

# Long-Term Investment Pool & Similar Funds (LTIP)

Investment Review for Fiscal 2014

Submitted September 2014

*This cover page provides a summary overview of the Pennsylvania State University Long-Term Investment Pool (see next page for details) for Fiscal Year 2014. The second page summarizes LTIP-related data that is discussed on the remaining pages, along with performance analysis.*

## Executive Overview

### Long-Term Investment Pool (LTIP) Performance

Annualized *net* investment returns for the Penn State University LTIP (adjusted for the impact of gifts and spending, and after external investment management expenses) for periods ending June 30, 2014 are:

<u>Fiscal 14</u>	<u>3 Years</u>	<u>5 Years</u>	<u>10 Years</u>
17.9%	10.7%	13.8%	8.8%

### Long-Term Investment Pool Market Value (pg 3)

As of June 30, 2014, Penn State University's LTIP was valued at \$3.54 billion, including \$2.29 billion in endowment assets and \$1.14 billion in non-endowed funds. An additional \$114 million was held as Similar Funds (see page 2 for details). Endowment spending is reviewed on pages 2 and 3.

### Review of Investment Markets (pg 4)

The graph below compares respective returns for the 12-months ending June 30, 2014 and June 30, 2013 for the S&P500, MSCI All Country World (ACWI) ex-US, Dow Jones UBS Commodities, Barclays Aggregate Bonds, and publicly-traded Real Estate Investment Trusts (REITs) Indexes. As shown below, fiscal 2014 returns for all categories exceeded their respective 2013 performance.

### Investment Diversification and Asset Mix (pg 5)

At fiscal year-end, 51% of LTIP assets were invested in public equities (domestic and foreign) and 13% in private equity/venture capital, in combination representing 64% of LTIP in growth-oriented assets. In addition, 14% was invested in fixed income/cash, 12% in real return assets (TIPS, real estate, natural resources and commodities), and 10% in diversifying strategies (hedge funds).

### Comparative Fund Performance (pg 6)

Penn State's LTIP returned 17.9% net for the year ending June 30, 2014, matching the return of the Passive Policy Portfolio, while LTIP's 3-yr and 5-yr relative performance notably outpaced the respective passive benchmark returns.

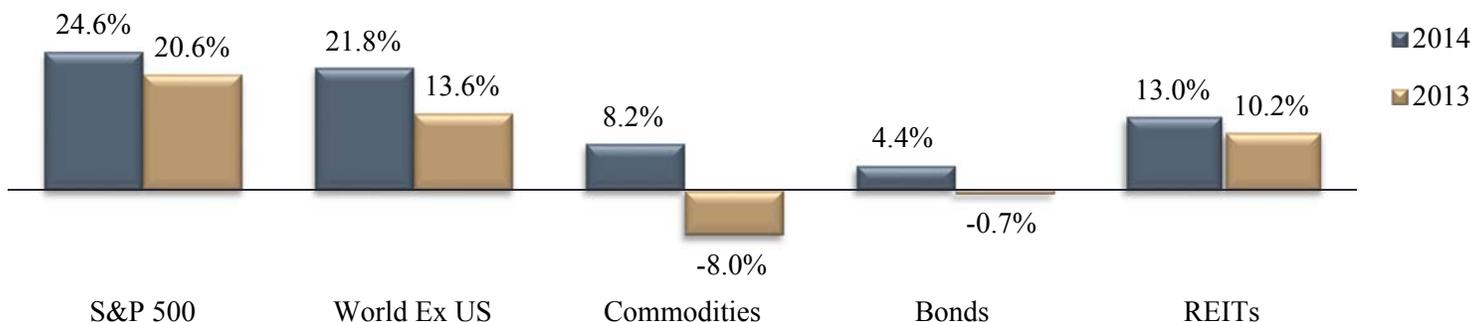
### LTIP Liquidity (pg 7)

With nearly one-half of assets convertible to cash in a matter of days, the LTIP maintains adequate liquidity to satisfy anticipated cash requirements.

### LTIP Performance and Spending (pg 8)

Penn State LTIP's average annual net returns of 8.8% and 9.1% for the last 10-year and 20-year periods, respectively, have allowed LTIP to earn inflation-adjusted returns in excess of spending, thereby achieving long-term intergenerational equity.

**Investment Market Returns  
Fiscal Years Ending June 30**



## 5-Year LTIP Facts and Figures

	Annual Periods Ending June 30				
	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>
<b><i>Investment Performance</i></b>					
Endowment <sup>1</sup> (annualized net returns)	17.9%	11.3%	3.5%	23.2%	14.3%
<b><i>Market Values</i></b> (\$ millions)					
Endowment <sup>1</sup>	2,285.0	1,933.2	1,765.0	1,708.4	1,341.5
<u>Similar Funds</u> <sup>2</sup>	<u>113.5</u>	<u>95.7</u>	<u>90.0</u>	<u>122.7</u>	<u>97.6</u>
Endowment and Similar Funds	2,398.5	2,028.9	1,855.0	1,831.1	1,439.1
Gifts & Other Additions (\$ mils)	92.2	73.9	76.2	136.3	62.5
Current Spending (\$ mils)	75.4	71.5	70.8	66.0	63.4
As described in footnote #3 below, approximately \$1.14 billion earmarked to fund FAS 106 liabilities (post-retirement health care benefits for PSU retirees) was commingled into the University's Long-Term Investment Pool (LTIP) over the past four years. Prospectively, the reported market value, and related analysis, for LTIP will include all commingled funds, as shown below for June 30, 2014.					
<u>Non-Endowed Funds</u> <sup>3</sup>	<u>1,140.6</u>	<u>1,004.8</u>	<u>239.8</u>	<u>143.3</u>	<u>121.7</u>
Total LTIP <sup>4</sup> & Similar Funds	3,539.1	3,033.7	2,094.8	1,974.4	1,560.8
1) Endowment — donor-restricted gifts					
2) Similar Funds — deferred gifts and donor-restricted funds in transit to Endowment					
3) Non-Endowed Funds earmarked for FAS 106 liability (employee post-retirement health care benefits)					
4) Commingled assets over which Penn State's Office of Investment Management (OIM) has investment responsibility, as approved by the Penn State Investment Council (PSIC), exclusive of Similar Funds					

## Penn State Investment Council (PSIC) Meetings

February 11, 2014:

- Committing \$15M each to: Castlake III, L.P., Energy & Minerals Group Fund III, L.P., Franklin Park International Fund 2014, L.P., and \$20M to Sycamore Partners II
- Investing \$60M in: Omega Advisors

April 25, 2014:

- Committing \$20M to Thoma Bravo XI, L.P.; \$4M to Lightspeed Venture Partners X, L.P.; \$1M to Lightspeed Venture Partners Select L.P.; \$5M to Accel Partners XII, L.P.; and \$10M to Accel Growth Fund, L.P.
- Investing additional \$10M in: Symphony Fund Partners Value Realization Fund

June 25, 2014:

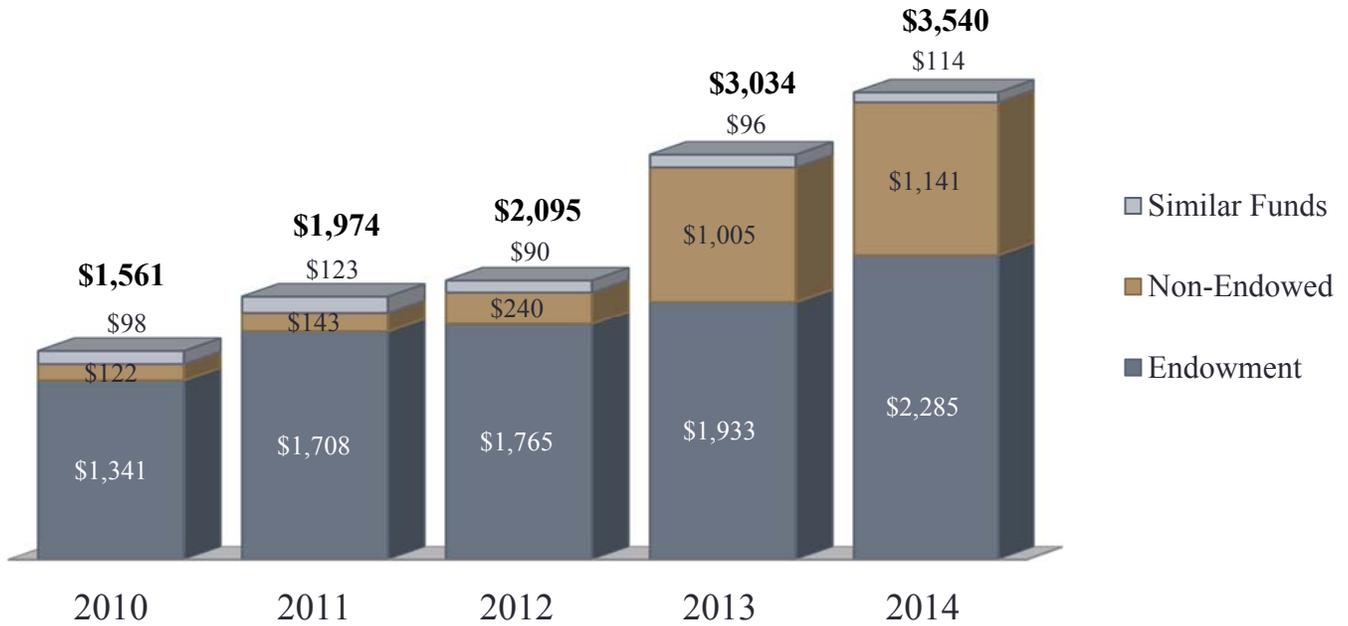
- Committing \$10M to: Sofinnova IX, L.P.
- Committing \$7.5M to: Charles River XVI, L.P.
- Committing \$15M to: Natural Gas Partners XI, L.P.
- Committing \$15M to: Och-Ziff Real Estate Fund III, L.P.

Please note that commitments made to Limited Partnerships (LPs) are not immediately invested and are called (paid in) over several years until commitment is satisfied, except as noted.

## Long-Term Investment Pool Market Value

As of June 30, 2014, Penn State’s Long-Term Investment Pool was valued at \$3.43 billion, including non-endowed funds in the amount of \$1.14 billion that have been commingled into the LTIP. Non-pooled assets — charitable remainder trusts, charitable gift annuities, and other life income funds in addition to donor restricted funds — accounted for an additional \$114 million, shown below as Similar Funds, for a total \$3.54 billion in assets.

**Long-Term Investment Pool Market Value**  
**Fiscal Years Ending June 30**  
 (\$ millions)



### Endowment Assets

Endowment assets increased by \$352 million during fiscal 2014, from \$1.93 billion to \$2.28 billion. As seen in the table on page 2, endowed gifts added over the last 12 months totaled \$92 million, while endowment program support (spending) amounted to \$75 million. Current endowment spending has been approved by the Board of Trustees to remain at an annual rate of 4.5%.

### Long-Term Investment Pool

As of June 30, the market value of the Long-Term Investment Pool totaled \$3.54 billion, including \$1.14 billion in non-endowed assets that have been commingled for investment purposes, but are restricted to the on-going funding of the University’s FAS 106 liability, per above.

The remainder of this report will focus on the Long-Term Investment Pool, including all commingled funds.

## Review of Investment Markets in Fiscal 2014

During fiscal 2014, developed market equities improved on their prior year's double-digit gains. Emerging market equities strongly rebounded from their single-digit gain in fiscal 2013 and fixed income returns recovered from their uncharacteristically negative returns in 2013. The performance of investment markets that impact Penn State University's Long-Term Investment Pool is discussed below.

### US Equities

The S&P 500 returned 24.6% for the 12 months ending June 30, 2014, compared to 20.6% for fiscal 2013, while the more broadly-based Russell 3000 Index returned 25.2% and 21.5%, respectively. Small-capitalization stocks, as measured by the Russell 2000 Index, returned 23.6% versus 24.2% last year. The Nasdaq Index's return of 29.5% bested most broad domestic indexes in fiscal 2014, surpassing its 2013 return of 16.0%.

### Non-US Equities

Equities outside the United States trailed as the Morgan Stanley All Country World (ACW) Index ex-US returned 21.8% for the 12-month period ending June 30, 2014, exceeding its fiscal 2013 return of 13.6%. Emerging market equities in developing countries returned 14.3% over the last 12 months, more than tripling their 2.9% return in fiscal 2013.

### Fixed Income

Barclays Capital Aggregate Bond Index (various maturities of US Government and non-government domestic bonds) returned 4.4% in fiscal 2014 versus -0.7% in 2013. US Long-Term Treasury Bonds returned 6.3% in fiscal 2014 versus -8.4% a year earlier.

For fiscal 2014 and 2013, 91-day Treasury Bills remained essentially flat at 0.1%. Global Treasury Inflation Protected Securities (TIPS) returned 10.4% in fiscal 2014 compared to -1.1% in fiscal 2013.

### Real Estate

Publicly-traded Real Estate Investment Trusts (REITs) returned 13.0% for the fiscal year ended June 30, 2014, surpassing their 2013 return of 10.2%. Privately-held real estate investment partnerships, as measured by the largely commercial property NCREIF Index, returned 11.2% and 10.5% in fiscal years 2014 and 2013, respectively.

### Alternatives

Private Equity Buyouts and Venture Capital earned time-weighted returns of 18.9% and 30.5%, respectively, for the 12 months ending March 31, 2014 (private capital partnerships are reported on a 3-month lag). In the previous 12-month period ending March 31, 2013, Private Equity Buyouts returned 13.1%, while Venture Capital was at 5.2%. By comparison to public markets, the Russell 2000 Index of small-capitalization stocks returned 24.9% for the 12 months ending March 31, 2014 and 16.3% for the year ending March 31, 2013.

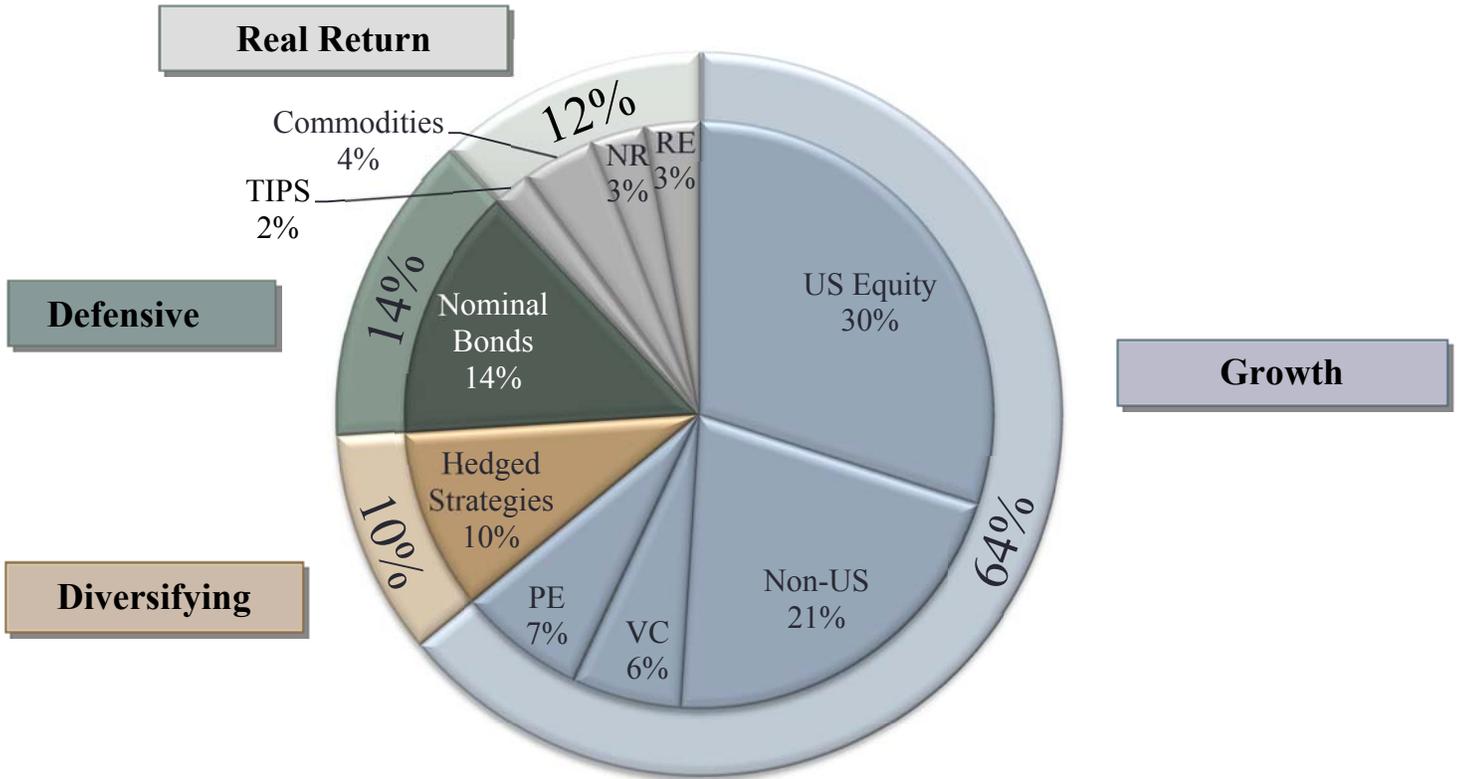
### Economic and Market Outlook

In the 12 months ending June 30, 2014, global equity markets generally surged ahead, with US equities outpacing non-US indexes. Meanwhile, fixed income markets returned to positive territory after posting uncharacteristic negative returns last fiscal year when bond markets began to anticipate the possibility of the Federal Reserve Bank tapering its monthly purchases of treasury and mortgage-backed bonds. Prospectively, expectations for domestic corporate profits are leveling off in the face of record profit margins and a slowly recovering world economy, especially in the European developed countries.

Penn State's well-diversified Long-Term Investment Pool — consisting of public equities, private partnerships, bonds, and hedge funds in addition to inflation-sensitive "real return assets" — continues to be the appropriate investment approach for long-term growth and sustainable spending.

## Investment Diversification and Asset Mix

Asset allocation is a primary determinant of investment performance and risk control. LTIP's asset mix combines four strategic investment themes – growth (economic-sensitive), real (inflation-sensitive), diversifying (low sensitivity to economic/investment-market fluctuations), and defensive – to maximize potential returns, while tempering volatility. In the graph below, the four macro investment themes are shown in the outermost ring with their June 30, 2014 allocations of 64%, 10%, 14% and 12%, respectively; however, the percentages fluctuate over time depending on market trends and allocations approved by the Penn State Investment Council.



At a more granular level, LTIP's diversified portfolio includes a variety of traditional asset classes that comprise the four strategic themes, as shown by the slices within the inner pie (percentages are rounded):

- Growth (64%): 30% in publicly-traded US and 21% in publicly-traded non-US common stocks, as well as 6% in venture capital and 7% in private equity funds.
- Diversifying (10%): 1% in credit-related, 9% in equity-related strategies and less than 1% in various other hedged strategies.
- Defensive (14%): 10% in US government and investment grade corporate bonds, and 4% in global bonds.
- Real Return (12%): 2% in Global Treasury Inflation Protected Securities (TIPS), as well as 3% in real estate, 3% in natural resources, and 4% in commodities.

The approximately 64% currently allocated to growth is intended to take advantage of capital growth and purchasing power protection offered by equity-type investments, while the 12% allocated to real return is to buffer inflation. The 14% invested in defensive (fixed income) and 10% in various hedged strategies are intended to provide stability and diversification during times of market turbulence and uncertain economic conditions.

## LTIP Performance Compared to Passive Portfolio

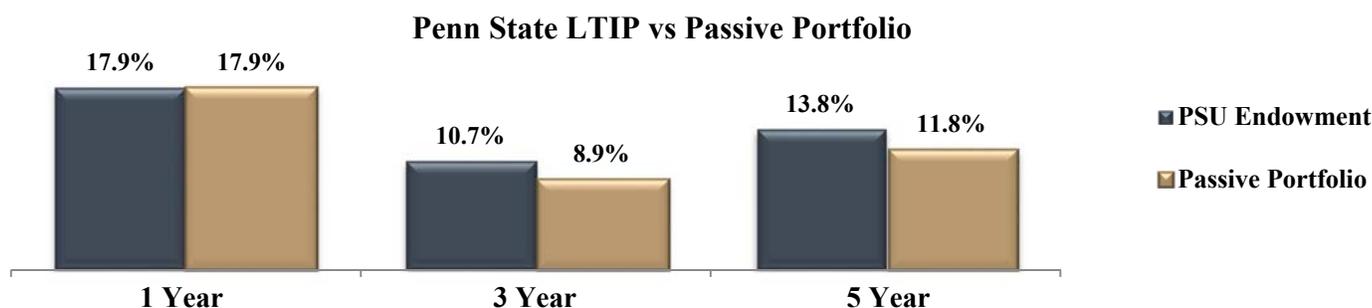
The Long-Term Investment Pool’s investment performance is measured against a hypothetical *Passive Portfolio*, comprised of four broad asset categories: Public Equities, Private Capital, Fixed Income and Commodities. This passive portfolio serves as a blended benchmark against which the performance of the actual, actively-managed, and more broadly-diversified LTIP portfolio is monitored. This analysis is distinct from the foregoing conceptual, strategic themes which do not lend themselves to benchmarks analysis.

These categories are very broadly defined: the equity and fixed income categories include hedge funds whose strategies are equity and/or credit oriented, respectively, while commodities include hedged and long-only strategies. The custom index for Private Capital includes representative private equity, venture capital, and private real estate partnership time-weighted returns.

In the table below, the respective static weightings of the four asset categories are associated with corresponding market benchmarks and their respective index returns to generate *Passive Portfolio* returns over 1-, 3-, and 5-year horizons:

<u>Asset Class</u>	<u>Benchmark</u>	<u>Weighting</u>	<u>Annualized Benchmark Returns</u>		
			<u>1 Year</u>	<u>3 Years</u>	<u>5 Years</u>
Public Equities	MSCI All Country World	55%	22.9%	10.9%	14.3%
Total Private Capital	Custom Index	20	19.9	14.0	14.2
Fixed Income	Barclays Aggregate Bond Index	20	4.4	3.7	4.9
Commodities	Dow Jones UBS Commodities	<u>5</u>	<u>8.2</u>	<u>-5.2</u>	<u>2.0</u>
<b>Total Passive Portfolio (net)</b>		<b>100%</b>	<b>17.9%</b>	<b>8.9%</b>	<b>11.8%</b>

Note: The weightings used above are assumed to be constant over the entire 5-yr period, much like a traditional balanced portfolio whose weightings are rebalanced back to policy weights to account for fluctuating market returns.

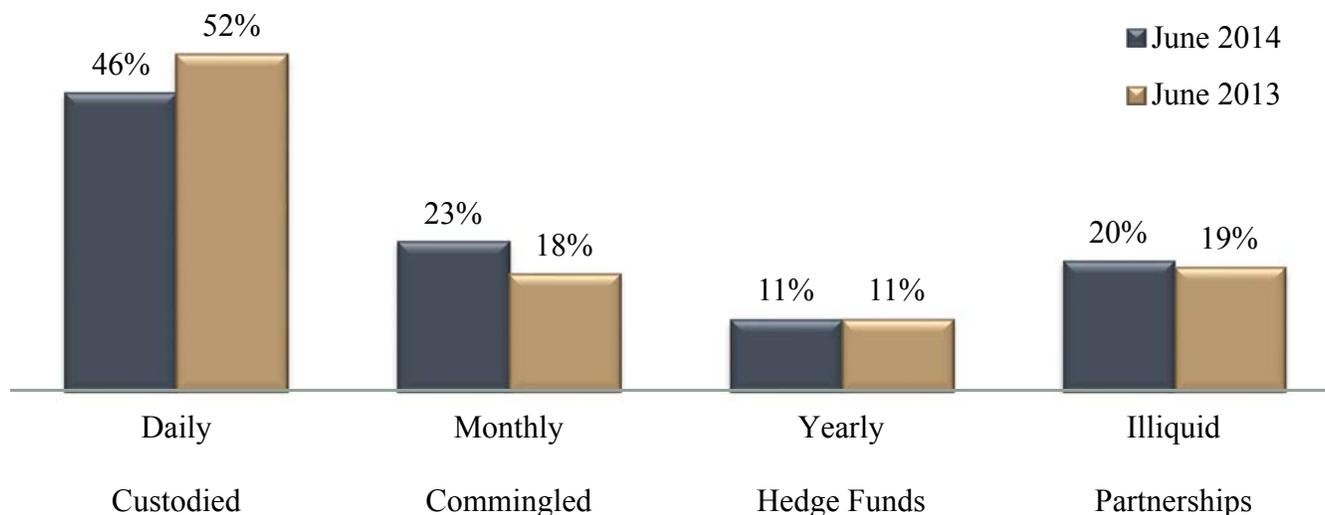


As shown above, Penn State’s LTIP returned 17.9% net for fiscal 2014, matching the return of the Passive Portfolio over the trailing 12 months. For the 3- and 5-year periods, the Long-Term Investment Pool’s annualized returns of 10.7% and 13.8% outpaced the Passive Portfolio’s returns of 8.9% and 11.8%, respectively. This indicates that, over the long term, LTIP was able to outperform passive indexes through selection of active investment managers and broad diversification of assets as shown on the previous page.

The Passive Portfolio provides a guidepost to help achieve long-term results that are consistent with the twin objectives of purchasing-power preservation, along with stable LTIP spending. LTIP’s performance varies from the *static* Passive Portfolio as a consequence of several factors, including, but not limited to, the timing of cash-flows, tactical shifts in asset mix, and individual investment manager performance and turnover.

## Long-Term Investment Pool Liquidity

Financial crises are characterized, among other considerations, by lack of liquidity, as institutions are unable to meet current obligations due to lack of available cash. In the graph below, LTIP assets are classified according to how quickly they can be converted to cash. Securities listed on exchanges or traded over-the-counter, and held in custody as separately managed accounts, can be liquidated on a daily basis (typically 1- and 3-day settlement for bonds and stocks, respectively). Commingled portfolios, i.e., collectively-managed investment pools of publicly-traded securities, are eligible for purchase or sale at least once a month. Hedge fund partnerships are typically open for at least partial liquidation once a year, with a few having more and/or less frequent liquidity “windows.” Non-marketable partnerships are considered illiquid primarily because of the inability of limited partners to transact at will.



Observations from the blue (left) bars of each of the four pairs above for the period ending June 30, 2014:

- 46% percent of LTIP assets are invested in stocks and bonds that can be converted to cash in a matter of days. Of this, about 1% is held in money market accounts, along with approximately 5% in “securitized cash” (i.e., fully-collateralized S&P and Treasury futures), which can be readily converted to cash in order to satisfy day-to-day and/or unforeseen cash requirements.
- Commingled portfolios, primarily non-US public equities, comprise 23% of LTIP assets and can be converted to cash within 30 days or, in some cases, sooner. Commingled structures are used for non-US holdings in lieu of registering in individual countries where foreign companies are headquartered.
- 11% of LTIP assets are invested in various diversifying hedge fund partnerships and can be at least partially converted to cash annually or, in many cases, quarterly.
- 20% percent of LTIP assets are invested in more than 100 different partnership funds or other non-marketable investments that are considered illiquid because underlying holdings are typically not readily marketable or the timing of future realizations into cash distributions are uncertain.

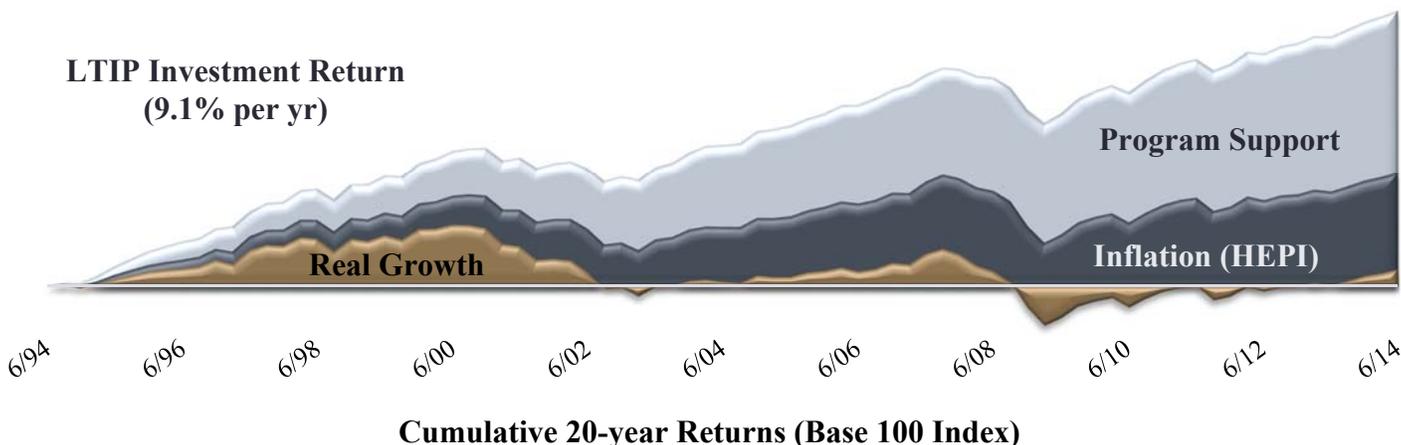
The foregoing indicates that LTIP maintains sufficient liquidity to satisfy anticipated cash requirements.

### Liquidity Trends

As shown above, the liquidity profile of Penn State’s LTIP has shifted somewhat from the end of fiscal 2013 (tan bars) to the end of fiscal 2014 (blue bars). Daily liquidity decreased slightly (from 52% to 46%), while monthly liquidity increased from 18% to 23%, as LTIP’s allocation shifted from separately-managed US equities to non-US commingled funds. Yearly liquidity was unchanged at 11%, while illiquid non-marketable alternative assets increased slightly from 19% to 20%. Over time, stepped up commitments to partnerships will gradually result in larger representation by non-marketable investments.

## Long-Term LTIP Growth and Spending

In the chart below, the top line represents the cumulative net investment return of the Penn State Long-Term Investment Pool (LTIP) over the last 20 years, averaging 9.1% per year. The layers illustrate investment return apportioned to program support (spending, as previously discussed on pages 2 and 3) and inflation (as measured by the Higher Education Price Index [HEPI]), with the remaining residual representing net, real (inflation-adjusted) growth.



LTIP’s primary investment goal is to earn a long-term rate of return sufficient to support *current* spending and to preserve *future* purchasing power. This two-pronged objective is illustrated by apportioning total nominal (i.e., before adjusting for inflation) investment return (top line above) into discrete layers, representing program support and inflation, along with a residual layer corresponding to net *real* growth. Because investment returns periodically fluctuate (illustrated by the jagged topography above), real growth, which nets out program support and inflation from total LTIP return, oscillates across the horizontal “intergenerational equity” line. While market fluctuations have caused the growth layer to swing positive and negative around the horizontal line, intergenerational equity has largely been achieved.

### Two Very Different Decades of Market Performance

The variable nature of investment returns is characterized in the table below which bifurcates the last 20 years into two successive 10-year periods, whose respective investment returns differed widely, but less so than in the past. The 10 years ending June 2004 (second row) benefitted from an extended equity bull market during the 1990s, while the 10 years ending June 2014 (first row) suffered a large sell-off in equities, before rebounding over the last 5.3 years. The return disparity between decades is reflected by comparing the 10-year average returns for the period ending June 30, 2014 versus the period ending June 30, 2004 for both the S&P 500 and Barclays Aggregate Bond Indexes below:

<b>10-Year Periods</b> <b>Ending June 30</b>	<b>Annual Nominal Returns</b>			<b>HEPI</b>	<b>Annual Real Returns</b>		
	<b>S&amp;P 500</b>	<b>Bond Index</b>	<b>LTIP</b>		<b>S&amp;P</b>	<b>Bonds</b>	<b>LTIP</b>
2004 to 2014	7.8%	4.9%	8.8%	2.8%	5.0%	2.1%	6.0%
1994 to 2004	11.6	7.4	9.5	3.6	8.0	3.8	5.9
<b>Difference:</b>	<b>-3.8%p</b>	<b>-2.5%p</b>	<b>-0.7%p</b>	<b>-0.8%p</b>	<b>-3.0%p</b>	<b>-1.7%p</b>	<b>0.1%p</b>

As shown by the negative differentials for the S&P and Bonds in the third row above, market index returns for the most recent 10 years lagged those for the previous 10 years: S&P 500’s 7.8% annualized nominal return for the 10 years ending June 30, 2014 trailed its 11.6% pace for the prior 10-year period by 3.8% (percentage points); and Barclays Aggregate Bond Index returned 4.9% for the June 30, 2014 10-year period versus 7.4% for the prior 10-year period. LTIP’s 8.8% annualized nominal net return for the 10 years ending June 30, 2014 *exceeded* the respective returns for both stocks and bonds. LTIP’s prior 10-year return of 9.5% was midway between corresponding stock and bond returns.

On an inflation-adjusted basis relative to HEPI (boxed column in middle of above table), LTIP’s net real return difference was a *positive* 0.1% compared to *negative* real differences of 3.0% for stocks and 1.7% for bonds (the third row of the right three columns above). Over the last decade, replacing public market investments with a variety of “alternative investments” has enabled LTIP to outperform both stocks and bonds (nominal and real) for the 10 years ending June 2014, and to earn an inflation-adjusted return (6.0%) greater than the annual spending rate (4.5%).