BOARD OF TRUSTEES  
INVESTMENT SUBCOMMITTEE  
Capri S. Cafaro, Chair  
Charles T. George, Vice Chair  
John R. Jakubek  
Allen L. Ryan, Jr.  
Victoria M. Woods

Wednesday, September 4, 2019  
1:30 p.m. or immediately following previous meeting

Kilcawley Center  
President’s Suites

AGENDA

A. Disposition of Minutes for Meeting Held June 5, 2019

B. Old Business

C. Committee Item

1. Discussion Item

a. September 4, 2019 Quarterly Portfolio Asset Allocation and Investment Performance Review  
   Mike Shebak, Sarah Parker and John Colla will report.

D. New Business

E. Adjournment
CONTENTS

1. 2019 INITIATIVES

2. CAPITAL MARKETS UPDATE

3. NON-ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION REVIEW
   - ALTERNATIVE INVESTMENTS OVERVIEW
   - FEE / ORC COMPLIANCE REVIEW

4. ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION REVIEW
## 2019 Oversight Dashboard

### Last Reviewed
- Investment Policy: 06/05/2019
- Strategic Asset Allocation: 06/05/2019
- Fee Review: 09/05/2018

### Meeting Schedule
- 1Q: March 6, 2019
- 2Q: June 5, 2019
- 3Q: September 4, 2019
- 4Q: December 4, 2019

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<tr>
<th>Task</th>
<th>1Q</th>
<th>2Q</th>
<th>3Q</th>
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QUARTERLY THEMES

WHAT HAPPENED LAST QUARTER?
- Global markets were volatile but generated positive returns for the quarter
  - Q2 2019: S&P 500 +4.3%, MSCI EAFE +3.7%, MSCI EM +0.6%
  - YTD 2019: S&P 500 +18.5%, MSCI EAFE +14.0%, MSCI EM +10.6%
- Interest rates fell across all maturities; the expectation for lower interest rates became widespread
- The U.S. and China agreed to resume trade talks, but tensions still linger
- Slowing global economic growth remained a theme

WHAT IS ON OUR MINDS?
- Monetary policy – especially the Fed’s meeting in July
- Trade discussions
- Low global growth persists; catalysts for significant improvement remain elusive
- Any shortfall to expectations is likely to reverse recent price momentum and investor sentiment
# Historical Asset Class Returns

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<td>27.6%</td>
<td>US Bonds</td>
<td>7.8%</td>
<td>REITs</td>
<td>20.1%</td>
<td>REITs</td>
<td>27.2%</td>
<td>REITs</td>
<td>2.3%</td>
<td>Sm/Mid</td>
<td>17.6%</td>
<td>Em Mkt</td>
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<td>Sm/Mid</td>
<td>26.7%</td>
<td>REITs</td>
<td>7.3%</td>
<td>Em Mkt</td>
<td>18.2%</td>
<td>Large Cap</td>
<td>32.4%</td>
<td>Large Cap</td>
<td>13.7%</td>
<td>Large Cap</td>
<td>1.4%</td>
<td>Hi Yld</td>
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<tr>
<td>Em Mkt</td>
<td>18.9%</td>
<td>Glb Bond</td>
<td>5.2%</td>
<td>Dev Intl</td>
<td>17.3%</td>
<td>Dev Intl</td>
<td>22.8%</td>
<td>Sm/Mid</td>
<td>7.1%</td>
<td>US Bonds</td>
<td>0.6%</td>
<td>Large Cap</td>
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<td>Hi Yld</td>
<td>15.2%</td>
<td>Sm/Mid</td>
<td>17.9%</td>
<td>Hdg Fnds</td>
<td>9.0%</td>
<td>US Bonds</td>
<td>6.0%</td>
<td>Cash</td>
<td>0.1%</td>
<td>Em Mkt</td>
<td>11.2%</td>
<td>Sm/Mid</td>
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<td>Large Cap</td>
<td>15.1%</td>
<td>Large Cap</td>
<td>2.1%</td>
<td>Hi Yld</td>
<td>15.6%</td>
<td>Hdg Fnds</td>
<td>3.4%</td>
<td>Hdg Fnds</td>
<td>-0.3%</td>
<td>REITs</td>
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<td>Dev Intl</td>
<td>7.8%</td>
<td>Cash</td>
<td>0.1%</td>
<td>Hi Yld</td>
<td>7.4%</td>
<td>REITs</td>
<td>3.2%</td>
<td>Hi Yld</td>
<td>2.5%</td>
<td>Dev Intl</td>
<td>-0.8%</td>
<td>US Bonds</td>
</tr>
<tr>
<td>US Bonds</td>
<td>6.6%</td>
<td>Sm/Mid</td>
<td>-2.5%</td>
<td>Hdg Fnds</td>
<td>4.8%</td>
<td>Cash</td>
<td>0.1%</td>
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<td>Sm/Mid</td>
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<td>Glb Bond</td>
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<td>Glb Bond</td>
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<td>4.2%</td>
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<td>Hi Yld</td>
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<td>Dev Intl</td>
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<td>-12.1%</td>
<td>Glb Bond</td>
<td>1.8%</td>
<td>Em Mkt</td>
<td>-2.6%</td>
<td>Glb Bond</td>
<td>-2.8%</td>
<td>Glb Bond</td>
<td>-4.8%</td>
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<td>Cash</td>
<td>0.1%</td>
<td>Em Mkt</td>
<td>-15.4%</td>
<td>Cash</td>
<td>0.1%</td>
<td>Glb Bond</td>
<td>-4.9%</td>
<td>Dev Intl</td>
<td>-4.5%</td>
<td>Em Mkt</td>
<td>-14.9%</td>
<td>Cash</td>
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</table>

Past performance is no guarantee of future results. Asset classes represented by: Large Cap – S&P 500 Index; Sm/Mid – Russell 2500 Index; Dev Intl – MSCI EAFE Index; Em Mkt – MSCI Emerging Markets Index; Hi Yld – Bank of America Merrill Lynch U.S. High Yield Master II; US Bonds – Barclays Capital U.S. Aggregate; Glb Bond – Barclays Capital Global Treasury ex US; REITs – NAREIT All REITs; Hdg Fnds – HFRI FOF: Diversified Index; Cash – Merrill Lynch 91-day Tbill.

Source: Clearstead Associates.
FIXED INCOME: YIELDS & CORPORATE SPREADS

U.S. TREASURY YIELD CURVE

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<tr>
<th></th>
<th>3M</th>
<th>2Y</th>
<th>3Y</th>
<th>5Y</th>
<th>10Y</th>
<th>30Y</th>
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<td>12/31/18</td>
<td>2.36%</td>
<td>2.49%</td>
<td>2.46%</td>
<td>2.51%</td>
<td>2.69%</td>
<td>3.02%</td>
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<tr>
<td>3/31/19</td>
<td>2.39%</td>
<td>2.26%</td>
<td>2.21%</td>
<td>2.23%</td>
<td>2.41%</td>
<td>2.82%</td>
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<tr>
<td>6/30/19</td>
<td>2.09%</td>
<td>1.76%</td>
<td>1.71%</td>
<td>1.77%</td>
<td>2.01%</td>
<td>2.53%</td>
</tr>
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</table>

CORPORATE BOND SPREADS

- Investment Grade Bonds - U.S. Treasuries
- High Yield Bonds - U.S. Treasuries

Past performance is not a guarantee of future results.
NON-ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION REVIEW
# NON-ENDOWMENT PERFORMANCE REVIEW (AS OF 6/30/2019)

| NON-ENDOWMENT ASSETS          | MARKET VALUE ($MM) | QTD | YTD | 1YR | 2YR | 3YR | 5YR | 7YR | 10YR | 2018 | 2017 | 2016 | SINCE INCEPTION |
|-------------------------------|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|-----|----------------|
| Total Non-Endowment Assets   | $69,388            | 2.4%| 7.3%| 5.2%| 4.8%| 5.3%| 3.5%| 3.9%| 3.9%| -1.5%| 7.8%| 4.0% | 3.9%|
| Benchmark¹                    | 1.7%               | 5.6%| 4.4%| 3.9%| 4.0%| 2.8%| 2.9%| 2.9%|     | -0.4%| 5.4%| 2.7% | 3.1%|
| Operating & Short-Term Pool  | $13,040            | 0.6%| 1.3%| 2.4%| 1.7%| 1.3%| 0.8%| 0.6%| -   | 1.7% | 0.7%| 0.3% | 0.5%|
| Benchmark²                    | 0.7%               | 1.3%| 2.4%| 1.8%| 1.4%| 0.9%| 0.7%| 0.5%|     | 1.9% | 0.8%| 0.4% | 0.5%|
| Long-Term Pool               | $56,348            | 2.9%| 10.0%| 6.0%| 5.5%| 6.5%| 4.4%| 5.3%| -   | -3.4%| 10.5%| 4.9% | 5.2%|
| Benchmark³                    | 2.6%               | 9.2%| 6.0%| 5.6%| 6.1%| 4.3%| 4.9%| 4.8%|     | -2.4%| 9.3%| 4.7% | 4.7%|

## OPERATING & SHORT-TERM POOL: INVESTMENT YIELDS

- JPMorgan Money Market: 2.03%
- STAR Ohio: 2.40%
- STAR Plus: 2.45% (up to $2.5 million)
- Vanguard Short Term Federal Fund: 1.90%

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1. 5% BofA Merrill Lynch 91-Day T-Bill / 17% BofA Merrill Lynch US Corp & Gov 1-3 Yrs / 11% BbGBarc US Gov/Credit Int TR / 8% Total Alternatives Benchmark / 15% Russell 3000 / 4% MSCI EAFE Gross.
2. 27% BofA Merrill Lynch 91-Day T-Bill / 5% Barclays 1-3 Yr. Govt.
3. 21% Russell 3000 / 8% MSCI EAFE Gross / 15% Total Alternatives Benchmark / 30% BofA Merrill Lynch US Corp & Gov 1-3 Yrs / 20% BbGBarc US Gov/Credit Int TR.
ATTRIBUTION OF MARKET VALUE CHANGE: LONG-TERM POOL

LONG-TERM POOL MARKET VALUE CHANGE
(7/01/2010-6/30/2019)

BEGINNING MARKET VALUE: $47.7 MILLION
WITHDRAWALS: -$16.0 MILLION
INVESTMENT EARNINGS: $24.6 MILLION
ENDING MARKET VALUE: $56.3 MILLION
## PERFORMANCE & ASSET ALLOCATION REVIEW

<table>
<thead>
<tr>
<th>NON-ENDOWMENT ASSET POOL</th>
<th>CURRENT ASSET ALLOCATION</th>
<th>POLICY COMPLIANCE?</th>
<th>INVESTMENT MANAGER COMMENTARY</th>
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<tbody>
<tr>
<td><strong>Short-Term Pool</strong></td>
<td>• 91% Cash</td>
<td><strong>In Compliance</strong></td>
<td>Cash &amp; cash equivalent investments with one short-term fixed income holding; modest return over time (+0.6% 2Q19, +1.3% YTD); Investments include Vanguard Short-Term Federal Fund, Star Plus and Star Ohio investments.</td>
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<td></td>
<td>• 9% Short-Term Fixed Income</td>
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<tr>
<td><strong>Long-Term Pool</strong></td>
<td>• Domestic Equity 27%</td>
<td><strong>In Compliance</strong></td>
<td><strong>Domestic Equity (+4.3% 2Q19, +19.0% YTD)</strong> Both small cap managers (Victory Integrity &amp; Loomis Sayles) outpaced their respective benchmarks during the quarter benefitting from stock selection across most sectors, notably in financials and industrials (Victory +3.0% 2Q19, +15.6 YTD; Loomis +5.6% 2Q19, +21.6% YTD).</td>
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<tr>
<td></td>
<td>• International Equity 7%</td>
<td><strong>In-Line</strong></td>
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<td>• Alternatives 15%</td>
<td><strong>Underweight 1%</strong></td>
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<tr>
<td></td>
<td>• Short-Term Fixed Income 29%</td>
<td><strong>Underweight 1%</strong></td>
<td><strong>International Equity (+4.0% 2Q19, +16.1% YTD)</strong> William Blair International Growth returned +5.1% during the quarter adding to its outperformance year-to-date (William Blair +19.4% YTD; MSCI ACWI ex US +3.0% 2Q19, +13.6% YTD), with its largest sources of relative return from stock selection in healthcare, financials, and industrials.</td>
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<tr>
<td></td>
<td>• Int-Term Fixed Income 22%</td>
<td><strong>Overweight 2%</strong></td>
<td><strong>Alternatives (+2.4% 2Q19, +10.0% YTD)</strong> Diamond Hill continued its strong performance in 2019 adding +6.9% in the second quarter; The alternatives portfolio has generated strong returns in the first half of 2019, up +10.0% year-to-date.</td>
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Manager details can be found in the Appendix.
# CURRENT ALLOCATIONS (AS OF 7/29/2019)

## YOUNGSTOWN STATE UNIVERSITY

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<th>Ticker/Portfolio</th>
<th>Market Value (Current)</th>
<th>Percentage of Portfolio</th>
<th>Changes</th>
<th>Market Value (Post Rebalance)</th>
<th>Percentage of Portfolio</th>
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<td><strong>Total Operating &amp; Short Term</strong></td>
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<td>100.0%</td>
<td>$0</td>
<td>$9,338,611</td>
<td>100.0%</td>
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<td><strong>Operating Assets</strong></td>
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<td>JPMorgan 100% U.S. Treas. MIM Instl</td>
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<td>$0</td>
<td>$8,219,268</td>
<td>88.0%</td>
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<tr>
<td>Star Plus*</td>
<td>$98,982</td>
<td>1.1%</td>
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<td>$98,982</td>
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<td>Star Ohio*</td>
<td>$2,531,495</td>
<td>27.1%</td>
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<td><strong>Short-Term Assets</strong></td>
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<td>Vanguard Short-Term Federal Adm</td>
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<td><strong>Total Long Term Reserves Pool</strong></td>
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<td>$56,662,407</td>
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<td>$2,390,099</td>
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<td>Victory Integrity Small Cap Value Y</td>
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<td>$1,197,674</td>
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<td><strong>International Equity</strong></td>
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<td>William Blair International Growth I</td>
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<td>JPMorgan Strategic Income Opps Fd</td>
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<td>DFA Five-Year Global</td>
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<td>Prudential High Yield Bond R6</td>
<td>$4,216,711</td>
<td>7.4%</td>
<td></td>
<td>$4,216,711</td>
<td>7.4%</td>
</tr>
<tr>
<td><strong>Cash &amp; Cash Equivalents</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity Account Cash</td>
<td></td>
<td>0.0%</td>
<td></td>
<td>0.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Total University Assets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$66,001,018</td>
<td></td>
<td></td>
<td>$66,001,018</td>
<td></td>
</tr>
</tbody>
</table>

*As of 6/30/2019*
# PERFORMANCE SUMMARY: ALTERNATIVE INVESTMENT MANAGERS

<table>
<thead>
<tr>
<th>Total Alternatives</th>
<th>% of Portfolio</th>
<th>2019 Q2 (%)</th>
<th>YTD (%)</th>
<th>1 Yr (%)</th>
<th>2 Yrs (%)</th>
<th>3 Yrs (%)</th>
<th>5 Yrs (%)</th>
<th>7 Yrs (%)</th>
<th>10 Yrs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>2019</strong></td>
<td><strong>YTD</strong></td>
<td><strong>1 Yr</strong></td>
<td><strong>2 Yrs</strong></td>
<td><strong>3 Yrs</strong></td>
<td><strong>5 Yrs</strong></td>
<td><strong>7 Yrs</strong></td>
<td><strong>10 Yrs</strong></td>
</tr>
<tr>
<td>Total Alternatives</td>
<td>12.1</td>
<td>2.4</td>
<td>10.0</td>
<td>5.3</td>
<td>3.4</td>
<td>4.8</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Benchmark</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>JPMorgan Strategic Income Opps Sel</td>
<td>3.1</td>
<td>0.8</td>
<td>3.0</td>
<td>2.6</td>
<td>2.3</td>
<td>3.9</td>
<td>2.6</td>
<td>3.0</td>
<td>3.9</td>
</tr>
<tr>
<td>BBgBarc US Universal TR</td>
<td>3.1</td>
<td>3.1</td>
<td>6.5</td>
<td>8.1</td>
<td>3.8</td>
<td>2.8</td>
<td>3.2</td>
<td>3.0</td>
<td>4.4</td>
</tr>
<tr>
<td>Wells Fargo Adv Absolute Return Instl</td>
<td>3.1</td>
<td>3.1</td>
<td>1.5</td>
<td>7.0</td>
<td>2.7</td>
<td>2.9</td>
<td>5.1</td>
<td>1.6</td>
<td>3.9</td>
</tr>
<tr>
<td>HFRI Fund of Funds Composite Index</td>
<td>1.7</td>
<td>1.7</td>
<td>6.4</td>
<td>1.4</td>
<td>3.3</td>
<td>4.3</td>
<td>2.2</td>
<td>3.7</td>
<td>3.2</td>
</tr>
<tr>
<td>Diamond Hill Long-Short Y</td>
<td>3.4</td>
<td>3.4</td>
<td>6.9</td>
<td>16.4</td>
<td>10.2</td>
<td>5.3</td>
<td>8.7</td>
<td>4.9</td>
<td>8.4</td>
</tr>
<tr>
<td>HFRX Equity Hedge Index</td>
<td>0.0</td>
<td>0.0</td>
<td>6.0</td>
<td>-4.2</td>
<td>0.9</td>
<td>3.2</td>
<td>0.7</td>
<td>2.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Brookfield Global Listed Real Estate</td>
<td>2.6</td>
<td>2.6</td>
<td>-0.1</td>
<td>15.1</td>
<td>5.6</td>
<td>5.3</td>
<td>4.6</td>
<td>4.8</td>
<td>8.5</td>
</tr>
<tr>
<td>FTSE NAREIT Developed TR USD</td>
<td>-0.5</td>
<td>-0.5</td>
<td>14.1</td>
<td>7.2</td>
<td>6.4</td>
<td>4.3</td>
<td>4.8</td>
<td>7.2</td>
<td>10.5</td>
</tr>
</tbody>
</table>

### Calendar Years

<table>
<thead>
<tr>
<th>2018 (%)</th>
<th>2017 (%)</th>
<th>2016 (%)</th>
<th>Inception (%)</th>
<th>Inception Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>-4.3</td>
<td>8.4</td>
<td>1.5</td>
<td>2.3</td>
<td>Sep-18</td>
</tr>
<tr>
<td>0.8</td>
<td>3.3</td>
<td>9.2</td>
<td>1.6</td>
<td>Sep-18</td>
</tr>
<tr>
<td>-0.3</td>
<td>4.1</td>
<td>3.9</td>
<td>7.8</td>
<td>Sep-18</td>
</tr>
<tr>
<td>-5.6</td>
<td>12.6</td>
<td>3.0</td>
<td>1.7</td>
<td>Mar-15</td>
</tr>
<tr>
<td>-4.0</td>
<td>7.8</td>
<td>0.5</td>
<td>1.9</td>
<td>Mar-15</td>
</tr>
<tr>
<td>-6.9</td>
<td>6.0</td>
<td>10.5</td>
<td>5.5</td>
<td>Mar-15</td>
</tr>
<tr>
<td>-9.4</td>
<td>10.0</td>
<td>0.1</td>
<td>0.2</td>
<td>Jul-17</td>
</tr>
<tr>
<td>-8.1</td>
<td>10.1</td>
<td>6.3</td>
<td>4.9</td>
<td>Jul-17</td>
</tr>
</tbody>
</table>

**Inception Date:**
- Total Alternatives: Mar-15
- Total Alternatives Benchmark: Sep-18
- JPMorgan Strategic Income Opps Sel: Mar-15
- BBgBarc US Universal TR: Mar-15
- Wells Fargo Adv Absolute Return Instl: Mar-15
- HFRI Fund of Funds Composite Index: Mar-15
- Diamond Hill Long-Short Y: Mar-15
- HFRX Equity Hedge Index: Jul-17
- Brookfield Global Listed Real Estate: Jul-17
- FTSE NAREIT Developed TR USD: Jul-17

**1100 Superior Avenue East · Suite 700 · Clevelnd, Ohio 44114 · 216.621.1090 · clearstead.com**
ALTERNATIVE INVESTMENTS: ALTERNATIVE TO WHAT?

Alternatives often refer to strategies that are not a traditional buy-and-hold equity or fixed income and may often have one of more of the below characteristics.

TRADING MECHANISM
- Ability to engage in proprietary and complex trading strategies as a driver of returns
- Exposure to public and private markets
- Use of short positions, derivatives, etc.

LIQUIDITY CONSTRAINTS
- Monthly, quarterly, annual liquidity; sometimes multiple-year lockups
- Potential for illiquidity premium

FEE STRUCTURE
- Performance incentive fee
- Hurdle / preferred return rates
- High watermark
- Clawback provisions

ALPHA-FOCUSED
- Inefficient markets
- Active management (indexing is often not possible)
- Beta is not easily identifiable or often reduced in order to enhance alpha
Categorizing alternative investments is a formidable task because the degree of variability beyond "traditional investments" is expansive.

Below is a broad categorization of widely used alternatives.

**ABSOLUTE RETURN**
- Private Debt
- Relative Value
- Global Macro
- Merger Arbitrage

**REAL ASSETS**
- Private Infrastructure
- Private Real Estate
- Commodities
- Public Real Estate (REITs)

**GROWTH STRATEGIES**
- Private Equity
- Master Limited Partnerships- MLPs (Also a real asset)
- Event Driven
- Equity Long-Short
# Alternative Investments: Manager Characteristics

<table>
<thead>
<tr>
<th>Investment Name</th>
<th>Investment Type</th>
<th>Purpose / Role in Portfolio</th>
<th>Objective</th>
<th>Volatility Profile</th>
<th>Beta (S&amp;P 500)</th>
<th>Correlation with S&amp;P 500</th>
<th>Correlation with Bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPMorgan Strategic Income Opp</td>
<td>Abs Ret: Relative Value</td>
<td>Volatility mitigation, diversification</td>
<td>Cash + 2% to 8%</td>
<td>4.02%</td>
<td>0.17</td>
<td>0.58</td>
<td>0.12</td>
</tr>
<tr>
<td>Wells Fargo Absolute Return (GMO)</td>
<td>Abs Ret / Gr: Event Driven</td>
<td>Volatility mitigation, diversification and growth</td>
<td>Inflation + 5%</td>
<td>6.94%</td>
<td>0.40</td>
<td>0.77</td>
<td>0.14</td>
</tr>
<tr>
<td>Diamond Hill Long-Short</td>
<td>Growth: Long / Short</td>
<td>Growth, volatility mitigation</td>
<td>Equity-like returns with &lt; volatility</td>
<td>12.81%</td>
<td>0.69</td>
<td>0.78</td>
<td>-0.11</td>
</tr>
<tr>
<td>Brookfield Global REIT</td>
<td>Growth: REITs</td>
<td>Growth, yield, diversification</td>
<td>Global Real Estate exposure</td>
<td>12.49%</td>
<td>0.70</td>
<td>0.62</td>
<td>0.40</td>
</tr>
</tbody>
</table>

## Volatility Spectrum

- **U.S. Investment Grade Bonds**
- **Absolute Return Relative Value**
- **Event Driven Long-Short Equity**
- **U.S. Small Cap Stocks**
- **MLPS**
- **Emerging Markets**
- **CASH**
- **TIPS**
- **High Yield Bonds**
- **U.S. Large Cap Stocks**
- **Commodities**
- **Real Estate**

## FEE REVIEW: NON-ENDOWMENT ASSETS (AS OF 6/30/2019)

### YOUNGSTOWN STATE UNIVERSITY INVESTMENTS

#### NON-ENDOWMENT ASSETS FEE REVIEW

<table>
<thead>
<tr>
<th>Category</th>
<th>Market Value as of 6/30/2019</th>
<th>Estimated Annual Fee ($)</th>
<th>Expense Ratio (%)</th>
<th>Morningstar Category Average Fee (%)</th>
<th>Morningstar Institutional Average Fee (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Operating &amp; Short Term</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JPMorgan 100% U.S. Tr Sec MM Inst</td>
<td>$3,798,547</td>
<td>$7,977</td>
<td>0.21%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Vanguard Short-Term Federal Adm</td>
<td>$1,121,446</td>
<td>$1,121</td>
<td>0.10%</td>
<td>n/a</td>
<td>0.56%</td>
</tr>
<tr>
<td>STAR Plus</td>
<td>$2,531,495</td>
<td>$2,051</td>
<td>0.08%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>STAR Ohio</td>
<td>$5,588,791</td>
<td>$4,527</td>
<td>0.08%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Total Operating &amp; ST Investment Management Fee</strong></td>
<td>$13,040,279</td>
<td>$15,676</td>
<td>0.02%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Domestic Equity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanguard Institutional Index</td>
<td>$10,769,987</td>
<td>$4,308</td>
<td>0.04%</td>
<td>0.95%</td>
<td>0.73%</td>
</tr>
<tr>
<td>Vanguard Mid Cap Index Inv</td>
<td>$2,344,826</td>
<td>$3,986</td>
<td>0.17%</td>
<td>0.95%</td>
<td>1.08%</td>
</tr>
<tr>
<td>Loomis Sayles Sm Growth Instl</td>
<td>$1,184,874</td>
<td>$11,138</td>
<td>0.94%</td>
<td>1.23%</td>
<td>1.04%</td>
</tr>
<tr>
<td>Victory Integrity Small Value Y</td>
<td>$997,584</td>
<td>$11,173</td>
<td>1.12%</td>
<td>1.24%</td>
<td>1.05%</td>
</tr>
<tr>
<td><strong>Total International Equity</strong></td>
<td>$4,115,292</td>
<td>$36,398</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>William Blair International Growth I</td>
<td>$2,094,288</td>
<td>$23,665</td>
<td>1.13%</td>
<td>1.14%</td>
<td>0.98%</td>
</tr>
<tr>
<td>Dodge &amp; Cox Internatl Stock</td>
<td>$2,021,004</td>
<td>$12,732</td>
<td>0.63%</td>
<td>1.15%</td>
<td>0.94%</td>
</tr>
<tr>
<td><strong>Total Alternatives</strong></td>
<td>$8,428,507</td>
<td>$39,452</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JPMorgan Strategic Income Opps Sel</td>
<td>$2,139,888</td>
<td>$16,805</td>
<td>0.79%</td>
<td>1.21%</td>
<td>1.09%</td>
</tr>
<tr>
<td>Wells Fargo Adv Absolute Return Instl</td>
<td>$2,168,654</td>
<td>$24,506</td>
<td>1.13%</td>
<td>1.00%</td>
<td>1.08%</td>
</tr>
<tr>
<td>Diamond Hill Long-Short Y</td>
<td>$2,327,165</td>
<td>$31,084</td>
<td>1.33%</td>
<td>2.16%</td>
<td>1.62%</td>
</tr>
<tr>
<td>Brookfield Global Listed Real Estate I</td>
<td>$1,762,800</td>
<td>$16,937</td>
<td>0.95%</td>
<td>1.29%</td>
<td>1.03%</td>
</tr>
<tr>
<td><strong>Total Fixed Income</strong></td>
<td>$28,506,665</td>
<td>$77,431</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JPMorgan Core Bond</td>
<td>$5,389,999</td>
<td>$26,950</td>
<td>0.50%</td>
<td>0.81%</td>
<td>0.54%</td>
</tr>
<tr>
<td>YSU Intermediate Term Bond</td>
<td>$4,245,431</td>
<td>$6,368</td>
<td>0.15%</td>
<td>0.81%</td>
<td>0.54%</td>
</tr>
<tr>
<td>PFGM High Yield R6</td>
<td>$2,633,670</td>
<td>$11,061</td>
<td>0.42%</td>
<td>1.02%</td>
<td>0.79%</td>
</tr>
<tr>
<td>YSU Short Term Bond</td>
<td>$11,654,760</td>
<td>$17,482</td>
<td>0.15%</td>
<td>0.75%</td>
<td>0.49%</td>
</tr>
<tr>
<td>Lord Abbott Short Duration Income I</td>
<td>$2,663,333</td>
<td>$10,387</td>
<td>0.39%</td>
<td>0.75%</td>
<td>0.49%</td>
</tr>
<tr>
<td>DFA Five-Yr Global Fxd-Lncl</td>
<td>$1,919,472</td>
<td>$5,183</td>
<td>0.27%</td>
<td>0.83%</td>
<td>0.71%</td>
</tr>
<tr>
<td><strong>Total Cash &amp; Cash Equivalents</strong></td>
<td><strong>$57</strong></td>
<td><strong>$0</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PNC Govt MMkt</td>
<td>$57</td>
<td>$0</td>
<td>0.00%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Total LT/Reserves Pool Investment Management Fee</strong></td>
<td><strong>$56,347,792</strong></td>
<td><strong>$233,866</strong></td>
<td>0.34%</td>
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</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td><strong>$69,388,071</strong></td>
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<tr>
<td>Clearstead Consulting Fees</td>
<td></td>
<td>$49,500</td>
<td>0.07%</td>
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<tr>
<td>Trustee Fee (PNC)</td>
<td></td>
<td>$20,816</td>
<td>0.03%</td>
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<td></td>
</tr>
<tr>
<td><strong>Total Non-Endowment Assets Fees</strong></td>
<td><strong>$319,858</strong></td>
<td></td>
<td>0.46%</td>
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</tr>
</tbody>
</table>

*Star Ohio fees estimates from the 2017 annual report.*
## ORC COMPLIANCE REVIEW (AS OF 6/30/2019)

<table>
<thead>
<tr>
<th>Date</th>
<th>Total Non-Endowment ORC 3345.05 Defined Assets*</th>
<th>% from Short-Term Pool</th>
<th>% from Long-Term Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/30/18</td>
<td>43%</td>
<td>36%</td>
<td>7%</td>
</tr>
<tr>
<td>12/31/18</td>
<td>24%</td>
<td>14%</td>
<td>11%</td>
</tr>
<tr>
<td>3/31/19</td>
<td>41%</td>
<td>33%</td>
<td>8%</td>
</tr>
<tr>
<td>6/30/19</td>
<td>27%</td>
<td>17%</td>
<td>10%</td>
</tr>
<tr>
<td>Average</td>
<td>34%</td>
<td>25%</td>
<td>9%</td>
</tr>
</tbody>
</table>

YSU is in line with the Ohio Revised Code 3345.05 Compliance requirements.

<table>
<thead>
<tr>
<th>Ohio Revised Code 3345.05 Compliance</th>
<th>Compliant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 25% of Total Portfolio in Cash Equivalents/Govt Securities (average amount over previous FY)</td>
<td>Yes</td>
</tr>
<tr>
<td>Investment policy adopted in public session</td>
<td>Yes</td>
</tr>
<tr>
<td>Quarterly Investment Committee meetings</td>
<td>Yes</td>
</tr>
<tr>
<td>Recommend changes to the Board's Investment Policy that assist in meeting the Committee's fiduciary duties</td>
<td>Yes</td>
</tr>
<tr>
<td>Retain an investment advisor who meets the qualifications</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A minimum of 25% of the average amount of the University's investment portfolio over the course of the previous fiscal year must be invested according to ORC guidelines (i.e. US government bonds, cash equivalents)
ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION REVIEW
ENDOWMENT ASSETS: PERFORMANCE & ASSET ALLOCATION
(AS OF 6/30/2019)

<table>
<thead>
<tr>
<th>ENDOwMENT ASSETS</th>
<th>MARKET VALUE</th>
<th>ASSET ALLOCATION</th>
<th>COMPOSITION</th>
<th>QTD</th>
<th>YTD</th>
<th>1 YR</th>
<th>2 YR</th>
<th>3 YR</th>
<th>5 YR</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>YSU Endowment Fund</td>
<td>$11.4 MM</td>
<td>73% Equity / 27%</td>
<td>Stocks, Bonds,</td>
<td>4.2%</td>
<td>14.4%</td>
<td>9.5%</td>
<td>8.6%</td>
<td>8.9%</td>
<td>7.1%</td>
<td>-4.8%</td>
<td>14.2%</td>
<td>8.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fixed Income &amp; Cash</td>
<td>Mutual Funds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benchmark¹</td>
<td></td>
<td></td>
<td></td>
<td>4.0%</td>
<td>13.6%</td>
<td>9.9%</td>
<td>9.1%</td>
<td>9.5%</td>
<td>7.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kilcawley Center</td>
<td>$119,784</td>
<td>60% Equity / 40%</td>
<td>Mutual Fund</td>
<td>5.6%</td>
<td>13.3%</td>
<td>8.7%</td>
<td>8.6%</td>
<td>9.2%</td>
<td>4.7%</td>
<td>-2.7%</td>
<td>13.8%</td>
<td>4.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fixed Income</td>
<td></td>
<td></td>
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<tr>
<td>Benchmark¹</td>
<td></td>
<td></td>
<td></td>
<td>4.0%</td>
<td>13.6%</td>
<td>9.9%</td>
<td>9.1%</td>
<td>9.5%</td>
<td>7.7%</td>
<td></td>
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</tr>
<tr>
<td>Alumni License Plate Account</td>
<td>$57,125</td>
<td>60% Equity / 40%</td>
<td>Mutual Fund</td>
<td>3.5%</td>
<td>13.1%</td>
<td>9.4%</td>
<td>8.9%</td>
<td>9.2%</td>
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<td></td>
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<td>Fixed Income</td>
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<tr>
<td>Benchmark¹</td>
<td></td>
<td></td>
<td></td>
<td>4.0%</td>
<td>13.6%</td>
<td>9.9%</td>
<td>9.1%</td>
<td>9.5%</td>
<td>7.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COMPLIANCE

• Asset Allocation Guidelines: 70% Equities (60-80%) / 30% Cash & Fixed Income (20-40%)
  • YSU Endowment (In-Line)
  • Kilcawley Center (In-Line)
  • Alumni (In-Line)

• Equity & Fixed Income Guidelines
  • YSU Endowment (In-Line)
  • Kilcawley Center (In-Line)
  • Alumni (In-Line)

¹ Benchmark: 60% S&P 500 / 40% BBgBarc US Aggregate.
See appendix for detail on holdings.
Kilcawley Center & Alumni License Plate accounts- Transition to PNC as custodian completed on 11/1/2017. Historical allocation to single stock and bond positions resulted in large differences relative to benchmark. Both accounts are now currently invested in one low-cost, balanced Vanguard mutual fund.

clearstead
1100 Superior Avenue East · Suite 700 · Cleveland, Ohio 44114 · 216.621.1090 · clearstead.com
## Executive Summary

### Ending June 30, 2019

<table>
<thead>
<tr>
<th>Description</th>
<th>Market Value 3/31/19 ($)</th>
<th>Market Value 6/30/19 ($)</th>
<th>% of Portfolio</th>
<th>2019 Q2 (%)</th>
<th>YTD (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total University Assets</td>
<td>83,687,856</td>
<td>69,388,069</td>
<td>100.0</td>
<td>2.4</td>
<td>7.3</td>
</tr>
<tr>
<td>Total Policy Benchmark</td>
<td></td>
<td></td>
<td></td>
<td>1.7</td>
<td>5.6</td>
</tr>
<tr>
<td>Total Operating &amp; Short Term</td>
<td>28,822,130</td>
<td>13,040,280</td>
<td>18.8</td>
<td>0.6</td>
<td>1.3</td>
</tr>
<tr>
<td>Total Operating &amp; Short Term Benchmark</td>
<td></td>
<td></td>
<td></td>
<td>0.7</td>
<td>1.3</td>
</tr>
<tr>
<td>Total Long Term/ Reserves Pool</td>
<td>54,765,726</td>
<td>56,347,789</td>
<td>81.2</td>
<td>2.9</td>
<td>10.0</td>
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<td>Total Long Term/ Reserves Fund Benchmark</td>
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<tr>
<td>Total Domestic Equity</td>
<td>15,409,477</td>
<td>15,297,271</td>
<td>22.0</td>
<td>4.3</td>
<td>19.0</td>
</tr>
<tr>
<td>Russell 3000</td>
<td></td>
<td></td>
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<td>4.1</td>
<td>18.7</td>
</tr>
<tr>
<td>Total International Equity</td>
<td>3,558,027</td>
<td>4,115,291</td>
<td>5.9</td>
<td>4.0</td>
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<tr>
<td>MSCI EAFE</td>
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<tr>
<td>Total Alternatives</td>
<td>8,229,335</td>
<td>8,428,506</td>
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<td>2.4</td>
<td>10.0</td>
</tr>
<tr>
<td>Total Alternatives Benchmark</td>
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<td></td>
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<td>1.2</td>
<td>8.3</td>
</tr>
<tr>
<td>Total Fixed Income</td>
<td>27,188,830</td>
<td>28,506,664</td>
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<td>2.1</td>
<td>4.6</td>
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<tr>
<td>Total Fixed Income Benchmark</td>
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<td></td>
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<td>1.9</td>
<td>3.5</td>
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<tr>
<td>Total Cash &amp; Cash Equivalents</td>
<td>57</td>
<td>57</td>
<td>0.0</td>
<td>0.8</td>
<td>1.1</td>
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<tr>
<td>ICE BofAML 91 Days T-Bills TR</td>
<td></td>
<td></td>
<td></td>
<td>0.8</td>
<td>1.2</td>
</tr>
</tbody>
</table>

- Total Policy Benchmark = 45% ICE BofAML 91 Days T-Bills TR / 17% ICE BofAML 1-3 Yrs US Corp & Govt TR / 11% BBgBarc US Govt/Credit Int TR / 8% Total Alternatives Benchmark / 15% Russell 3000 / 4% MSCI EAFE
- Total Operating & Short Term Benchmark = 95% ICE BofAML 91 Days T-Bills TR / 5% BBgBarc US Govt 1-3 Yr TR
- Total Long Term/Reserves Fund Benchmark = 27% Russell 3000 / 8% MSCI EAFE / 15% Total Alternatives Benchmark / 30% ICE BofAML 1-3 Yrs US Corp & Govt TR / 20% BBgBarc US Govt/Credit Int TR
- Total Alternatives Benchmark = 25% FTSE NAREIT Developed TR USD / 75% HFRI Fund of Funds Composite Index
- Total Fixed Income Benchmark = 64% ICE BofAML 1-3 Yrs US Corp & Govt TR / 36% BBgBarc US Govt/Credit Int TR
ASSET ALLOCATION GUIDELINES COMPLIANCE

As of June 30, 2019

<table>
<thead>
<tr>
<th>Total Plan Asset Allocation Policy</th>
<th>Range</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating &amp; Short-Term Pool</td>
<td>25% - 50%</td>
<td>19%</td>
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<tr>
<td>Long Term/ Reserves Pool</td>
<td>50% - 75%</td>
<td>81%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating &amp; Short-Term Pool</th>
<th>Range</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Assets</td>
<td>60% - 100%</td>
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</tr>
<tr>
<td>Short-Term Assets</td>
<td>0% - 40%</td>
<td>9%</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Long Term/ Reserves Pool</th>
<th>Target</th>
<th>Range</th>
<th>Current</th>
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</thead>
<tbody>
<tr>
<td>Domestic Equity</td>
<td>27%</td>
<td>20% - 35%</td>
<td>27%</td>
</tr>
<tr>
<td>International Equity</td>
<td>8%</td>
<td>0% - 15%</td>
<td>7%</td>
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<tr>
<td>Total Equity</td>
<td>35%</td>
<td>25% - 45%</td>
<td>34%</td>
</tr>
<tr>
<td>Alternatives</td>
<td>15%</td>
<td>0% - 20%</td>
<td>15%</td>
</tr>
<tr>
<td>Short-Term Fixed Income</td>
<td>30%</td>
<td>25% - 45%</td>
<td>29%</td>
</tr>
<tr>
<td>Intermediate Fixed Income</td>
<td>20%</td>
<td>10% - 30%</td>
<td>22%</td>
</tr>
<tr>
<td>Cash &amp; Cash Equivalents</td>
<td>0%</td>
<td>0% - 5%</td>
<td>0%</td>
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# SCHEDULE OF ASSETS

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Market Value 3/31/19 ($)</th>
<th>Market Value 6/30/19 ($)</th>
<th>% of Total Plan</th>
<th>% of Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total University Assets</strong></td>
<td>83,687,856</td>
<td>69,388,069</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total Operating &amp; Short Term</strong></td>
<td>28,922,130</td>
<td>13,040,280</td>
<td>18.8</td>
<td>100.0</td>
</tr>
<tr>
<td>JPMorgan 100% U.S. Tr Sec MM Inst</td>
<td>Cash</td>
<td>19,747,920</td>
<td>3,798,547</td>
<td>5.5</td>
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<tr>
<td>Star Plus</td>
<td>Cash</td>
<td>2,515,587</td>
<td>2,531,495</td>
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<tr>
<td>Vanguard Short-Term Federal Adm</td>
<td>US Fixed Income Short Term</td>
<td>1,104,681</td>
<td>1,121,446</td>
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<tr>
<td>STAR Ohio</td>
<td>5,553,942</td>
<td>5,586,791</td>
<td>8.1</td>
<td>42.9</td>
</tr>
<tr>
<td><strong>Total Long Term/ Reserves Pool</strong></td>
<td>54,765,726</td>
<td>56,347,789</td>
<td>81.2</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Total Domestic Equity</strong></td>
<td>15,409,477</td>
<td>15,297,271</td>
<td>22.0</td>
<td>27.1</td>
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<td>Vanguard Institutional Index</td>
<td>US Stock Large Cap Core</td>
<td>11,070,942</td>
<td>10,769,987</td>
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<td>Vanguard Mid Cap Index Inv</td>
<td>US Stock Mid Cap Core</td>
<td>2,247,393</td>
<td>2,344,826</td>
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<td>Loomis Sayles Sm Growth Instl</td>
<td>US Stock Small Cap Growth</td>
<td>1,122,153</td>
<td>1,184,874</td>
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<td>Victory Integrity Small Value Y</td>
<td>US Stock Small Cap Value</td>
<td>968,988</td>
<td>997,584</td>
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<tr>
<td><strong>Total International Equity</strong></td>
<td>3,958,027</td>
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<td>7.3</td>
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<td>William Blair International Growth I</td>
<td>International</td>
<td>1,992,327</td>
<td>2,094,288</td>
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<td>Dodge &amp; Cox Internet I Stock</td>
<td>International</td>
<td>1,965,700</td>
<td>2,021,004</td>
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<tr>
<td><strong>Total Alternatives</strong></td>
<td>8,229,335</td>
<td>8,428,506</td>
<td>12.1</td>
<td>15.0</td>
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<tr>
<td>JPMorgan Strategic Income Opps Sel</td>
<td>Absolute Return</td>
<td>2,122,401</td>
<td>2,139,888</td>
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<tr>
<td>Wells Fargo Adv Absolute Return Instl</td>
<td>All Assets</td>
<td>2,135,619</td>
<td>2,168,654</td>
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<td>Diamond Hill Long-Short Y</td>
<td>Long/Short Equity</td>
<td>2,166,325</td>
<td>2,337,185</td>
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<td>Global Real Estate</td>
<td>1,784,991</td>
<td>1,782,600</td>
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<td><strong>Total Fixed Income</strong></td>
<td>27,168,830</td>
<td>28,506,664</td>
<td>41.1</td>
<td>50.6</td>
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<td>JPMorgan Core Bond</td>
<td>US Fixed Income Core</td>
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<td>YSU Intermediate Term Bond</td>
<td>US Fixed Income Core</td>
<td>4,138,035</td>
<td>4,245,431</td>
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<td>PGIM High Yield R6</td>
<td>US Fixed Income High Yield</td>
<td>2,544,074</td>
<td>2,633,670</td>
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<td>YSU Short Term Bond</td>
<td>US Fixed Income Short Term</td>
<td>11,480,907</td>
<td>11,654,760</td>
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<td>Lord Abbott Short Duration Income I</td>
<td>US Fixed Income Short Term</td>
<td>2,371,614</td>
<td>2,663,333</td>
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<td>DFA Five-Yr Global Fxd-Inc I</td>
<td>US Fixed Income Short Term</td>
<td>1,893,009</td>
<td>1,919,472</td>
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<tr>
<td><strong>Total Cash &amp; Cash Equivalents</strong></td>
<td>57</td>
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<tr>
<td>PNC Govt MMkt</td>
<td>Global Fixed Income</td>
<td>57</td>
<td>57</td>
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</table>
# Attribution of Market Value

## Total University Investments

<table>
<thead>
<tr>
<th></th>
<th>2018 Q3</th>
<th>2018 Q4</th>
<th>2019 Q1</th>
<th>Second Quarter</th>
<th>One Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Market Value</td>
<td>$71,560,137</td>
<td>$86,793,938</td>
<td>$60,511,374</td>
<td>$83,687,856</td>
<td>$71,560,137</td>
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<tr>
<td>Contributions</td>
<td>$20,008,592</td>
<td>$49,622</td>
<td>$24,509,030</td>
<td>$9,281</td>
<td>$44,576,524</td>
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<tr>
<td>Net Cash Flow</td>
<td>$13,899,908</td>
<td>-$23,224,784</td>
<td>$19,500,000</td>
<td>$1,700,212</td>
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<tr>
<td>Net Investment Change</td>
<td>$1,333,893</td>
<td>-$3,057,800</td>
<td>$3,676,483</td>
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<tr>
<td>Ending Market Value</td>
<td>$86,793,938</td>
<td>$60,511,374</td>
<td>$83,687,856</td>
<td>$69,388,069</td>
<td>$69,388,069</td>
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<tr>
<td>Net Change</td>
<td>$15,233,801</td>
<td>-$26,282,564</td>
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<td>-$14,299,788</td>
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## Long-Term Pool

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<tr>
<th></th>
<th>2018 Q3</th>
<th>2018 Q4</th>
<th>2019 Q1</th>
<th>Second Quarter</th>
<th>One Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Market Value</td>
<td>$53,172,971</td>
<td>$54,427,514</td>
<td>$51,238,803</td>
<td>$54,765,726</td>
<td>$53,172,971</td>
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<tr>
<td>Contributions</td>
<td>$8,175</td>
<td>$7,495</td>
<td>$8,053</td>
<td>$7,745</td>
<td>$31,469</td>
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<td>Withdrawals</td>
<td>-$8,267</td>
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<td>Net Cash Flow</td>
<td>-$92</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>-$92</td>
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<tr>
<td>Net Investment Change</td>
<td>$1,254,635</td>
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<td>$3,526,923</td>
<td>$1,582,063</td>
<td>$3,174,910</td>
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<tr>
<td>Net Change</td>
<td>$1,254,544</td>
<td>-$3,188,712</td>
<td>$3,526,923</td>
<td>$1,582,063</td>
<td>$3,174,818</td>
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## PERFORMANCE REPORT CARD

### Ending June 30, 2019

<table>
<thead>
<tr>
<th>% of Portfolio</th>
<th>2019 Q2 (%)</th>
<th>YTD (%)</th>
<th>1 Yr (%)</th>
<th>2 Yrs (%)</th>
<th>3 Yrs (%)</th>
<th>5 Yrs (%)</th>
<th>7 Yrs (%)</th>
<th>10 Yrs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total University Assets</td>
<td>100.0</td>
<td><strong>2.4</strong></td>
<td><strong>7.3</strong></td>
<td><strong>12.0</strong></td>
<td><strong>18.0</strong></td>
<td><strong>23.0</strong></td>
<td><strong>26.0</strong></td>
<td><strong>29.0</strong></td>
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<tr>
<td>Total Policy Benchmark</td>
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<td>1.7</td>
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<td>4.4</td>
<td>3.9</td>
<td>4.0</td>
<td>2.8</td>
<td>2.9</td>
</tr>
<tr>
<td>Total Operating &amp; Short Term</td>
<td>18.8</td>
<td>0.6</td>
<td>1.3</td>
<td>2.4</td>
<td>1.7</td>
<td>1.3</td>
<td>0.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Total Operating &amp; Short Term Benchmark</td>
<td></td>
<td>0.7</td>
<td>1.3</td>
<td>2.4</td>
<td>1.8</td>
<td>1.4</td>
<td>0.9</td>
<td>0.7</td>
</tr>
<tr>
<td>JPMorgan 100% U.S. Tr Sec MM Inst</td>
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<td>1.1</td>
<td>2.1</td>
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<td>1.2</td>
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<tr>
<td>ICE BofAML 91 Days T-Bills TR</td>
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<td>1.2</td>
<td>2.3</td>
<td>1.8</td>
<td>1.4</td>
<td>0.9</td>
<td>0.6</td>
</tr>
<tr>
<td>Vanguard Short-Term Federal Adm</td>
<td>1.6</td>
<td>1.5</td>
<td>2.9</td>
<td>4.4</td>
<td>2.2</td>
<td>1.4</td>
<td>1.5</td>
<td>1.3</td>
</tr>
<tr>
<td>BbgBarc US Govt 1-5 Yr TR</td>
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<td>3.1</td>
<td>4.9</td>
<td>2.2</td>
<td>1.3</td>
<td>1.5</td>
<td>1.3</td>
<td>1.7</td>
</tr>
<tr>
<td>STAR Plus</td>
<td>3.6</td>
<td>0.6</td>
<td>1.3</td>
<td>2.4</td>
<td>1.7</td>
<td>1.3</td>
<td>0.9</td>
<td>--</td>
</tr>
<tr>
<td>ICE BofAML 91 Days T-Bills TR</td>
<td></td>
<td>0.6</td>
<td>1.2</td>
<td>2.3</td>
<td>1.8</td>
<td>1.4</td>
<td>0.9</td>
<td>0.6</td>
</tr>
<tr>
<td>STAR Ohio</td>
<td>8.1</td>
<td>0.6</td>
<td>1.3</td>
<td>2.4</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
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<tr>
<td>Wells Fargo Adv Absolute Return Instl</td>
<td>-5.6</td>
<td>12.6</td>
<td>3.0</td>
<td>1.7 Mar-15</td>
</tr>
<tr>
<td>HFRI Fund of Funds Composite Index</td>
<td>-4.0</td>
<td>7.8</td>
<td>0.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Diamond Hill Long-Short Y</td>
<td>-6.9</td>
<td>6.0</td>
<td>10.5</td>
<td>5.5 Mar-15</td>
</tr>
<tr>
<td>HFRX Equity Hedge Index</td>
<td>-9.4</td>
<td>10.0</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Brookfield Global Listed Real Estate I</td>
<td>-8.1</td>
<td>10.1</td>
<td>6.3</td>
<td>4.9 Jul-17</td>
</tr>
<tr>
<td>FTSE NAREIT Developed TR USD</td>
<td>-5.6</td>
<td>10.4</td>
<td>4.1</td>
<td>5.7</td>
</tr>
<tr>
<td>Total Fixed Income</td>
<td>0.8</td>
<td>2.4</td>
<td>1.6</td>
<td>2.3 Jun-10</td>
</tr>
<tr>
<td>Total Fixed Income Benchmark</td>
<td>1.4</td>
<td>1.3</td>
<td>1.6</td>
<td>1.9</td>
</tr>
<tr>
<td>JPMorgan Core Bond</td>
<td>0.2</td>
<td>3.8</td>
<td>2.3</td>
<td>3.3 Aug-17</td>
</tr>
<tr>
<td>BBgBarc US Aggregate TR</td>
<td>0.0</td>
<td>3.5</td>
<td>2.6</td>
<td>3.2</td>
</tr>
<tr>
<td>YSU Intermediate Term Bond</td>
<td>0.8</td>
<td>2.4</td>
<td>2.0</td>
<td>3.7 Mar-04</td>
</tr>
<tr>
<td>BBgBarc US Govt/Credit Int TR</td>
<td>0.9</td>
<td>2.1</td>
<td>2.1</td>
<td>3.4</td>
</tr>
<tr>
<td>PGIM High Yield R6</td>
<td>-1.2</td>
<td>7.8</td>
<td>15.3</td>
<td>6.9 Dec-16</td>
</tr>
<tr>
<td>BBgBarc US High Yield TR</td>
<td>-2.1</td>
<td>7.5</td>
<td>17.1</td>
<td>6.0</td>
</tr>
<tr>
<td>YSU Short Term Bond</td>
<td>1.6</td>
<td>1.1</td>
<td>1.1</td>
<td>2.5 Mar-04</td>
</tr>
<tr>
<td>ICE BofAML 1-3 Yrs US Corp &amp; Govt TR</td>
<td>1.6</td>
<td>0.9</td>
<td>1.3</td>
<td>2.3</td>
</tr>
<tr>
<td>Lord Abbott Short Duration Income I</td>
<td>1.4</td>
<td>2.7</td>
<td>4.0</td>
<td>4.3 Mar-18</td>
</tr>
<tr>
<td>ICE BofAML 1-3 Yrs US Corp &amp; Govt TR</td>
<td>1.6</td>
<td>0.9</td>
<td>1.3</td>
<td>3.7</td>
</tr>
</tbody>
</table>
# PERFORMANCE REPORT CARD

<table>
<thead>
<tr>
<th>Name</th>
<th>2019 Q2 (%)</th>
<th>2019 YTD (%)</th>
<th>2019 1 Yr (%)</th>
<th>2019 2 Yrs (%)</th>
<th>2019 3 Yrs (%)</th>
<th>2019 5 Yrs (%)</th>
<th>2019 7 Yrs (%)</th>
<th>2019 10 Yrs (%)</th>
<th>2018 (%)</th>
<th>2017 (%)</th>
<th>2016 (%)</th>
<th>Inception (%)</th>
<th>Inception Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFA Five-Yr Global Fxd-Inc I</td>
<td>2.8</td>
<td>1.4</td>
<td>3.1</td>
<td>4.7</td>
<td>2.6</td>
<td>1.7</td>
<td>2.2</td>
<td>2.1</td>
<td>3.0</td>
<td>1.7</td>
<td>2.0</td>
<td>1.8</td>
<td>2.3</td>
</tr>
<tr>
<td>FTSE WGBI 1-5 Yr Hdg USD</td>
<td>1.5</td>
<td>2.7</td>
<td>4.5</td>
<td>2.7</td>
<td>1.9</td>
<td>1.8</td>
<td>1.7</td>
<td>1.9</td>
<td>2.1</td>
<td>1.1</td>
<td>1.5</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>Total Cash &amp; Cash Equivalents</td>
<td>0.0</td>
<td>0.6</td>
<td>1.1</td>
<td>2.1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>2.0</td>
<td>Mar-18</td>
</tr>
<tr>
<td>ICE BofAML 91 Days T-Bills TR</td>
<td>0.6</td>
<td>1.2</td>
<td>2.3</td>
<td>1.8</td>
<td>1.4</td>
<td>0.9</td>
<td>0.6</td>
<td>0.5</td>
<td>1.9</td>
<td>0.9</td>
<td>0.3</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>PNC Govt MMkt</td>
<td>0.0</td>
<td>0.6</td>
<td>1.1</td>
<td>2.1</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>2.0</td>
<td>Mar-18</td>
</tr>
<tr>
<td>ICE BofAML 91 Days T-Bills TR</td>
<td>0.6</td>
<td>1.2</td>
<td>2.3</td>
<td>1.8</td>
<td>1.4</td>
<td>0.9</td>
<td>0.6</td>
<td>0.5</td>
<td>1.9</td>
<td>0.9</td>
<td>0.3</td>
<td>2.2</td>
<td></td>
</tr>
</tbody>
</table>

- Total Policy Benchmark = 45% BofAML 91 Days T-Bills TR / 17% BofAML 1-3 Yrs US Corp & Govt TR / 11% BBgBarc US Govt/Credit Int TR / 8% Total Alternatives Benchmark / 15% Russell 3000 / 4% MSCI EAFE
- Total Operating & Short Term Benchmark = 95% BofAML 91 Days T-Bills TR / 5% BBgBarc US Govt 1-3 Yr TR
- Total Long Term/Reserves Fund Benchmark = 27% Russell 3000 / 8% MSCI EAFE / 15% Total Alternatives Benchmark / 30% BofAML 1-3 Yrs US Corp & Govt TR / 20% BBgBarc US Govt/Credit Int TR
- Vanguard Mid Cap Index Benchmark = 100% CRSP US Mid Cap TR USD
- Total Alternatives Benchmark = 25% FTSE NAREIT Developed TR USD / 75% HFRI Fund of Funds Composite Index
- Total Fixed Income Benchmark = 64% BofAML 1-3 Yrs US Corp & Govt TR / 36% BBgBarc US Govt/Credit Int TR
ENDOWMENT HOLDINGS

YSU ENDOWMENT (HUNTINGTON)
- Equity Mutual Funds – 11% (5-10 Mutual Funds & ETFs)
- Stocks – 62% (45-60 U.S. Large/Mid-Cap Stocks)
- Fixed Income Mutual Funds – 1% (Federated Total Return Bond)
- Bonds – 17% (10-20 Bonds, U.S. Corporate / Gov’t / Asset Backed Debt)
- Cash – 9%

KILCAWLEY (PNC)
- Vanguard Balanced Index Fund (Adm) – 100%

ALUMNI LICENSE PLATE (PNC)
- Vanguard Balanced Index Fund (Adm) – 100%
# FEE REVIEW: ENDOWMENT ASSETS (AS OF 6/30/2019)

<table>
<thead>
<tr>
<th>YOUNGSTOWN STATE UNIVERSITY INVESTMENTS</th>
<th>Market Value as of 6/30/2019</th>
<th>Annual Manager Fee (%)</th>
<th>Morningstar Institutional Average Fee (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YSU Endowment</td>
<td>$11,359,885</td>
<td>$56,799</td>
<td>Huntington</td>
</tr>
<tr>
<td>YSU Endowment Fund Fees</td>
<td></td>
<td></td>
<td>n/a</td>
</tr>
<tr>
<td>Kilcawley Center</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanguard Balanced Index Fund Adm</td>
<td>$119,784</td>
<td>$84</td>
<td>-</td>
</tr>
<tr>
<td>Trustee Fee (PNC)</td>
<td>$36</td>
<td>0.07%</td>
<td></td>
</tr>
<tr>
<td>Total Kilcawley Center Fees</td>
<td>$120</td>
<td>0.10%</td>
<td></td>
</tr>
<tr>
<td>Alumni License Plate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vanguard Balanced Index Fund Adm</td>
<td>$57,125</td>
<td>$40</td>
<td>-</td>
</tr>
<tr>
<td>Trustee Fee (PNC)</td>
<td>$17</td>
<td>0.07%</td>
<td></td>
</tr>
<tr>
<td>Total Alumni License Plate Fees</td>
<td>$57</td>
<td>0.10%</td>
<td></td>
</tr>
</tbody>
</table>
## U.S. ECONOMIC PROJECTIONS

### FEDERAL RESERVE BOARD MEMBERS AND BANK PRESIDENTS

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>LONGER RUN*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GDP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 2019</td>
<td>2.1%</td>
<td>2.0%</td>
<td>1.8%</td>
<td>1.9%</td>
</tr>
<tr>
<td>March 2019</td>
<td>2.1%</td>
<td>1.9%</td>
<td>1.8%</td>
<td>1.9%</td>
</tr>
<tr>
<td>December 2018</td>
<td>2.3%</td>
<td>2.0%</td>
<td>1.8%</td>
<td>1.9%</td>
</tr>
<tr>
<td><strong>Unemployment Rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 2019</td>
<td>3.6%</td>
<td>3.7%</td>
<td>3.8%</td>
<td>4.2%</td>
</tr>
<tr>
<td>March 2019</td>
<td>3.7%</td>
<td>3.8%</td>
<td>3.9%</td>
<td>4.3%</td>
</tr>
<tr>
<td>December 2018</td>
<td>3.5%</td>
<td>3.6%</td>
<td>3.8%</td>
<td>4.4%</td>
</tr>
<tr>
<td><strong>Core PCE Inflation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 2019</td>
<td>1.8%</td>
<td>1.9%</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>March 2019</td>
<td>2.0%</td>
<td>2.0%</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>December 2018</td>
<td>2.0%</td>
<td>2.0%</td>
<td>2.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td><strong>Federal Funds Rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>June 2019</td>
<td>2.4%</td>
<td>2.1%</td>
<td>2.4%</td>
<td>2.5%</td>
</tr>
<tr>
<td>March 2019</td>
<td>2.4%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.8%</td>
</tr>
<tr>
<td>December 2018</td>
<td>2.9%</td>
<td>3.1%</td>
<td>3.1%</td>
<td>2.8%</td>
</tr>
<tr>
<td><strong># of implied 25 bps rate changes per year</strong></td>
<td>Down 1</td>
<td>Up 1</td>
<td>Up 1</td>
<td>0</td>
</tr>
<tr>
<td>June 2019</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>March 2019</td>
<td>0</td>
<td>Up 1</td>
<td>Up 1</td>
<td>0</td>
</tr>
<tr>
<td>December 2018</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Longer-run projections: The rates to which a policymaker expects the economy to converge over time – maybe in five or six years – in the absence of further shocks and under appropriate monetary policy.

HISTORICAL S&P 500 RETURNS

S&P 500 Index - 1 Year Rolling Return

S&P 500 Index - 5 Year Rolling Returns

S&P 500 Index - 1928 to 2018

Past performance is not a guarantee of future results.
Source: Bloomberg.
Global manufacturing is contracting and global trade growth has stalled.

- Manufacturing surveys point to contractions in the EU, UK, China, Japan, China, and Korea.
- Only the U.S. and India show slight manufacturing expansion

The services sector—typically more domestically oriented—are holding up thus far, as local job markets, retail sales, and consumer confidence have remained mildly positive.

Source: Bloomberg, JPMorgan/Markeit Global PMI.
U.S. - CHINA TRADE TALKS - TALKS CONTINUE

Cease fire result from the G20 avoid the worst-case scenario: a no deal outcome and tariffs on all Chinese imports to the U.S.

- Trade talks will continue in the second half of 2019
- U.S. softened its policy on Huawei technologies—precise details are not fully clear
- Prospects for a comprehensive deal are uncertain
  - A win-win solution exists for both sides
    **BUT**
  - Much depends on Trumps political calculus/goals: *a win-win trade deal vs. railing against China*

### U.S. - CHINA TRADE WAR STATUS QUO

<table>
<thead>
<tr>
<th>U.S. TARIFFS ON CHINA</th>
<th>CHINA TARIFFS ON THE U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IMPOSED IN 2018 @ 25%</strong></td>
<td><strong>IMPOSED IN 2018 @ 25%</strong></td>
</tr>
<tr>
<td>$250 BIL</td>
<td>$110 BIL</td>
</tr>
<tr>
<td><strong>THREATENED @ 25%</strong></td>
<td><strong>TOTAL U.S. IMPORTS (2018)</strong></td>
</tr>
<tr>
<td>$290 BIL</td>
<td>$120 BIL</td>
</tr>
<tr>
<td><strong>TOTAL CHINESE IMPORTS (2018)</strong></td>
<td><strong>TOTAL U.S. IMPORTS (2018)</strong></td>
</tr>
<tr>
<td>$540 BIL</td>
<td>$120 BIL</td>
</tr>
</tbody>
</table>

Source: Clearstead, BBC.
CENTRAL BANKS BEING SUPPORTIVE TO GROWTH

KEY CENTRAL BANKS’ EVOLVING MONETARY POLICY

<table>
<thead>
<tr>
<th></th>
<th>U.S. FED</th>
<th>ECB</th>
<th>BOJ</th>
<th>PBOC</th>
<th>BOE</th>
<th>BOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2-2018</td>
<td>Contractionary</td>
<td>Easing</td>
<td>Easing</td>
<td>Contractionary</td>
<td>Contractionary</td>
<td>Contractionary</td>
</tr>
<tr>
<td>Q3-2018</td>
<td>Contractionary</td>
<td>Neutral</td>
<td>Easing</td>
<td>Neutral</td>
<td>Contractionary</td>
<td>Neutral</td>
</tr>
<tr>
<td>Q4-2018</td>
<td>Contractionary</td>
<td>Neutral</td>
<td>Easing</td>
<td>Easing</td>
<td>Neutral</td>
<td>Neutral</td>
</tr>
<tr>
<td>Q1-2019</td>
<td>Neutral</td>
<td>Easing</td>
<td>Easing</td>
<td>Easing</td>
<td>Neutral</td>
<td>Easing</td>
</tr>
<tr>
<td>Q2-2019</td>
<td>Easing</td>
<td>Easing</td>
<td>Easing</td>
<td>Easing</td>
<td>Neutral</td>
<td>Easing</td>
</tr>
</tbody>
</table>

REPRESENTS 75% OF GLOBAL GDP

Central Banks are now uniformly oriented to re-stimulate/support global growth. The U.S. Fed was the final Central Bank to pivot to an easing orientation and currently markets have fully priced in a 25bp cut in late July.

Global money supply should expand modestly throughout the second half of 2019.

Fiscal expansions in China, the U.S., and Eurozone should further buttress growth.

Source: Bloomberg, Clearstead.
Data as of 6/30/2019.
GLOBAL EARNINGS GROWTH

EARNINGS OUTLOOK BY YEAR

2015 2016 2017 2018 2019

-24.1% -28.9% 4.8% 17.1% 11.9% 35.5% 32.0% 21.0% 12.8% 10.7% 2.6% 9.2% 8.3%

S&P 500 MSCI EAFE MSCI EM

Estimates for Q2 2019 remain negative while Q3 2019 estimates have moved lower (from 0.0% in May to -0.5% in June) and are now negative as year-over-year numbers remain more difficult to beat. FY 2019 earnings growth estimates are 2.6% YoY.

Source: FactSet (3/29/19)
Past performance is no guarantee of future results.
GLOBAL EQUITY VALUATIONS

<table>
<thead>
<tr>
<th></th>
<th>MSCI USA</th>
<th>MSCI USA SMALL</th>
<th>MSCI EAFE</th>
<th>MSCI ACWI EX USA</th>
<th>MSCI ACWI EX USA SMALL</th>
<th>MSCI EM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current P/E (NTM)</td>
<td>17.2</td>
<td>20.4</td>
<td>13.5</td>
<td>13.1</td>
<td>14.1</td>
<td>12.1</td>
</tr>
<tr>
<td>Average P/E (NTM)</td>
<td>16.5</td>
<td>19.1</td>
<td>13.4</td>
<td>13.0</td>
<td>15.2</td>
<td>11.0</td>
</tr>
</tbody>
</table>

ALTERNATIVE INVESTMENTS: CHALLENGES FACING TRADITIONAL ASSETS

- The Fed is done raising rates and yields have fallen across the intermediate and longer parts of the curve, while investors' need for yield has not changed.
- It is prudent to find opportunities through actively managed alpha sources rather than through general beta exposure.
- The use of alternatives expands the breadth of investments outside the traditional asset classes to find alpha opportunities and additional diversification benefits.
- Equity return prospects remain uncertain as we progress closer to the end of the business cycle; market (beta) exposure can expect an elevated level of volatility.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High interest rates, respectable yields in fixed income</td>
<td>Persistently and historically low yields for bonds</td>
<td>The Fed raised interest rates eight times bringing yields off lows</td>
<td>An accommodative Fed, cutting rates if needed to stimulate the economy</td>
</tr>
<tr>
<td>Interest rates fell consistently throughout, helping to appreciate bond prices</td>
<td>Interest rates continued to fall, compressing already low yields</td>
<td>A rising rate environment</td>
<td>A flatter yield curve, dictated by market sentiment and investors, pointing to lower growth and inflation expectations</td>
</tr>
<tr>
<td>With good U.S. GDP growth, the expectation of economic growth and equity market expansion remained robust</td>
<td>There are growth challenges on the Main Street. Highly accommodative central bank policies around the world ease liquidity and help to appreciate asset prices in capital markets</td>
<td>U.S. GDP growth increased, with 2018 benefitting from corporate tax reform; Global central banks remained accommodative and the Fed initiated a balance sheet reduction program</td>
<td>A slowing global economy and lower growth expectations for the U.S.; Fed has indicated they will end their balance sheet reduction program in the fall 2019 and could possibly cut rates</td>
</tr>
</tbody>
</table>
ALTERNATIVE INVESTMENTS: MYTHS & TRUTHS

ALTERNATIVES ARE A SINGLE ASSET CLASS (MYTH)

- Alternatives encompass many different strategies, vehicles, and characteristics
- Strategies exhibit different risk/return profiles. It is prudent to diversify among alternative investments

ALTERNATIVES INCREASE THE RISK OF AN OVERALL PORTFOLIO (MYTH)

- Among the wide variety of strategies within alternatives, some carry higher risks than traditional asset classes, while some actually help reduce volatility
- Strategies are carefully selected for construction of an alternatives allocation to help diversify systematic (market) risk in an overall portfolio

ALTERNATIVES ARE A BLACK-BOX WITH NO TRANSPARENCY (MYTH)

- Alternative managers offer different levels of transparency across the spectrum. Most alternative investments offer full transparency of investment process and holdings. Some less liquid alternatives restrict full transparency to protect proprietary systems that may give the manager an edge over their competitors

ALTERNATIVES ARE NOT REGULATED (MYTH)

- Although many alternative investments are not regulated under Investment Company Act of 1940 for their product offerings, most entities themselves are registered with the Securities and Exchange Commission (SEC) in the United States, and internationally, with regulatory bodies in their respective countries. It is important to note, however, that regulation by itself is no guarantee of “safety,” and all investments require thorough due diligence
# ALTERNATIVE INVESTMENTS: VOLATILITY & DIVERSIFICATION SCALE (LIQUID VEHICLES)

## HISTORICAL RISK MEASURES

<table>
<thead>
<tr>
<th></th>
<th>STANDARD DEVIATION</th>
<th>BETA</th>
<th>CORRELATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Equity</td>
<td>14.4%</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>International Emerging Markets Equity</td>
<td>21.6%</td>
<td>1.15</td>
<td>0.77</td>
</tr>
<tr>
<td>Public Real Estate</td>
<td>19.0%</td>
<td>1.09</td>
<td>0.82</td>
</tr>
<tr>
<td>International Developed Equity</td>
<td>16.6%</td>
<td>1.01</td>
<td>0.87</td>
</tr>
<tr>
<td>Diversifying Growth</td>
<td>8.1%</td>
<td>0.49</td>
<td>0.88</td>
</tr>
<tr>
<td>Opportunistic Fixed Income</td>
<td>8.1%</td>
<td>0.31</td>
<td>0.55</td>
</tr>
<tr>
<td>Absolute Return</td>
<td>4.5%</td>
<td>0.22</td>
<td>0.72</td>
</tr>
<tr>
<td>Intermediate-Term Fixed Income</td>
<td>3.2%</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Short-Term Fixed Income</td>
<td>1.2%</td>
<td>-0.02</td>
<td>-0.29</td>
</tr>
</tbody>
</table>

Source: Clearstead Research. The relevant time period is from March 2005 to April 2019. Beta and Correlation is anchored to the Russell 3000 Index. The asset classes are represented by the following indices: U.S. Equity - Russell 3000; International Developed Equity - MSCI EAFE Net; International Emerging Markets Equity - MSCI EM Net; Real Assets - FTSE EPRA/NAREIT Developed Index; Diversifying Growth - HFRI Equity Hedge; Opportunistic Fixed Income - JPMorgan EMB; Absolute Return - HFRI Relative Value; Intermediate-Term Fixed Income - Bloomberg Barclays U.S. Aggregate Index; Short-Term - Bloomberg Barclays U.S. Government: 1-3 Year Bond.
ALTERNATIVE INVESTMENTS: CLEARSTEAD'S PURPOSE-DRIVEN APPROACH

ALTERNATIVES HELP TO EXPAND THE INVESTABLE UNIVERSE

The **growth** alternatives aim to find additional alpha sources.

Real assets, such as real estate and MLPs, serve multiple functions through capital appreciation, **inflation protection**, and **income**.

The **absolute return** alternatives provide a hedging and diversification purpose or fixed-income-like characteristics over a market cycle.
# ALTERNATIVE INVESTMENTS: STRATEGY DESCRIPTIONS

<table>
<thead>
<tr>
<th>STRATEGIES</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>PRIVATE EQUITY</strong></td>
<td>Private equity is a large opportunity set of taking an ownership stake in a privately-owned company. Unlike public companies, there is less information about private companies, making them an “inefficient” investment. Such inefficiencies present an opportunity for an investment manager to add value by engaging with the private companies at a more intimate level, improving operations to increase the value of the business. Private investing spans the lifecycle of a company, from an early stage (venture capital) to mature businesses. There is potential for greater returns through manager skill and also a significant period of illiquidity, often 10 or more years.</td>
</tr>
<tr>
<td><strong>PRIVATE DEBT</strong></td>
<td>Direct lending is loans made to borrowers, typically middle market companies, without a traditional bank intermediary. These loans are illiquid but can sometimes be traded on a secondary market. Loans that are non-sponsored (company does not have a private equity partner) typically have a higher interest rate than sponsored loans. These loans are often senior secured, floating rate (LIBOR +4% - 10%), and can have pre-payment penalties that accrue to the investors. Investors may give up 3-10 years of liquidity for this strategy.</td>
</tr>
<tr>
<td><strong>INFRASTRUCTURE</strong></td>
<td>Infrastructure investments are made up of large-scale essential facilities and assets that societies depend on for economic activity. These assets can include transportation assets such as roads, railroads, seaports and airports; regulated assets such as electricity transmission lines, power plants; and gas and oil pipelines; and communication assets such as fiber optic lines and cellphone towers. Infrastructure assets generally provide strong cash flow yields and can serve as an inflation hedge. Most infrastructure investments are illiquid and can have a 10-20 year investment life.</td>
</tr>
<tr>
<td><strong>REAL ESTATE</strong></td>
<td>Real estate is a broad category that represents a wide range of assets including residential housing, industrial operations, malls, commercial office space, land, and hotels among others. These investments can be accessed through publicly traded REITs (real estate investment trusts) or through private funds which take on some of the private equity characteristics. Real estate investors earn returns from rental income, value improvements, and market appreciation. Real estate can also serve as an inflation hedge. Private real estate investments are often illiquid; public REITs are subject to equity market volatility.</td>
</tr>
</tbody>
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# ALTERNATIVE INVESTMENTS: STRATEGY DESCRIPTIONS

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<td><strong>LONG-SHORT EQUITY</strong></td>
<td>Long-short equity is a strategy of buying favorable stocks and shorting unfavorable ones, based on manager philosophy and views. (Shorting a stock is making a bet that the stock price will go down and in turn provide a profit to the investor.) Long-short strategies reduce the sensitivity or beta to the market, but usually maintain a long-bias.</td>
</tr>
<tr>
<td><strong>EVENT DRIVEN</strong></td>
<td>Event driven is a strategy which looks to exploit opportunities that arise from corporate events, including mergers, acquisitions, spinoffs, bankruptcies, and restructurings. These events are often accompanied by significant pricing distortions that the markets may not understand. This category includes activist hedge funds, merger arbitrage, distressed situations, and other special situations strategies, and they can invest across the capital structure to take advantage of the mispricings that may result from the associated event.</td>
</tr>
<tr>
<td><strong>GLOBAL MACRO</strong></td>
<td>Global macro managers generally build strategies based around large-scale global projections. These strategies trade on a broad range of macroeconomic and geopolitical themes and can use derivatives, equity, fixed income, currency, and commodity markets to implement their views. Global macro strategies tend to be long volatility, offering defensiveness in portfolio construction. There is a degree of variability among the approaches utilized by managers, and therefore, risk/return expectations also may vary.</td>
</tr>
<tr>
<td><strong>RELATIVE VALUE</strong></td>
<td>Relative value is an investment approach focused on capturing discrepancies in the pricing relationship among similar securities. A manager will study securities that have historically had strong correlation and traded closely to one another. When there is a short-term deviation from this relationship, the manager will buy long the undervalued security and short the overvalued security, betting that the price gap will narrow and create a profit. These paired trades can occur in narrow industries between stocks, bonds from the same company, currency relationships, and commodities. This approach tends to carry lower risk as it has less dependency on the overall direction of markets.</td>
</tr>
<tr>
<td><strong>MERGER ARBITRAGE</strong></td>
<td>Merger arbitrage strategies take long positions in companies being acquired and short positions in acquirer hoping to capture the spread. The success of the trade is mostly predicated on the deal coming to fruition. Most merger arbitrage managers do not speculate on deals but rather wait for an announcement of a deal before taking a position. This strategy tends to be low risk and generally not dependent on the direction of the markets.</td>
</tr>
<tr>
<td><strong>MLPS (ENERGY)</strong></td>
<td>Master Limited Partnerships are publicly traded securities. By regulation, MLPs must distribute 90% of their income. As a result, MLPs generally have an attractive yield. Many MLPs are in the oil and gas industry which can result in short-term volatility based on the underlying commodity price. However, most MLPs generate income from the volume moved through their pipes and are not directly impacted by the commodity price.</td>
</tr>
</tbody>
</table>
DEFINITIONS & DISCLOSURES

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