REPORT OF INVESTMENTS
2017
INTRODUCTION

The University invests its financial assets in pools with distinct risk and liquidity characteristics based on specific needs, with the large majority of its financial assets invested in two such pools. The University’s endowment is invested in a long term strategy that seeks to maximize total return over the long term, while the University’s working capital primarily is invested in relatively short duration liquid assets. Other investment pools are invested according to their individual needs and requirements.

This report discusses the asset allocation and investment performance of the three largest categories of funds: endowment funds, working capital funds, and Veritas reserves. Each category is invested according to its individual risk profile. Below is a chart that illustrates the relative size of the three categories of funds. The page that follows contains a short description of each fund category discussed in this report.

The market value of the University’s combined cash, investments, and unexpended debt proceeds totaled $13.2 billion at June 30, 2017, compared to $11.6 billion at June 30, 2016, primarily reflecting an increase in endowment funds.

This chart shows the market value of the University’s financial assets. The previous year’s values are shown in light blue.

UNIVERSITY CASH AND INVESTMENTS AS OF JUNE 30, 2017

[Chart]

- Endowment Funds: $10,936.0
- Working Capital Funds: $1,641.7
- Veritas: $217.3
- Other(a): $336.7

[1] Other includes assets that cannot be commingled in the University’s investment pools, long term disability benefit reserves, life income trusts, unexpended debt proceeds, Metro Health cash and investments, and other reserves.
Endowment funds were valued at $10.9 billion on June 30, 2017, up from $9.7 billion on June 30, 2016. The change in market value from the prior year was primarily due to investment gain.

The majority of the University’s endowment funds are pooled in the unitized University Endowment Fund (the endowment), which consists of approximately 10,500 separate endowment funds. The University’s endowment ranks as the ninth largest endowment among institutions of higher learning in the country and the third largest endowment of a public university, after two university systems¹. It is invested for the long term, primarily through an investment vehicle called the Long Term Portfolio, which is a diversified, equity-oriented pool of investments.

The University’s $1.6 billion of working capital funds, which principally are used for operating activities and capital projects, is invested mostly in relatively short duration fixed income instruments through the Daily and Monthly Portfolios.

The University’s wholly-owned insurance company, Veritas, has $217.3 million of reserves that are primarily invested in the Daily and Monthly Portfolios and the Long Term Portfolio in an allocation reflective of Veritas’ liability structure and regulatory requirements.

This report follows the format established over the past several years and examines the asset allocation and investment return of each of the University’s investment pools. The asset allocation and performance for the University’s primary endowment investment vehicle, the Long Term Portfolio, is discussed in detail over the next pages, followed by a review of the asset allocation and performance of the University’s Daily and Monthly Portfolios, the Short Term Pool, and Veritas reserves.

¹ Based on a June 30, 2016 comparison, as FY 2017 comparative results are not yet available. At that time, the largest public university endowment was the University of Texas system followed by the Texas A&M system. Source: NACUBO

The following chart shows the growth of the University of Michigan’s endowment funds over the past 25 years.

ENDOWMENT FUNDS—END OF FISCAL YEAR FAIR VALUE
LONG TERM PORTFOLIO
BACKGROUND
The University’s endowment funds are invested for the long term, primarily through an investment vehicle called the Long Term Portfolio (LTP). The LTP is a pool of financial assets which the University invests in an equity oriented strategy to maximize expected returns. The assets in the LTP include pooled (unitized) endowment funds of the University and affiliates, and an endowment established for a portion of the current deposits of university departments, as well as a portion of the University’s insurance reserves and gift annuity and charitable remainder trust programs.

The University’s Long Term Portfolio (LTP) closed the fiscal year with a market value of $11.2 billion and represented 85 percent of the University’s total cash, investments, and unexpended debt proceeds. Endowment funds, including quasi-endowment funds, constitute the vast majority of the LTP.

Investment Approach - The LTP is invested in a diversified portfolio of mostly equity and equity-like investments. The University’s investments are tax-exempt under federal and state laws\(^2\), and the University therefore seeks to maximize total return, at an appropriate level of risk, irrespective of whether the gains comes in the form of capital gains, or income.

Equities are investments in commonly available market traded stocks. Equity-like investments are investments in alternative assets, both liquid and illiquid. Alternative assets have risk characteristics that are similar to, and often better than, those of market-traded equities and have more attractive expected returns.

Liquid alternative assets in the LTP today include investments in absolute return strategies such as long/short equity investments, primary and secondary credit investments, and various value and arbitrage strategies. Some are in funds that have liquidity provisions that generally enable the University to make full or partial withdrawals with notice subject to restrictions on the timing and amounts, while others are structured as private equity partnerships. The underlying investments often are in the form of market traded securities, both equities and debt instruments.

Illiquid alternative assets in the LTP include investments in venture capital, private equity, real estate and natural resources where the managers take direct ownership positions in businesses and properties with the intent of actively enhancing the value through higher growth and/or increased profitability. These strategies typically are structured as private equity partnerships.

The LTP’s asset mix has grown more complex over time as markets have broadened out globally and become more specialized. Furthermore, the University’s expanding pool of capital has permitted greater investment diversification and the implementation of more sophisticated investment strategies.

\(^2\) In certain circumstances a university’s investment may be taxable under the Internal Revenue Service’s rules regarding Unrelated Business Taxable Income (UBTI). When an attractive opportunity arises that would generate taxable income or gain, that investment is evaluated on an after-tax basis.
Distribution Policy – The University’s Board of Regents established a distribution policy for its unitized endowment funds to insulate the operating budget from the volatility that historically has accompanied equity and equity-like investments. This policy provides for a stable and growing stream of distributions from the endowment funds in a manner that protects their value over time and preserves intergenerational equity.

Under the University’s distribution policy, a distribution rate is applied to the one-quarter lagged average market value of unitized endowment fund shares. The Board of Regents has made some important adjustments to the distribution policy over time to reduce the volatility of distributions to University departments for operations and to better preserve and grow in real terms the corpus of the University’s endowment funds and the distributions they provide.

In June 2006, the Board of Regents extended the moving average period to seven years by extending the averaging period from three years to four years, and then adding one quarter each subsequent quarter until the averaging period reached the targeted 28 quarters, or seven years.

In July 2010, the Board lowered the distribution rate to 4.5 percent from 5.0 percent, while maintaining the seven year averaging period, to more effectively protect the purchasing power of the University’s endowments and the distributions they provide. The lowering of the distribution rate was implemented gradually over a number of years in a flexible manner. The distribution rate reached 4.5 percent during FY 2014.

Limiting the amount that can be spent to a level that approximates the real rate of return of an equity-oriented portfolio preserves the value of the unitized endowment funds. Basing the distribution rate on a trailing average market value instead of the current market value insulates the University’s operations from temporary market swings and thereby facilitates prudent planning. It also results in distributions representing a lower percentage of current market value in a typical rising market. In a declining market, distributions are limited to 5.3 percent of current fair value to protect the endowment from over distribution.

The portfolio’s current asset allocation and performance are reviewed and discussed in greater detail in the sections that follow.
ASSET ALLOCATION
The asset allocation data in the table below are as of fiscal year end 2017. The largest change since the last Report of Investments is a decrease in the allocation to Fixed Income offset by an increase in the allocations to Cash and Absolute Return. The section that follows describes the LTP’s asset class exposures in further detail.

Asset classes in this report are categorized according to the underlying investment of each strategy or fund and will differ from those described in the University’s annual financial report which also considers the fund’s liquidity characteristics.

Market Traded Equities are investment in publicly traded stocks listed in the U.S. and abroad, either through a fund or directly owned by the University.

Fixed Income is investments in debt instruments of high credit quality.

Absolute Return is a collection of investments in funds pursuing non-traditional investment strategies that, in aggregate, are designed to exhibit low correlation to the direction of overall markets while generating returns over the long term that are competitive with equities.

Venture Capital is investments in funds that invest in newly created companies, primarily in technology and life sciences in the U.S., China, and to a lesser extent, India and Europe.

Private Equity primarily is investments in funds that invest in existing, predominantly private companies in the U.S. or abroad, where the fund managers seek to improve performance either through growth or enhanced profitability.

Real Estate is investments in funds that invest in properties in various sectors such as residential, office, retail, hotel and industrial, predominantly located in the U.S. and Europe.

Natural Resources are investments in companies located primarily in the U.S. that produce oil and natural gas, and companies that service those industries, as well as non-energy related investments in minerals, mining, and wetland restoration.

This chart shows the LTP’s 2017 and 2016 fiscal year end asset allocations. The largest changes in asset allocation reflect a decrease in the allocation to Fixed Income and increases in the allocations to Cash and Absolute Return.

### ASSET ALLOCATION FOR LONG TERM PORTFOLIO

<table>
<thead>
<tr>
<th>MARKETABLE SECURITIES</th>
<th>6/30/2017</th>
<th>6/30/2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Traded Equities</td>
<td>25.9%</td>
<td>25.9%</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>6.6</td>
<td>10.1</td>
</tr>
<tr>
<td>Cash</td>
<td>2.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Total Traditional Assets</td>
<td>35.0</td>
<td>36.5</td>
</tr>
<tr>
<td>Absolute Return</td>
<td>22.1</td>
<td>20.9</td>
</tr>
<tr>
<td>TOTAL MARKETABLE SECURITIES</td>
<td>57.1%</td>
<td>57.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ALTERNATIVE ASSETS (ILLIQUID)</th>
<th>6/30/2017</th>
<th>6/30/2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venture Capital</td>
<td>13.0%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Private Equity</td>
<td>13.0</td>
<td>12.7</td>
</tr>
<tr>
<td>Real Estate</td>
<td>8.7</td>
<td>9.3</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>8.2</td>
<td>7.1</td>
</tr>
<tr>
<td>TOTAL ALTERNATIVE ASSETS (ILLIQUID)</td>
<td>42.9%</td>
<td>42.6%</td>
</tr>
</tbody>
</table>

TOTAL LONG TERM PORTFOLIO 100.0% 100.0%

Marketable Securities include some investments in funds that have liquidity provisions which enable the University to make full or partial withdrawals, with notice, subject to restrictions on the timing and amounts and illiquid private equity structures in which the underlying investments are in the form of Market Traded Securities.
THE MODEL PORTFOLIO
The Model Portfolio the University uses as a reference portfolio to guide its long-term investments is shown below alongside the actual asset allocation at the end of the fiscal year. The model portfolio is the benchmark asset mix the University would target if no one asset class were meaningfully mispriced by historical standards. It thereby provides a framework by which we can evaluate the implicit and explicit investment decisions made over time. This model portfolio, and the University’s actual asset allocation, are used to frame the discussions at the University’s semi-annual Investment Advisory Committee meetings.

The Model Portfolio most recently was changed in FY 2014 to reflect an increase in the allocation to Venture Capital, which has been built up in recent years, and an increased allocation to Absolute Return in the portfolio, offset primarily by a lower allocation to Market Traded Equities and Real Estate. A general longer term trend has been an increase in Alternative Assets (Illiquid) balanced by a lower allocation to Market Traded Equities, reflecting a growing global opportunity set in that area.

The Model Portfolio is shown in the table below together with the actual asset allocation at the end of the fiscal year. The actual allocations are largely in line with the Model Portfolio, with the largest differences in the lower weight to Fixed Income, offset by overweight to Absolute Return and Venture Capital, asset classes that have better potential for exploiting inefficiencies and creating value in an environment where most assets have lower prospective returns due to high valuations.

This table shows how the actual allocation on June 30, 2017 compares with the Model Portfolio.

<table>
<thead>
<tr>
<th>MARKETABLE SECURITIES</th>
<th>Actual on 6/30/2017</th>
<th>Model Portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Traded Equities</td>
<td>25.9%</td>
<td>28.0%</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>6.6</td>
<td>12.0</td>
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<td>Cash</td>
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<tr>
<td>Total Traditional Assets</td>
<td>35.0</td>
<td>42.0</td>
</tr>
<tr>
<td>Absolute Return</td>
<td>22.1</td>
<td>18.0</td>
</tr>
<tr>
<td><strong>TOTAL MARKETABLE SECURITIES</strong></td>
<td><strong>57.1%</strong></td>
<td><strong>60.0%</strong></td>
</tr>
</tbody>
</table>

<table>
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<th>Model Portfolio</th>
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<td><strong>40.0%</strong></td>
</tr>
</tbody>
</table>

| TOTAL LONG TERM PORTFOLIO                    | 100.0%              | 100.0%          |
The following are observations about the Model Portfolio:

- The Model Portfolio includes all major asset classes.
- Marketable Securities represents the majority of assets with a model allocation of 60 percent.
- Market Traded Equities is the largest asset class with a model weight of 28 percent as it has the longest history of proven high returns.
- Fixed Income is used as a deflation hedge with a meaningful model allocation of 12 percent.
- The allocation to Absolute Return of 18 percent is sufficiently large to enhance returns during average to weak equity markets.
- The model allocation to Cash reflects the ongoing need to carry a certain level of frictional cash in the portfolio strategically to properly manage the large and mature alternatives investment program which creates strong and uneven cash distributions and demands for contributions.

The model allocation to Alternative Assets (Illiquid) is sized to allow each of the asset classes in this category to enhance the performance of the aggregate portfolio without dominating returns in a normal market environment. Allocations to these asset classes in total have grown over time as more opportunities have become available globally.

At the end of fiscal year 2017, the actual-to-model portfolio allocations within Marketable Securities reflect underweights to Market Traded Equities and Fixed Income due to concerns over high valuations and therefore low prospective returns from investments in these asset classes, partially offset by a higher allocation to Absolute Return strategies which have higher return potential. Venture Capital has the largest overweight within the Alternatives (Illiquid) classification, reflecting a potential for significant value creation in these investments.

The lower exposure to Market Traded Equities reflects the University’s view that stock valuations are at a level where the average stock offers limited return potential unless already high earnings continue to grow or high multiples continue to expand. A stronger case can be made for investments in equity-related illiquid assets, such as Venture Capital and Private Equity, where there typically is greater opportunity to create additional value through active management and in Absolute Return strategies where fund managers take advantage of inefficiencies.

The allocation to Fixed Income is less than that of the Model Portfolio because of today’s low interest rate environment. Going forward, this likely will result in muted future returns from traditional fixed income securities due to low starting yields and potential mark-to-market losses when interest rates increase. Although lower than that of the Model Portfolio, the allocation to Fixed Income retains its importance as a portfolio stabilizer and deflationary hedge. Additionally, the traditional fixed income securities in the portfolio are high quality with an average rating of A, and substantially all those securities are rated investment grade. This allocation also included a note receivable related to the sale of a portion of the real estate portfolio the prior fiscal year and a convertible arbitrage strategy.

Exposure to Cash is low and mostly reflects functional cash. The University in general seeks to hold a low level of cash in order to minimize the drag on aggregate performance from cash holdings, as cash is the lowest performing asset class over long investment periods.

The Absolute Return allocation is above that of the Model Portfolio as this asset class has higher prospective returns given the elevated valuations of equities and fixed income securities. This category of investments includes long/short equity investments, primary and secondary credit investments, and other strategies designed to exhibit low correlation to the direction of the overall market. This is accomplished by substituting managers’ ability to identify and profit from security specific trades for exposure to the market in general.

Absolute Return managers generally outperform stocks in a weak equity market, are competitive with equities in a normal market environment, and typically lag stocks in strong equity markets. Some investments are in funds that have liquidity provisions which generally enable the University to make full or partial withdrawals with notice subject to restrictions on the timing and amounts, while others are structured as private equity partnerships. The underlying investments often are in the form of market traded securities, both equities and fixed income, or privately negotiated debt instruments.

The University has built an increasingly global portfolio of highly successful venture capital managers over the past 25 years. Although Venture Capital has a potentially volatile impact on short term performance, it has been one of the highest performing areas asset classes in the long term.
The higher than model weight is a result of the performance of this asset class which has outpaced that of the University’s other investments, as well as a recent trend among investee companies to rely on private capital for a longer period instead of going public.

The allocation to Private Equity reflects a focused effort to build the University’s exposure to this asset class on a global basis, consistent with our philosophy of seeking to invest with only the best performers in the industry. The University has made a number of such commitments over the past decade and has created a global private equity program with long term returns well ahead of the public market counterparts. The allocation to this asset class has held steady in recent years and is roughly in line with the Model Portfolio.

Real Estate and Natural Resources continue to play important roles in the portfolio as diversifying assets with inflation protecting characteristics and performance drivers that historically have been different from those of equities.

The approach to investing in these asset classes is to emphasize opportunities to add value over pure asset class exposure. The University has actively sought out real estate investment opportunities globally and has built a portfolio that is broadly diversified geographically and by property type.

While the natural resources portfolio historically has been dominated by investments in proven oil and natural gas reserves, today it is more balanced between those types of investments, and investments in companies that service the oil and gas industry. In addition, the University has broadened its investments beyond the energy sector to also include investments in minerals and mining and wetland restoration.

The section that begins on the next page discusses the performance of the Long Term Portfolio, starting with overall information followed by further detail for each of the individual asset classes.
INVESTMENT PERFORMANCE

Fiscal year 2017 was characterized by strong equity market performance in response to improving economic conditions globally and continued low inflation that allowed the central banks to continue their accommodating policies and keep interest rates low. The election of Donald Trump appears to have boosted equity performance in the U.S. in anticipation of a more business friendly administration. European and Emerging Markets equities responded positively to strengthening economic growth and firming commodity markets, leaving only three of the 47 largest global equity markets failing to post positive returns last year.

Rate sensitive investments like bonds and real estate lagged the typically strong investment returns of other investments, in a reversal from the prior year when equity and equity-related investments lagged, reflecting investors’ concerns that stronger economic growth will result in higher interest rates.

The Long Term Portfolio (LTP) returned 13.8 percent last year. The Long Term Portfolio outperformed the 10.3 percent benchmark return, largely due to strong relative performance of Market Traded Equities, Private Equity and Natural Resources managers. The LTP also outperformed the 11.5 percent return last year of the Blended Passive Benchmark, which is composed of investable asset class benchmarks as a representation of an alternative, passive program.

The LTP annualized ten year return of 5.6 percent is above the 5.2 percent return of the custom benchmark which is designed to measure the success of the implementation of the University’s long term diversified investment strategy. The LTP also surpassed the 4.0 percent return of the Blended Passive Benchmark over the same period. This index is a representation of an alternative, passive, investable portfolio strategy for a large investment pool such as the University’s LTP. As a reference, the S&P 500 stock index gained 7.2 percent annualized over the same ten-year period.

The LTP has generated an annualized return of 9.3 percent since the Investment Office was established 18 years ago, which compares to 6.8 percent annualized return of its benchmark and a 5.2 percent annualized return of the S&P 500 stock index.

The table below shows the Long Term Portfolio’s investment performance compares favorably relative to its benchmarks over longer periods.

<table>
<thead>
<tr>
<th>PERFORMANCE SUMMARY</th>
<th>PERIODS ENDING JUNE 30, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>LONG TERM PORTFOLIO</td>
<td>Fair Value (in millions)</td>
</tr>
<tr>
<td></td>
<td>1 Year</td>
</tr>
<tr>
<td>TOTAL LONG TERM PORTFOLIO</td>
<td>$11,241.6</td>
</tr>
<tr>
<td>Benchmark for Long Term Portfolio(^{b})</td>
<td>10.28</td>
</tr>
<tr>
<td>Blended Passive Benchmark (^{b})</td>
<td>11.48</td>
</tr>
</tbody>
</table>

\(^{a}\) Annualized
\(^{b}\) For periods longer than two years, the return of the Blended Passive Index is combined with the 80/20 Benchmark that the University previously used as a passive alternative. All benchmarks are described on pages 28-32.

Investment returns are shown net of manager fees, expenses, and carried interest throughout this report.
The LTP gained 13.8 percent last year. Market Traded Equities was the highest performing asset class with a 24.7 percent return. Fixed Income had the lowest return with a 1.0 percent gain.

Performance in all asset classes was strong on an absolute basis with the exception of Fixed Income and Cash. Risk assets such as public and private equity fared the best due to investors’ willingness to pay increasing multiples for the income they generate. In addition, Natural Resources benefited from the stabilization of energy prices over the year. The higher multiples for risk assets imply that long-term future returns will likely be lower in these asset classes.

Prices for investments within the Fixed Income Asset class have been high for some time. It is therefore not surprising that Fixed Income had the lowest return. As bond prices fell and yields rose over the year, the decline in value of the bonds within the Fixed Income portfolio offset most of the yield income this asset class generated. While lower, bond prices remain elevated and yields remain depressed, implying that this asset class will also generate low long-term future returns.

The chart below shows the performance in the portfolio last year. Strong investment returns in Equities along with Private Equity and Natural Resources contributed most to the LTP’s 13.8 percent investment return last year.
MARKETABLE SECURITIES
The following are highlights of the 2017 fiscal year investment performance for Marketable Securities. Each of the asset classes within this segment will be discussed in detail in the following pages.

- Marketable Securities in aggregate returned 14.8 percent last year, ahead of its benchmark as a result of strong relative performance by all marketable asset classes. We expect returns for this segment of the portfolio to be modest going forward given the elevated valuations of stocks and bonds globally.

- Market Traded Equities was the highest performing asset class last year with a positive 24.7 percent return and outperformed the 20.1 percent return of its benchmark, primarily as a result of strong security selection by both the public equity managers and active currency overlay managers.

- The Fixed Income portfolio returned 1.0 percent in comparison to -0.7 percent for the benchmark in a year of rising short term and long term interest rates. The portfolio outperformed the benchmark as a result of a higher weighting to credit and a modestly lower duration.

- Absolute Return generated a positive 9.2 percent return, ahead of its benchmark. Long term, the performance of the absolute return portfolio is above its benchmark.

The following table shows the performance of the University’s Marketable Securities.

<table>
<thead>
<tr>
<th>MARKETABLE SECURITIES</th>
<th>Fair Value (in millions)</th>
<th>1 Year</th>
<th>3 Year[a]</th>
<th>5 Years[a]</th>
<th>10 Years[a]</th>
<th>15 Years[a]</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL MARKETABLE SECURITIES</td>
<td>$6,419.8</td>
<td>14.80%</td>
<td>3.53%</td>
<td>7.62%</td>
<td>4.69%</td>
<td>7.53%</td>
</tr>
<tr>
<td>Benchmark-Marketable Securities[b]</td>
<td>10.98</td>
<td>3.85</td>
<td>7.46</td>
<td>4.04</td>
<td>6.59</td>
<td></td>
</tr>
<tr>
<td>Market Traded Equities</td>
<td>$2,909.5</td>
<td>24.68</td>
<td>4.49</td>
<td>10.55</td>
<td>3.83</td>
<td>7.93</td>
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<tr>
<td>Benchmark-Equities[b]</td>
<td>20.14</td>
<td>5.25</td>
<td>11.30</td>
<td>4.52</td>
<td>7.97</td>
<td></td>
</tr>
<tr>
<td>Fixed Income</td>
<td>$740.5</td>
<td>1.02</td>
<td>3.83</td>
<td>4.35</td>
<td>6.98</td>
<td>6.74</td>
</tr>
<tr>
<td>Benchmark-Fixed Income[b]</td>
<td>-0.66</td>
<td>3.91</td>
<td>3.27</td>
<td>6.07</td>
<td>5.90</td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$286.6</td>
<td>2.08</td>
<td>1.66</td>
<td>1.26</td>
<td>1.72</td>
<td>2.12</td>
</tr>
<tr>
<td>Benchmark-Cash[b]</td>
<td>0.49</td>
<td>0.23</td>
<td>0.17</td>
<td>0.58</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td>Absolute Return</td>
<td>$2,483.2</td>
<td>9.25</td>
<td>1.96</td>
<td>6.40</td>
<td>5.30</td>
<td>7.33</td>
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<tr>
<td>Benchmark-Absolute Return[b]</td>
<td>6.59</td>
<td>1.60</td>
<td>5.17</td>
<td>5.58</td>
<td>6.30</td>
<td></td>
</tr>
</tbody>
</table>

[a] Annualized
[b] All benchmarks are described on pages 28–32.
The Market Traded Equities portfolio has a long history of proven high returns, exceeding those of both cash and fixed income over extended periods of time. This trend of long-term outperformance is expected to persist and calls for a continued high aggregate exposure to equities.

The University invests in equities through both commingled funds, where the University’s capital is pooled and managed alongside that of other investors, and separate accounts, where securities are selected by managers but held at the University’s custodian. This portfolio has a global mandate and can hold stocks in any investable market. Additionally, the University employs two active currency overlay managers to manage the public equity portfolio’s foreign currency exposure.

Equities outperformed last year, returning 24.7 percent compared to 20.1 percent for the benchmark. This relatively strong performance is primarily equally attributable to public equity managers’ stock selection and active currency overlay managers’ currency selection. Small Cap European equity managers led in total absolute and relative performance as reflation expectations in Europe boosted local stock markets and especially domestically-oriented businesses.

INVESTMENT PERFORMANCE | PERIODS ENDING JUNE 30, 2017

<table>
<thead>
<tr>
<th>MARKET TRADED EQUITIES</th>
<th>Fair Value (in millions)</th>
<th>1 Year</th>
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<tr>
<td>TOTAL MARKET TRADED EQUITIES</td>
<td>$2,909.5</td>
<td>24.68%</td>
<td>4.49%</td>
<td>10.55%</td>
<td>3.83%</td>
<td>7.93%</td>
</tr>
<tr>
<td>Benchmark-Market Traded Equities(b)</td>
<td>20.14</td>
<td>5.25</td>
<td>11.30</td>
<td>4.52</td>
<td>7.97</td>
<td></td>
</tr>
</tbody>
</table>

(a) Annualized
(b) All benchmarks are described on pages 28–32.
Fixed Income is included in the LTP as a portfolio stabilizer and a deflation hedge. While the volatility of the return pattern of high quality fixed income investments tends to be low, the approximately 3.0 percent real return generated by this asset class over the very long run is the lowest of any of the major asset classes, except cash, and is not expected to be able to sustain the University’s 4.5 percent distribution rate.

Fixed income’s role as a deflation hedge, however, remains important as falling interest rates boost the performance of these investments. With that as an objective, it is important to maintain high credit quality in order to preserve the bonds’ primary role of deflation protection and allow risk to be assumed for a higher return elsewhere in the portfolio.

For many years, the LTP’s fixed income portfolio has maintained a longer duration than the commonly used fixed income benchmarks. On June 30, 2017, the fixed income portfolio’s effective duration was 10.7 years, while the duration of the commonly used Barclays U.S. Aggregate Bond Index was 5.9 years. For comparison, the duration of the custom benchmark used for the University’s fixed income portfolio was 10.5 years.

An emphasis on high-quality, long-duration bonds enhances the portfolio’s ability to serve as a hedge against deflation. Longer duration bonds should provide higher returns than shorter duration bonds over time while they will experience greater volatility in returns over shorter periods of time. Longer duration bonds outperform shorter duration bonds during periods of flat or declining interest rates and lag when interest rates rise.

The Fixed Income portfolio returned 1.0 percent in comparison to -0.7 percent for the benchmark in a year of rising short term and long term interest rates. The portfolio outperformed the benchmark as a result of a higher weighting to credit and a modestly lower duration early in the year. An unleveraged and diversified convertible arbitrage manager lead performance given that strategy’s inherent credit exposure and lack of duration risk. Prospective fixed income returns are low and fixed income has been a source of capital for more attractive investments.

### INVESTMENT PERFORMANCE | PERIODS ENDING JUNE 30, 2017

<table>
<thead>
<tr>
<th>FIXED INCOME</th>
<th>Fair Value (in millions)</th>
<th>1 Year</th>
<th>3 Year(a)</th>
<th>5 Years(a)</th>
<th>10 Years(a)</th>
<th>15 Years(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL FIXED INCOME</td>
<td>$740.5</td>
<td>1.02%</td>
<td>3.83%</td>
<td>4.35%</td>
<td>6.98%</td>
<td>6.74%</td>
</tr>
<tr>
<td>Benchmark-Fixed Income(b)</td>
<td>-0.66</td>
<td>3.91</td>
<td>3.27</td>
<td>6.07</td>
<td>5.90</td>
<td></td>
</tr>
</tbody>
</table>

(a) Annualized
(b) All benchmarks are described on pages 28–32.

5 Real return equals investment return adjusted for inflation.
**Absolute Return** includes strategies that provide exposure to equities and equity-like risks with reduced exposure to the aggregate market. This category of investments includes long/short equity investments, primary and secondary credit investments, and other strategies designed to exhibit low correlation to the direction of the equity markets. Often focusing on security specific transactions as opposed to market trends, these strategies have more active management risk and less market risk, and require a high level of care in manager selection.

These strategies may involve the use of derivative instruments and leverage. The University’s absolute return investments typically are made through limited partnerships and other structures that limit liability to the dollars committed. Some are in funds that have liquidity provisions which enable the University to make full or partial withdrawals with notice subject to restrictions on the timing and amounts, while others are structured as private equity partnerships. The underlying investments often are in the form of market traded securities in both equities and fixed income instruments or private debt instruments.

Absolute return strategies are expected to be competitive with public market equities in a normal return environment and to outperform stocks in a weak market. They also generally lag in periods of unusually strong equity markets.

The Absolute Return portfolio posted a 9.3 percent gain in the fiscal year 2017, and compared favorably to the 6.6 percent return of its benchmark. Within the Absolute Return sub-strategies, Traded Credit, Directional Equity, and Capital Solutions all made positive contributions to relative performance. Market Independent was the largest detractor and lowest returning of the sub-strategies within the portfolio. Credit-related strategies remain a major focus within Absolute Return due to the relatively attractive expected returns compared to publicly traded stocks and bonds. As a result, we expect Absolute Return to perform well going forward.

### INVESTMENT PERFORMANCE | PERIODS ENDING JUNE 30, 2017

<table>
<thead>
<tr>
<th>ABSOLUTE RETURN</th>
<th>Fair Value (in millions)</th>
<th>1 Year</th>
<th>3 Year(a)</th>
<th>5 Years(a)</th>
<th>10 Years(a)</th>
<th>15 Years(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL ABSOLUTE RETURN</td>
<td>$2,483.2</td>
<td>9.25%</td>
<td>1.96%</td>
<td>6.47%</td>
<td>5.30%</td>
<td>7.33%</td>
</tr>
<tr>
<td>Benchmark-Absolute Return(b)</td>
<td>6.59</td>
<td>1.60</td>
<td>5.17</td>
<td>5.58</td>
<td>6.30</td>
<td></td>
</tr>
<tr>
<td>Domestic Stocks-S&amp;P 500 Index</td>
<td>17.90</td>
<td>9.61</td>
<td>14.63</td>
<td>7.18</td>
<td>8.34</td>
<td></td>
</tr>
</tbody>
</table>

(a) Annualized  
(b) All benchmarks are described on pages 28–32.
ALTERNATIVE ASSETS (Illiquid)
The University has built its portfolio of illiquid alternative assets over the past 25 years, starting with investments in real estate, expanding to natural resources investments, and then finding opportunities in venture capital and private equity.

Investments in these alternative assets are typically in the form of limited partnerships and similar pooled vehicles, each managed by a general partner who primarily makes privately negotiated investments in non-public companies and properties, including real estate and natural resources. As there is far greater dispersion of returns among these managers than among equity and fixed income managers, it is critical that the University remains aligned with top tier management groups.

These are long term, illiquid investments. Typically, a partnership is structured so that the University makes an initial dollar commitment and funds the investment over time as the investment manager invests in individual companies or properties. The investments usually take years to mature, with proceeds distributed when companies or properties are refinanced or sold.

Below are highlights of last year’s performance for illiquid alternative assets. Each of the asset classes within this segment is discussed in detail in the following sections.

- The University’s portfolio of illiquid alternative assets rose 12.5 percent last year, outperforming its custom benchmark by 3.3 percentage points. Private Equity posted the strongest gains with a return of 17.1 percent, followed by Natural Resources 17.0 percent gain and Venture Capital’s 9.8 percent return. Real Estate posted a 6.6 percent return for the year.

- The weaker returns of the venture capital managers reflect the underperformance of some of the technology and healthcare focused funds.

- The strong performance of the Natural Resources portfolio reflects the stabilization of oil and natural gas prices after a steep decline in 2016.

- Positive returns in real estate were somewhat muted by currency-related losses stemming from the non-U.S. focused investments.

The following table shows the performance of the University’s Illiquid Alternative Assets.

<table>
<thead>
<tr>
<th>ALTERNATIVE ASSETS (ILLIQUID)</th>
<th>Fair Value (in millions)</th>
<th>1 Year</th>
<th>3 Year(a)</th>
<th>5 Years(a)</th>
<th>10 Years(a)</th>
<th>15 Years(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL ALTERNATIVE ASSETS (ILLIQUID)</td>
<td>$4,821.8</td>
<td>12.48%</td>
<td>7.43%</td>
<td>10.70%</td>
<td>6.91%</td>
<td>13.65%</td>
</tr>
<tr>
<td>Benchmark-Alternative Assets(b)</td>
<td>9.15</td>
<td>5.63</td>
<td>17.09</td>
<td>9.79</td>
<td>11.19</td>
<td></td>
</tr>
<tr>
<td>Venture Capital</td>
<td>1,475.8</td>
<td>9.78</td>
<td>10.66</td>
<td>13.85</td>
<td>10.94</td>
<td>13.58</td>
</tr>
<tr>
<td>Benchmark-Venture Capital(b)</td>
<td>6.21</td>
<td>9.28</td>
<td>17.09</td>
<td>9.79</td>
<td>11.19</td>
<td></td>
</tr>
<tr>
<td>Private Equity</td>
<td>1,460.4</td>
<td>17.08</td>
<td>10.52</td>
<td>13.52</td>
<td>9.29</td>
<td>14.20</td>
</tr>
<tr>
<td>Benchmark-Private Equity(b)</td>
<td>13.29</td>
<td>9.24</td>
<td>17.09</td>
<td>9.79</td>
<td>11.19</td>
<td></td>
</tr>
<tr>
<td>Real Estate</td>
<td>977.8</td>
<td>6.64</td>
<td>8.38</td>
<td>9.16</td>
<td>0.49</td>
<td>7.54</td>
</tr>
<tr>
<td>Benchmark-Real Estate(b)</td>
<td>6.70</td>
<td>9.44</td>
<td>11.01</td>
<td>6.67</td>
<td>9.07</td>
<td></td>
</tr>
<tr>
<td>Natural Resources</td>
<td>925.8</td>
<td>17.03</td>
<td>-5.23</td>
<td>3.08</td>
<td>6.65</td>
<td>18.76</td>
</tr>
<tr>
<td>Benchmark-Natural Resources(b)</td>
<td>9.62</td>
<td>-9.06</td>
<td>17.09</td>
<td>9.79</td>
<td>11.19</td>
<td></td>
</tr>
</tbody>
</table>

(a) Annualized
(b) All benchmarks are described on pages 28–32.
Venture Capital returned 9.8 percent for the year, and outperformed the benchmark return of 6.2 percent, helped by the relatively strong performance of funds focused on China and select life science funds. Fiscal year 2017 saw a modest decline in the venture capital distributions compared to the prior fiscal year, while the level of contributions remained steady.

Returns were generated from the sale or distribution of shares of existing public securities at gains, from the purchase of a number of private companies in the Venture Capital portfolio by strategic and financial acquirers, and from valuation changes of remaining public and private companies. The number of initial public offerings declined compared to the prior fiscal year. As in the prior fiscal year, several of these initial public offerings were in the healthcare sector.

The University’s Venture Capital portfolio outperformed both its one-year benchmark and three-year benchmark. These benchmarks reflect the pooled aggregate performance of all funds in this asset class that are included in the benchmark universe. The portfolio outperformed its 10-year and its 15-year benchmarks, but trailed its 5-year benchmark. These long-term benchmarks measure the performance of public equity markets plus an appropriate premium to account for the added risks associated with these long-lived, illiquid investments.

During the 2017 fiscal year, the University committed a total of $110 million to four follow-on funds, increased its commitment to an existing fund by $6 million, and committed $10 million to a new manager. Five venture capital partnerships were liquidated.

### INVESTMENT PERFORMANCE | PERIODS ENDING JUNE 30, 2017

<table>
<thead>
<tr>
<th>VENTURE CAPITAL</th>
<th>Fair Value (in millions)</th>
<th>1 Year</th>
<th>3 Year(a)</th>
<th>5 Years(a)</th>
<th>10 Years(a)</th>
<th>15 Years(a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL VENTURE CAPITAL</td>
<td>$1,457.8</td>
<td>9.78%</td>
<td>10.66%</td>
<td>13.85%</td>
<td>10.94%</td>
<td>13.58%</td>
</tr>
<tr>
<td>Benchmark-Venture Capital(b)</td>
<td>6.21</td>
<td>9.28</td>
<td>17.09</td>
<td>9.79</td>
<td>11.19</td>
<td></td>
</tr>
</tbody>
</table>

[a] Annualized
[b] All benchmarks are described on pages 28–32.
Private Equity continues to perform well both in absolute terms and on a relative basis, returning 17.1 percent compared to a benchmark return of 13.3 percent. While individual fund performance was highly variable, there was no major differentiation in returns between U.S. and non-U.S. focused funds in aggregate.

The year continued a trend of good liquidity for the private equity portfolio, with distributions continuing to exceed contributions. Some managers were able to take portfolio companies public and sell shares of already-public companies to generate additional liquidity. Favorable credit markets permitted managers to recapitalize select portfolio companies and distribute dividends to investors. In addition, several managers were able to sell companies at attractive valuations to strategic acquirers looking to buy growth businesses or to other private equity firms wanting to deploy capital.

The investment return for this global portfolio last year reflects changes in the value of publicly traded portfolio holdings, foreign exchange fluctuations and adjustments in private company values benchmarked to trading multiples of comparable public companies.

The University’s Private Equity portfolio of private equity investments outperformed both its one-year benchmark and its three-year benchmark. These benchmarks reflect the pooled aggregate performance of all the funds in this asset class that are included in the benchmark universe. Longer term, the portfolio underperformed its five- and 10-year benchmarks and exceeded its 15-year benchmark. These long-term benchmarks measure the performance of public equity markets plus an appropriate premium to account for the added risks associated with these long-lived, illiquid investments.

During the 2017 fiscal year, University commitments totaled $512 million for 12 follow-on funds, two new partnerships, and commitment increases for two partnerships. Seven private equity partnerships were liquidated.

<table>
<thead>
<tr>
<th>INVESTMENT PERFORMANCE</th>
<th>PERIODS ENDING JUNE 30, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRIVATE EQUITY</strong></td>
<td>Fair Value 1 Year 3 Year(a) 5 Year(a) 10 Year(a) 15 Year(a)</td>
</tr>
<tr>
<td>TOTAL PRIVATE EQUITY</td>
<td>$1,460.4 17.08 10.52 13.52 9.29 14.20%</td>
</tr>
<tr>
<td>Benchmark-Private Equity(b)</td>
<td>13.29 9.24 17.09 9.79 11.19</td>
</tr>
</tbody>
</table>

(a) Annualized
(b) All benchmarks are described on pages 28–32.
Real Estate performed in-line with the 6.7 percent return of the benchmark. Non-U.S. funds tended to have stronger performance in aggregate, helped by double digit returns generated by the European and Asian-focused funds.

Fundamentals remain strong as the U.S. real estate cycle nears a record run since the recovery began approximately eight years ago. Property valuations are hovering near cyclical highs, particularly in gateway cities, triggering an increase in new supply in some markets. There continues to be an abundance of foreign capital willing to accept lower returns in exchange for the safe haven of the U.S. property markets. The portfolio’s U.S. focused managers continued to identify properties where they could use their expertise and skill sets to create an attractive asset to sell into the strong demand for cash flowing, core assets. European property markets have lagged the U.S. recovery, but now fundamentals are strong in most countries. Our managers have been successful in identifying attractive opportunities to take advantage of the improved markets. Emerging markets focused managers had strong returns in the fiscal year that were negatively impacted by currency losses.

During fiscal year 2017, the University committed $237 million to four follow-on funds, one new fund, a new co-investment, and an increased commitment to a prior fund. In addition, three real estate partnerships were liquidated during the year.

### INVESTMENT PERFORMANCE | PERIODS ENDING JUNE 30, 2017

<table>
<thead>
<tr>
<th>REAL ESTATE</th>
<th>Fair Value (in millions)</th>
<th>1 Year</th>
<th>3 Year[a]</th>
<th>5 Years[a]</th>
<th>10 Years[a]</th>
<th>15 Years[a]</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL REAL ESTATE</td>
<td>$ 977.8</td>
<td>6.64</td>
<td>8.38</td>
<td>9.16</td>
<td>0.49</td>
<td>7.54%</td>
</tr>
<tr>
<td>Benchmark-Real Estate(b)</td>
<td>6.70</td>
<td>9.44</td>
<td>11.01</td>
<td>6.67</td>
<td>9.07</td>
<td></td>
</tr>
</tbody>
</table>

[a] Annualized
(b) All benchmarks are described on pages 28–32.
Natural Resources posted a 17.0 percent gain and outperformed the benchmark return of 9.6 percent. Private equity funds were the strongest performers with E&P companies performing more in line with the benchmark. The growing portfolio of non-energy related natural resources investments also performed well. Long term, the natural resources portfolio has been a strong contributor to the overall returns of the Long Term Portfolio.

The global oil and gas industry experienced two main phenomena over the past year. First, while oil and natural gas prices were roughly flat over the course of the year, stabilization of commodity prices after a deep downward spiral in 2016 stopped the deep distress for most of the industry and allowed for some recovery of equity value in surviving companies. More importantly, over the course of the year, the U. S. onshore industry proved that it could generate attractive returns, strong volume growth, increased asset value, and premium valuations in a robust exit market. Many of the University’s private equity portfolio companies have focused on shale resource plays, generating both strong returns and distributions.

During the 2017 fiscal year, the University committed a total of $340 million to five follow-on funds, one new fund, three co-investments, and commitment increases for two existing funds. Two natural resources partnerships were liquidated.

### INVESTMENT PERFORMANCE | PERIODS ENDING JUNE 30, 2017

<table>
<thead>
<tr>
<th>NATURAL RESOURCES</th>
<th>Fair Value (in millions)</th>
<th>1 Year</th>
<th>3 Year[a]</th>
<th>5 Years[a]</th>
<th>10 Years[a]</th>
<th>15 Years[a]</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL NATURAL RESOURCES</td>
<td>$ 925.8</td>
<td>17.03%</td>
<td>-5.23%</td>
<td>3.08%</td>
<td>6.65</td>
<td>18.76%</td>
</tr>
<tr>
<td>Benchmark-Natural Resources[b)</td>
<td>9.62</td>
<td>-9.06</td>
<td>17.09</td>
<td>9.79</td>
<td>11.12</td>
<td></td>
</tr>
</tbody>
</table>

[a] Annualized
[b) All benchmarks are described on pages 28–32.
DAILY AND
MONTHLY
PORTFOLIOS

SHORT TERM
POOL

VERITAS
The Daily and Monthly Portfolios are the investment vehicles for the University’s Short Term Pool (STP) and other working capital funds which are principally used for operating activities and capital projects. Other participants in the Daily and Monthly Portfolios include the current portion of insurance and benefits reserves and gift annuities.

**ASSET ALLOCATION**
The Daily and Monthly Portfolios ended the year with assets of $1.8 billion. The portfolios are invested primarily in high quality fixed income instruments with an average interest rate duration of 1.1 years. The Monthly Portfolio also has an allocation to diversifying, higher-income, value-enhancing strategies.

**INVESTMENT PERFORMANCE**
The Daily and Monthly Portfolios generated a positive total return of 2.9 percent in the last fiscal year which was 2.6 percent ahead of the benchmark return. In the current low interest rate environment, traditional fixed income performed in-line with the market while the value-add strategies had a strong year and contributed to the majority of the outperformance. Within the value-add allocation, all major groups, direct lending, global macro, and natural resources royalties, had robust returns. Performance has been positive across all years with the annualized returns being ahead of or in-line with the benchmark for all of the periods shown in the table below.

---

### PERFORMANCE SUMMARY | PERIODS ENDING JUNE 30, 2017

<table>
<thead>
<tr>
<th></th>
<th>Fair Value (in millions)</th>
<th>1 Year</th>
<th>3 Year[a]</th>
<th>5 Years[a]</th>
<th>10 Years[a]</th>
<th>15 Years[a]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DAILY AND MONTHLY PORTFOLIOS</strong></td>
<td>$1,776.8</td>
<td>2.94%</td>
<td>1.42%</td>
<td>2.08%</td>
<td>2.99%</td>
<td>3.53%</td>
</tr>
<tr>
<td>Custom Benchmark[b]</td>
<td>0.32</td>
<td>0.80</td>
<td>1.04</td>
<td>3.06</td>
<td>3.42</td>
<td></td>
</tr>
</tbody>
</table>

[a] Annualized
[b] All benchmarks are described on pages 32.

---

The University’s Short Term Pool, which is comprised of working capital funds used for operating activities and capital projects, historically has primarily been invested in the Daily and Monthly Portfolios where it has represented around 92 percent of the assets. While the STP today is invested entirely in the Daily and Monthly Portfolios, this pool previously also participated in other investments outside of the Daily and Monthly Portfolios which benefited the 10 and 15-year performance. The historical performance of the Short Term Pool, shown in the table below, has been positive and closely mirrors the performance of the Daily and Monthly Portfolios for the past five years. The primary difference in performance between the STP and the Daily and Monthly Portfolios over the past five years reflects the impact of unequal cash flows.

### PERFORMANCE SUMMARY | PERIODS ENDING JUNE 30, 2017

<table>
<thead>
<tr>
<th></th>
<th>Fair Value (in millions)</th>
<th>1 Year</th>
<th>3 Year[a]</th>
<th>5 Years[a]</th>
<th>10 Years[a]</th>
<th>15 Years[a]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHORT TERM POOL</strong></td>
<td>$1,638.7</td>
<td>2.90%</td>
<td>1.39%</td>
<td>2.03%</td>
<td>3.20%</td>
<td>3.62%</td>
</tr>
<tr>
<td>Custom Benchmark[b]</td>
<td>0.32</td>
<td>0.79</td>
<td>1.02</td>
<td>3.06</td>
<td>3.41</td>
<td></td>
</tr>
</tbody>
</table>

[a] Annualized
[b] All benchmarks are described on pages 32.
Veritas is the University’s wholly-owned insurance company. Its investment structure is designed to meet Veritas’ particular liquidity needs, liability structure, and regulatory requirements.

ASSET ALLOCATION
Veritas’ reserves were $217.3 million at June 30, 2017. The reserves generally are invested in the Daily and Monthly Portfolios and in the Long Term Portfolio in a 50/50 allocation at the beginning of each fiscal year, and then the allocations are allowed to vary with performance and cash flows during the year.

<table>
<thead>
<tr>
<th>VERITAS</th>
<th>Fair Value (in millions)</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vermont Statutory Reserve</td>
<td>$ 0.3</td>
<td>0.1%</td>
</tr>
<tr>
<td>Daily and Monthly Portfolio</td>
<td>100.9</td>
<td>46.4</td>
</tr>
<tr>
<td>Long Term Portfolio</td>
<td>116.1</td>
<td>53.4</td>
</tr>
<tr>
<td>Total Veritas</td>
<td>$ 217.3</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

INVESTMENT PERFORMANCE
During the fiscal year ended June 30, 2017, the Veritas portfolio produced a solid positive return ahead of benchmark. Over the longer periods, Veritas’ portfolio outperformed the benchmark by an ample margin.

PERFORMANCE SUMMARY | PERIODS ENDING JUNE 30, 2017

<table>
<thead>
<tr>
<th>VERITAS</th>
<th>Fair Value (in millions)</th>
<th>1 Year</th>
<th>3 Year(^{a})</th>
<th>5 Years(^{a})</th>
<th>10 Years(^{a})</th>
<th>15 Years(^{a})</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL VERITAS</td>
<td>$ 217.3</td>
<td>8.41%</td>
<td>3.62%</td>
<td>5.47%</td>
<td>4.45%</td>
<td>6.29%</td>
</tr>
<tr>
<td>Custom Benchmark(^{b})</td>
<td>6.18</td>
<td>2.61</td>
<td>4.85</td>
<td>3.80</td>
<td>5.20</td>
<td></td>
</tr>
</tbody>
</table>

(a) Annualized
(b) Benchmark is described on page 32.
LS&A Building (former Administration Building), built 1948
The University’s Long Term Portfolio generated a 13.8 percent investment return last year and outperformed the 10.3 percent return of the benchmark on the back of strong absolute and relative performance in nearly all major asset classes. With a 20-year annualized return of 9.7 percent, U-M ranks in the top decile for long-term investment performance among university endowments*. This performance has helped sustain and grow the U-M endowment in real terms net of spending.

The University’s long term investment strategy, combined with its endowment distribution policy, continues to provide a steady stream of endowment funding. Distributions from the University’s pooled endowment grew again last year, totaling $325 million, marking the 20th year of consecutive growth. Over the past 20 years, endowment distributions to benefit the University’s core missions have exceeded $4 billion.

While strong performance is welcome in any given year, it is worth noting that the ample liquidity provided by the world’s leading central banks that fueled the now nine-year old bull market in U.S. stocks has lifted U.S. equity valuations to near record levels on many measures and pushed investors into riskier investments, raising prices and lowering yields in many areas, which likely means below average returns in coming years.

An environment of low prospective returns due to high starting valuations and lower starting yields places a greater significance on the ability to generate additional performance by exploiting inefficiencies or creating value. The University continues to emphasize investments that do not mostly depend on the general direction of the markets to generate positive performance, which we expect will help generate needed additional positive returns, and made many such investments last year. We remain confident that our investment strategy, coupled with the endowment distribution rule, will continue to provide for steady and growing distributions to support the mission of the University.

Respectfully submitted,

L. Erik Lundberg, CFA
Chief Investment Officer

Kevin P. Hegarty
Executive Vice President and Chief Financial Officer

Investment Directors and Managers:

Rafael Castilla, JD, CFA, Director of Investments and Structuring
Felicia David-Visser, CFA, Senior Manager of Investments
David Demeter, CFA, Manager of Investments
Michele Everard, CFA, Managing Director of Investments
Daniel Feder, CFA, Managing Director of Investments
Michael Haessler, Director of Investments
Joan Thowsen, Managing Director of Investments
Wafa Wei, Managing Director of Investments
Lauren Thorne, Business Manager

*As measured by Cambridge Associates, L.L.C.
BENCHMARK DEFINITIONS
This section describes the benchmarks the University used to evaluate the performance of its investment programs through fiscal year 2017.

**LONG TERM PORTFOLIO (LTP)**

The custom benchmark for the Long Term Portfolio is constructed by using individual benchmarks tailored to each of the asset classes and combining them in a manner consistent with their importance to the total portfolio. This benchmark captures the nuances of our strategies and helps us gain valuable insight into the drivers of portfolio performance.

The table below shows the custom benchmark for the Long Term Portfolio.

<table>
<thead>
<tr>
<th>ASSET CLASS</th>
<th>Fair Value (in millions)</th>
<th>Benchmark Index &lt; 3 yrs</th>
<th>Benchmark Index &gt;3 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Traded Equities</td>
<td>28%</td>
<td>45% Russell 3000 / 45% S&amp;P BMI(^1) Developed ex-U.S./10% S&amp;P/IFC(^2) Investable</td>
<td>45% Russell 3000/45% S&amp;P BMI(^1) Developed ex-U.S./10% S&amp;P/IFC(^2) Investable</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>12</td>
<td>50% Barclays U.S. Aggregate/50% Barclays U.S. Long Duration Gov't/Credit</td>
<td>50% Barclays U.S. Aggregate/50% Barclays U.S. Long Duration Gov't/Credit</td>
</tr>
<tr>
<td>Absolute Return</td>
<td>18</td>
<td>HFRI(^3) Fund of Funds Index</td>
<td>3-Month T-Bills + 500 bps</td>
</tr>
<tr>
<td>Cash</td>
<td>2</td>
<td>3-Month T-Bills</td>
<td>3-Month T-Bills</td>
</tr>
<tr>
<td>Venture Capital</td>
<td>10</td>
<td>CA(^4) Venture Capital Index Equal Weighted</td>
<td>Russell 3000 Index + 250 bps</td>
</tr>
<tr>
<td>Private Equity</td>
<td>12</td>
<td>CA(^4) Private Equity Index Equal Weighted</td>
<td>Russell 3000 Index + 250 bps</td>
</tr>
<tr>
<td>Real Estate</td>
<td>10</td>
<td>CA(^4) Real Estate Index Equal Weighted</td>
<td>CA(^4) Real Estate Index</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>8</td>
<td>CA(^4) Energy PE Index/CA(^4) Energy Upstream and Royalties Equal Weighted</td>
<td>Russell 3000 Index + 250 bps</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The benchmark for the total LTP for all periods is the weighted average performance of the above asset class specific benchmarks shown for periods < 3 yrs.

---

1 Standard & Poor’s Broad Market Index
2 International Finance Corporation
3 Hedge Fund Research, Inc.
4 Cambridge Associates, LLC
The University uses a **Blended Passive Benchmark** composed of investable asset class benchmarks as a representation of an alternative, passive, investable portfolio appropriate for a large investment pool such as the University’s Long Term Portfolio.

### Passive Benchmark Component

<table>
<thead>
<tr>
<th>Passive Benchmark Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCI ACWI</td>
<td>64%</td>
</tr>
<tr>
<td>Barclays U.S. Aggregate Index</td>
<td>24</td>
</tr>
<tr>
<td>MSCI U.S. REIT Index</td>
<td>4</td>
</tr>
<tr>
<td>MSCI World REIT Index</td>
<td>4</td>
</tr>
<tr>
<td>MSCI World Energy Sector Index</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Weighted average performance of the above, asset class specific benchmarks**

The Blended Passive Benchmark is derived from a portfolio modeled on the mean allocation for large endowments recast in a Role Based Portfolio framework. The mean portfolio weights are as follows:

### Portfolio Role

<table>
<thead>
<tr>
<th>Portfolio Role</th>
<th>Asset Class</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return Enhancers</td>
<td>Equities</td>
<td>60%</td>
</tr>
<tr>
<td>Hedges (Inflation)</td>
<td>Real Estate</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Natural Resources</td>
<td>4</td>
</tr>
<tr>
<td>Hedges (Deflation)</td>
<td>Fixed Income</td>
<td>12</td>
</tr>
<tr>
<td>Diversifiers</td>
<td>Absolute Return</td>
<td>16</td>
</tr>
</tbody>
</table>

**Return enhancers** are represented by the MSCI ACWI, a broad passive global opportunity set for investing globally in listed equities that is the most commonly used benchmark for global equity strategies.

**Inflation hedges** include investments in both real estate and natural resources.

**Real estate** is represented by an index that combines the MSCI U.S. REIT Index and the MSCI World REIT Index in a 50/50 manner. The latter index includes U.S. and non-U.S. exposure, leaving the combined index with an aggregate geographic exposure of roughly two-thirds U.S. and one-third non-U.S. The global index is included to reflect the global approach to investing in real estate among large endowments today. There is no good representative index for only non-U.S. REITs.

**Natural resources** is represented by the MSCI World Energy Sector Index, as energy is by far the largest component of this asset class. The MSCI World Energy Sector Index recognizes the global nature of the energy markets. It represents companies in developed markets only, as emerging market energy companies have a country-risk premium embedded.

The Barclays U.S. Aggregate Index is a commonly used **fixed income** benchmark and remains a good representation of the opportunity set for **deflation hedges**.

With no proven investable analogs for the **diversifiers**, these investments are allocated to other asset classes. Potential but non-investable benchmarks for diversifiers, such as the HFRI Fund of Funds Index or the Dow Jones Credit Suisse Hedge Fund Index, have exhibited approximately the same risk as a portfolio comprised of 75 percent of the Barclays U.S. Aggregate Index and 25 percent of the MSCI ACWI over the past 10 years. Applying these proportions to the 16 percent allocated to diversifiers will add 4 percentage points to equity and 12 percentage points to fixed income to the final benchmark.
For periods longer than five years, the return of the Blended Passive Index is combined with the 80/20 Benchmark that the University previously used. The 80/20 Benchmark was an undiversified benchmark constructed by combining equities and fixed income in an 80/20 ratio to capture the broad, undiversified equity/bond characteristics of the Long Term Portfolio to measure the long-term effectiveness of investing in a diversified strategy. The 80 percent allocation to equities was represented by 50 percent S&P 500 Index and 30 percent S&P BMI Developed ex-U.S. Index, and the 20 percent allocation to fixed income is represented by the Barclays U.S. Aggregate Bond Index.

The following pages discuss the construction of the composite benchmarks used for the marketable securities and the alternative assets, as well as the benchmarks for each of the individual asset classes.

The benchmark for the Marketable Securities composite is constructed very similarly to the custom benchmark for the total Long Term Portfolio, with the exception that it excludes Illiquid Alternative Assets. To compensate for the reduced weight, we gross up the weights of the remaining asset classes. The table below shows the resulting asset class weights.

### MARKETABLE SECURITIES | CUSTOM BENCHMARK

<table>
<thead>
<tr>
<th>ASSET CLASS</th>
<th>Model Weight</th>
<th>Benchmark Index &lt; 3 yrs</th>
<th>Benchmark Index &gt;3 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Traded Equities</td>
<td>28/60</td>
<td>45% Russell 3000/45% S&amp;P BMI Developed ex-U.S./10% S&amp;P/IFC Investable</td>
<td>45% Russell 3000/45% S&amp;P BMI Developed ex-U.S./10% S&amp;P/IFC Investable</td>
</tr>
<tr>
<td>Fixed Income</td>
<td>12/60</td>
<td>50% Barclays U.S. Aggregate/50% Barclays U.S. Long Duration Gov't/Credit</td>
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<td>Absolute Return</td>
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</tr>
<tr>
<td>Cash</td>
<td>2/60</td>
<td>3-Month T-Bills</td>
<td>3-Month T-Bills</td>
</tr>
</tbody>
</table>

The benchmark for equities is constructed by combining benchmarks for U.S. equities, non-U.S. equities, and emerging markets in a 45/45/10 manner. The Russell 3000 Index is used for the 45 percent weight of the U.S. equity component. This index is an unbiased, passively constructed index of the 3000 or so largest companies in the U.S. weighted by market capitalization. The Russell 3000 Index includes about 98 percent of the available U.S. market capitalization. This index is commonly used by institutional investors to measure the investment opportunities available in domestic stocks.

The S&P BMI Developed (Broad Market Index) ex-U.S. is used for the 45 percent weight of the non-U.S. equity component. This is the most comprehensive index for non-U.S. equities. It is constructed by following a methodology similar to that used for the Russell 3000 Index. The S&P BMI Developed ex-U.S. Index is a capitalization-weighted index that includes shares of approximately 4,700 companies in 25 major countries. The index captures about 98 percent of the market capitalization in the developed investable markets outside the U.S.
The S&P/IFC Investable Index is used for the 10 percent weight of the emerging markets component. This is the investable subset of S&P Emerging BMI, which is the most comprehensive index for emerging market equities. The S&P/IFC Investable Index is a capitalization-weighted index that includes shares of approximately 1,900 companies in 20 developing economies. This index represents the broad set of the S&P Emerging BMI plus South Korea while taking into account foreign investment restrictions. The index captures about 70 to 80 percent of total exchange market capitalization before the float adjustment.

The longer duration designed into Michigan’s Fixed Income portfolio is captured by blending the commonly used 5 year duration Barclays U.S. Aggregate Bond Index with the 14 year duration Barclays U.S. Long Duration Government/Credit Index in a 50/50 mix. The Barclays U.S. Aggregate Bond Index includes taxable, U.S. dollar denominated bonds in the government, U.S. corporate, foreign corporate, mortgage pass-through and asset-backed sectors. The Barclays U.S. Long Duration Government/Credit Index includes taxable, U.S. dollar denominated bonds in the government, U.S. corporate and foreign corporate sectors with a maturity in excess of 10 years.

The benchmark for Absolute Return strategies is the Hedge Fund Research Fund of Funds Index (HFRI FOF), a database of over 400 funds. A fund of funds index captures the aggregate result of knowledgeable investors faced with a similar objective and similar investment opportunities. The Hedge Fund Research Index (HFRI FOF) broadly reflects the experience of the University’s portfolio of absolute return investments over shorter time periods, both in intent and performance.

The University also uses a long term performance hurdle of 3-Month Treasury Bills plus 5 percent per annum for this portfolio. This hurdle represents the performance premium of U.S. equities over 3-Month Treasury Bills for the past 40 years and captures the equity-like level of risk targeted by these strategies.

The benchmark for the Alternative Assets (Illiquid) composite is constructed very similarly to the composite benchmarks for the total Long Term Portfolio, with the exception that it excludes marketable securities.

### ALTERNATIVE ASSETS (ILLIQUID) | CUSTOM BENCHMARK

<table>
<thead>
<tr>
<th>ASSET CLASS</th>
<th>Model Weight</th>
<th>Benchmark Index ≤ 3 yrs</th>
<th>Benchmark Index &gt;3 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Venture Capital</td>
<td>10/40</td>
<td>CA¹ Venture Capital Index Equal Weighted</td>
<td>Russell 3000 Index + 250 bps</td>
</tr>
<tr>
<td>Private Equity</td>
<td>12/40</td>
<td>CA¹ Private Equity Index Equal Weighted</td>
<td>Russell 3000 Index + 250 bps</td>
</tr>
<tr>
<td>Real Estate</td>
<td>10/40</td>
<td>CA¹ Real Estate Index Equal Weighted</td>
<td>CA¹ Real Estate Index</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>8/40</td>
<td>CA¹ Energy PE Index/CA¹ Energy Upstream and Royalties Equal Weighted</td>
<td>Russell 3000 Index + 250 bps</td>
</tr>
</tbody>
</table>

**TOTAL**

The benchmark for the total Alternative Assets (illiquid) for all periods is the weighted average performance of the above asset class specific benchmarks shown for periods ≤ 3 yrs

---

1 Cambridge Associates, LLC

To compensate for the reduced weight, we gross up the weights of the remaining asset classes. The table above shows the resulting asset class weights.

Longer term, alternative assets in aggregate are expected to generate a premium over public market equities to compensate for the higher risk and illiquidity inherent in these strategies. A performance hurdle of 2.5 percent per
A performance hurdle of 2.5 percent per year above U.S. public market equities, as measured by the Russell 3000 Index, appropriately captures this higher level of risk. This benchmark is useful over long periods. This is the longer term, 10- and 15-year benchmark numbers shown for venture capital and private equity.

A weakness of this approach is that it does not reflect the specific market cycles associated with these asset classes. This limits the usefulness of such a benchmark, as there will be times when the returns of private equity and venture capital bear little relationship to those of marketable equities.

The University’s investment consultant, Cambridge Associates LLC (CA), tracks the performance of an extensive universe of venture capital and private equity partnerships and compiles an aggregate performance number for each category that assumes capital was allocated the same way as the overall market. The CA universe-based benchmarks are more reflective of the University’s investment strategy and are used to gauge the effectiveness of these programs over shorter periods of time. This is the benchmark used as reference for one and three year performance.

The Cambridge Associates Real Estate Index tracks the performance of an extensive universe of real estate partnerships available for institutional investing. It is a commonly used benchmark for real estate investing. The index includes 970 global and domestic real estate funds from 1981 through Q2 2017. Property types include apartment, industrial, office, hotel, and retail.

**Natural Resources** is treated in a manner similar to private equity because our investing approach emphasizes managers’ ability to add value over exposure to the asset class. Because this asset class still consists mostly of energy-related investments, we use the Cambridge Associates’ underlying universe for Energy Specialty PE funds and the CA Energy Upstream & Royalties for Exploration & Production funds. The return for each of these indices is weighted by the University’s actual allocation to each of the two segments. The weights are adjusted quarterly.

Longer term, these investments are expected to generate a premium over public market equities to compensate for the higher risk and illiquidity inherent in these strategies. Similar to private equity and venture capital, a performance hurdle of 2.5 percent per year above U.S. public market equities, as measured by the Russell 3000 Index, is applied to capture this higher level of risk. This benchmark is useful over long periods. This is the longer term, 5-, 10-, and 15-year benchmark numbers shown for natural resources.

**Equal Weighted vs. Pooled Mean** - CA recently developed an alternative to the historical pooled mean methodology of capturing the performance of the managers within their universes. This new methodology of equal weighting the underlying funds adjusts for the size bias inherent with the pooled mean methodology, where larger funds are more heavily weighted than smaller funds, and better reflects the University’s allocation philosophy. The University began using benchmarks based on the CA equal weighted methodology for all the asset classes within Alternative Assets (Illiquid) beginning with FY 2017.

THE DAILY AND MONTHLY PORTFOLIOS AND SHORT TERM POOL
The Daily Portfolio benchmark is the 3-Month Treasury Bill and the Monthly Portfolio benchmark is an equal weighted composite of one-third weighting to each of the following indices: the Barclays U.S. Treasury Inflation Protected Securities [TIPS] 1-5 Year Index; the Barclays U.S. Government 1-5 Year Index; and the Barclays U.S. Credit 1-5 Year Index.

The benchmark for the Short Term Pool (“STP”) is calculated as a value-weighted composite of the underlying Daily and Monthly Portfolio benchmarks.

VERITAS
The benchmark for the Veritas portfolio is a composite of the benchmarks for the Daily and Monthly Portfolios and the Long Term Portfolio weighted by the respective allocations.