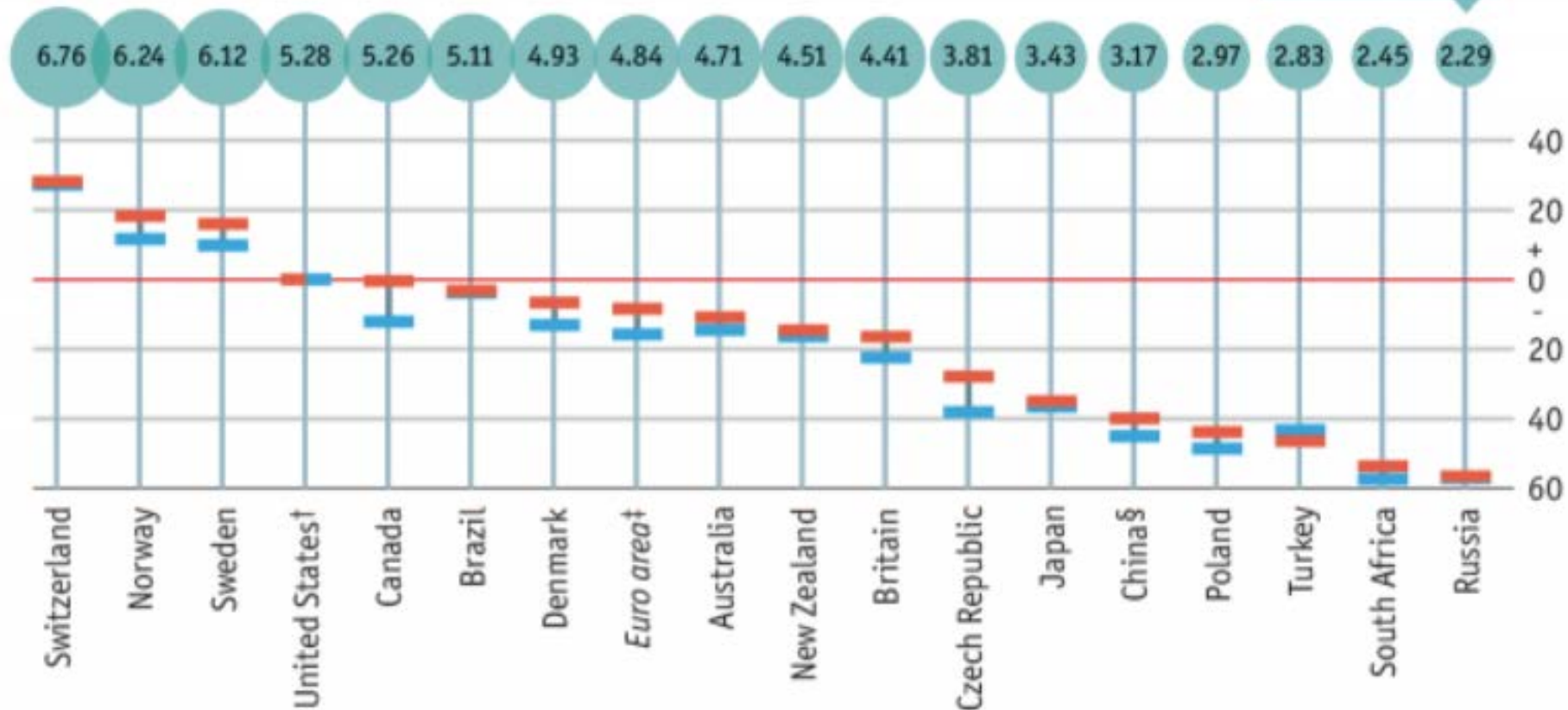
## The Big Mac index

Local currency under(-)/over(+) valuation against the dollar, %

January 2018

July 2017

Big Mac price\*, \$



Sources: McDonald's;  
The Economist

\*At market exchange rates (Jan 17th 2018)

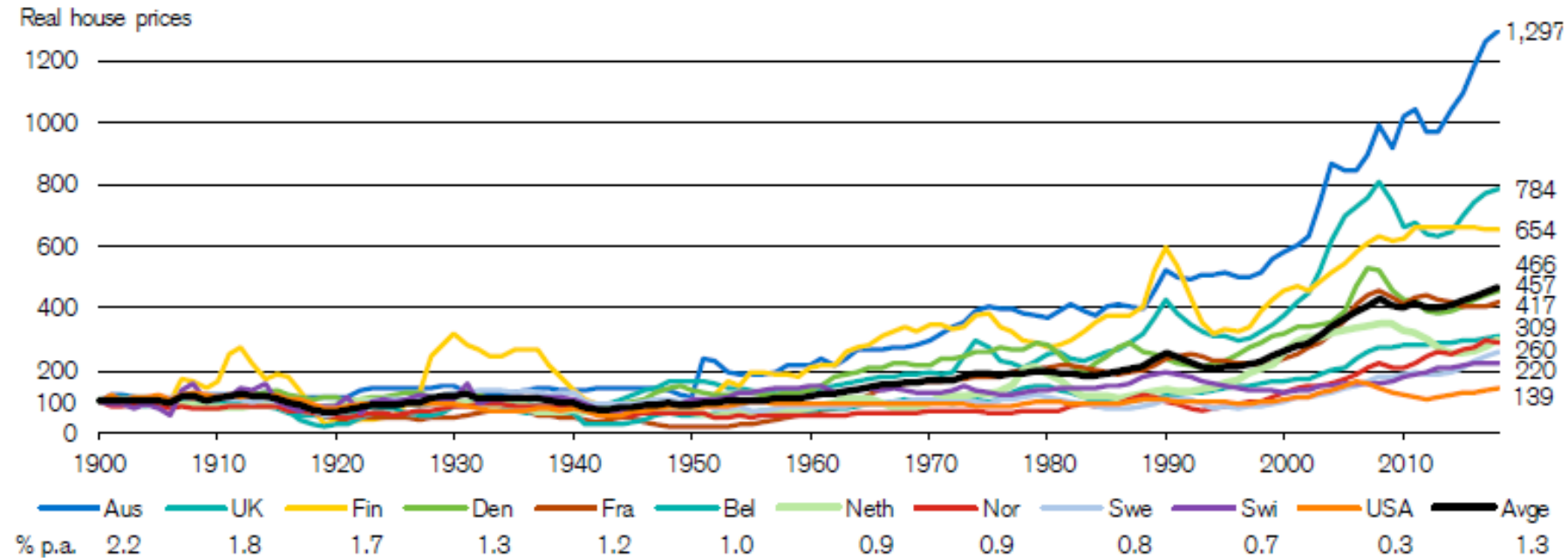
†Average of four cities ‡Weighted average of member countries §Average of five cities

## Real equity returns in key markets over selected periods

Period (calendar years)	Real rate of return (%) over the period						
	USA	UK	France	Germany	Japan	World	World ex-US
<b>Six worst episodes</b>							
1914–18: World War I	-18	-36	-50	-66	66	-31	-35
1929–31: Wall Street Crash	-61	-31	-44	-59	11	-54	-44
1939–48: World War II	22	34	-41	-88	-96	-12	-41
1973–74: Oil shock/recession	-52	-71	-40	-26	-49	-47	-39
2000–02: Internet 'bust'	-42	-38	-45	-58	-49	-44	-46
2008: Credit/banking crash	-38	-33	-41	-43	-41	-41	-44
<b>Four best episodes</b>							
1919–28: Post-WWI recovery	376	234	171	18	30	168	82
1949–59: Post-WWII recovery	430	212	269	4373	1565	395	345
1980–89: Expansionary 80s	176	337	297	220	431	257	327
1990–99: Nineties/tech boom	276	198	218	154	-42	111	42
<b>Periods with highest returns</b>							
One-year returns (%)	56	97	66	155	121	68	80
	1933	1975	1954	1949	1952	1933	1933
Two-year returns (%)	92	107	123	187	245	90	138
	1927–28	1958–59	1927–28	1958–59	1951–52	1932–33	1985–86
Five-year returns (%)	235	176	270	652	576	185	271
Period	1924–28	1921–25	1982–86	1949–53	1948–52	1932–36	1985–89
<b>Periods with lowest returns</b>							
One-year return	-39	-57	-41	-91	-86	-41	-44
Period	1931	1974	2008	1948	1948	2008	2008
Two-year returns (%)	-54	-71	-53	-90	-95	-47	-49
Period	1930–31	1973–74	1944–45	1947–48	1945–46	1973–74	1919–20
Five-year returns (%)	-46	-63	-78	-93	-98	-58	-63
Period	1916–20	1970–74	1943–47	1944–48	1943–47	1916–20	1916–20
<b>Longest runs of cumulative negative real returns</b>							
Return (%) over stated period	-8	-4	-19	-3	-1	-8	-2
Period	1905–20	1900–21	1929–82	1900–54	1900–50	1910–31	1905–31
Number of years	16	22	54	55	51	22	27

Source: Elroy Dimson, Paul Marsh, and Mike Staunton, *The Worldwide Equity Premium: A Smaller Puzzle*, in R. Mehra (Ed.), *Handbook of the Equity Risk Premium*, Elsevier, 2007, and subsequent research

### Real price of domestic housing in 11 countries, 1900–2017

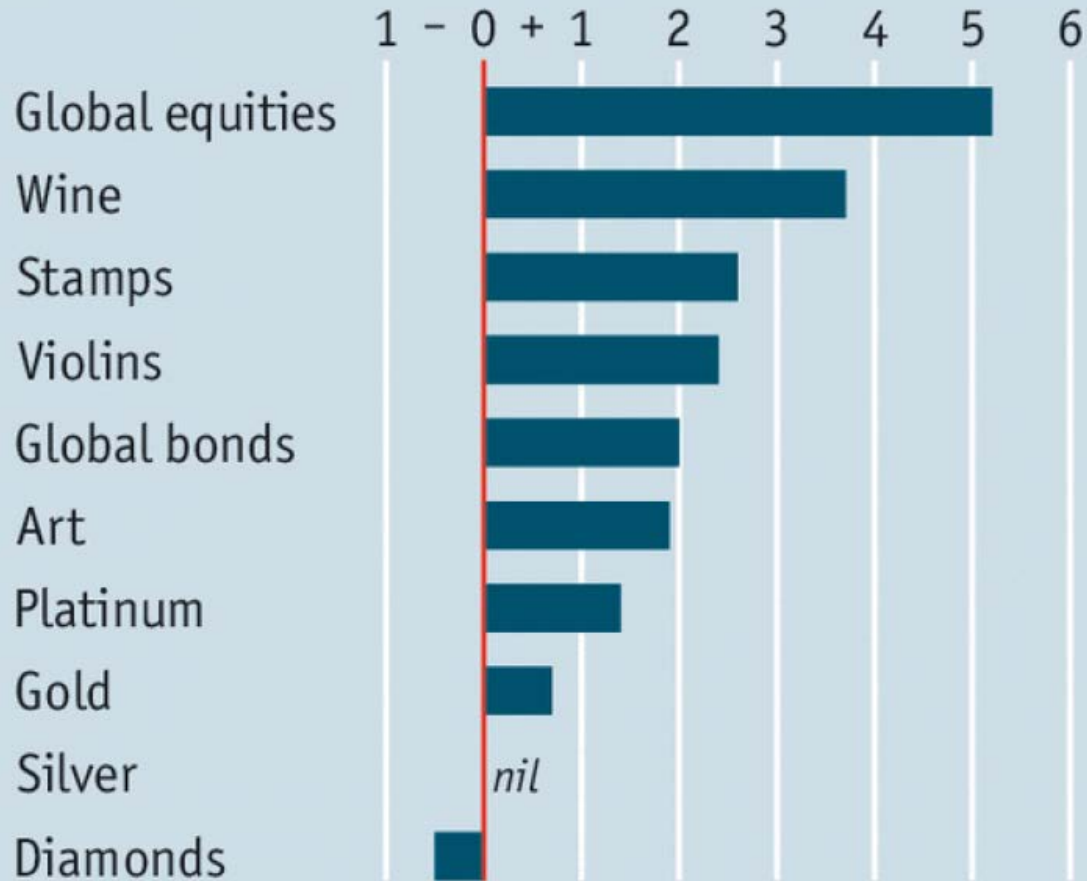


Sources: Dimson, Marsh and Staunton and see all the sources in Box 4 above

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!

## Diamonds not forever

Average annual real returns, 1900-2017, %



Source: "Credit Suisse global investment returns yearbook 2018" by E. Dimson, P. Marsh, M. Staunton, London Business School

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!