

# QUARTERLY PERFORMANCE REPORT

## MPERS Opportunistic Debt Report

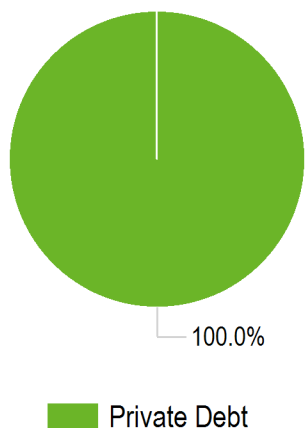
December 31, 2020



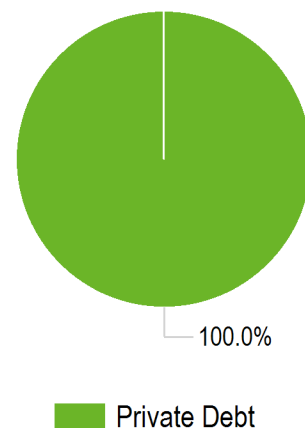
BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

# EXECUTIVE SUMMARY

## Valuation by Asset Class



## Fund Exposure by Asset Class

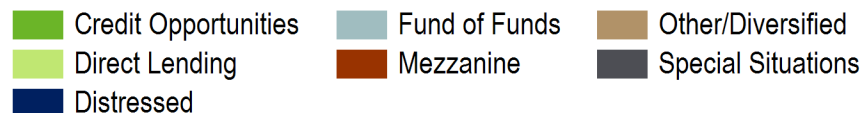
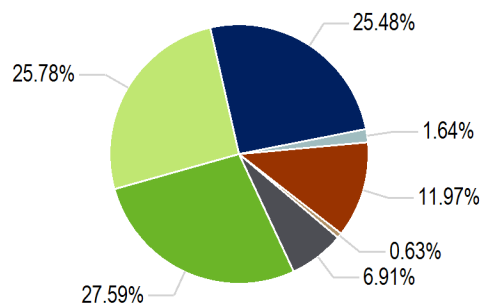


| Asset Class               | Investments \$ |                          |                     |               | Trailing Period Performance (IRR) |       |        |         |         |          |        | Multiples |      |
|---------------------------|----------------|--------------------------|---------------------|---------------|-----------------------------------|-------|--------|---------|---------|----------|--------|-----------|------|
|                           | Commitment     | Cumulative Contributions | Unfunded Commitment | Valuation     | (QTR)                             | (YTD) | (1 YR) | (3 YRS) | (5 YRS) | (10 YRS) | SI IRR | DPI       | TVPI |
| <b>Total Private Debt</b> | \$592,864,000  | \$433,030,211            | \$159,833,789       | \$228,585,843 | 6.40%                             | 6.33% | 6.33%  | 7.44%   | 9.40%   | 11.77%   | 11.29% | 0.82      | 1.35 |
| <b>Total</b>              | \$592,864,000  | \$433,030,211            | \$159,833,789       | \$228,585,843 | 6.40%                             | 6.33% | 6.33%  | 7.44%   | 9.40%   | 11.77%   | 11.29% | 0.82      | 1.35 |

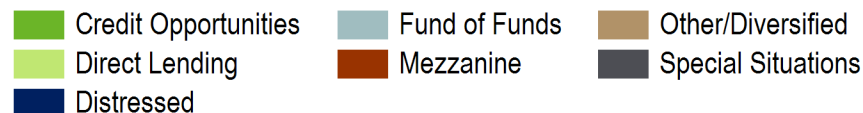
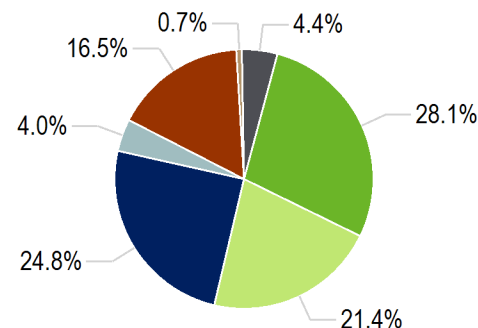


# ANALYSIS BY STRATEGY

### Opportunistic Debt Valuation by Strategy



### Opportunistic Debt Fund Exposure by Strategy

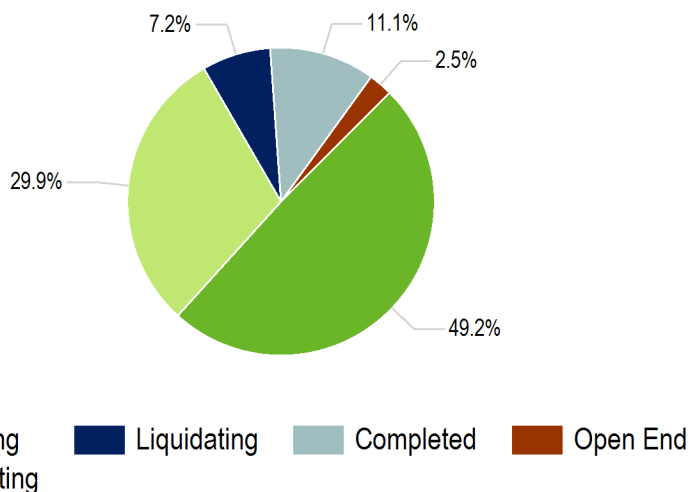


| Investment Strategy        | Investments          |                      |             | Commitments              |                    |                          | Contributions & Distributions |                      |                      | Valuations           |             |             |               | Performance |  |  |
|----------------------------|----------------------|----------------------|-------------|--------------------------|--------------------|--------------------------|-------------------------------|----------------------|----------------------|----------------------|-------------|-------------|---------------|-------------|--|--|
|                            | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions | Additional Fees    | Cumulative Distributions | Valuation                     | Total Value          | Net Benefit          | Fund Exposure        | DPI         | TVPI        | IRR           |             |  |  |
| Total Credit Opportunities | \$105,780,545        | \$46,021,387         | 0.56        | \$59,759,158             | \$848,486          | \$22,366,653             | \$63,055,630                  | \$85,422,283         | \$24,814,639         | \$109,077,017        | 0.37        | 1.41        | 12.02%        |             |  |  |
| Total Direct Lending       | \$180,598,936        | \$24,370,571         | 0.87        | \$156,228,366            | -\$118,485         | \$139,568,754            | \$58,937,736                  | \$198,506,490        | \$42,396,609         | \$83,308,306         | 0.89        | 1.27        | 9.50%         |             |  |  |
| Total Distressed           | \$137,500,000        | \$38,072,627         | 0.72        | \$99,427,373             | -\$60,209          | \$87,838,940             | \$58,249,223                  | \$146,088,164        | \$46,721,000         | \$96,321,850         | 0.88        | 1.47        | 12.16%        |             |  |  |
| Total Fund of Funds        | \$27,500,000         | \$11,882,379         | 0.57        | \$15,617,621             | \$100,781          | \$17,109,266             | \$3,750,721                   | \$20,859,988         | \$5,141,586          | \$15,633,100         | 1.09        | 1.33        | 47.32%        |             |  |  |
| Total Mezzanine            | \$99,931,320         | \$36,794,132         | 0.63        | \$63,137,188             | \$256,464          | \$56,268,136             | \$27,356,562                  | \$83,624,698         | \$20,231,046         | \$64,150,694         | 0.89        | 1.32        | 11.74%        |             |  |  |
| Total Other/Diversified    | \$9,718,591          | \$1,267,693          | 0.87        | \$8,450,898              | \$0                | \$7,669,747              | \$1,444,906                   | \$9,114,653          | \$663,755            | \$2,712,599          | 0.91        | 1.08        | 2.41%         |             |  |  |
| Total Special Situations   | \$31,834,607         | \$1,425,000          | 0.96        | \$30,409,607             | \$2,187            | \$26,694,702             | \$15,791,064                  | \$42,485,766         | \$12,073,973         | \$17,216,064         | 0.88        | 1.40        | 10.93%        |             |  |  |
| <b>Total</b>               | <b>\$592,864,000</b> | <b>\$159,833,789</b> | <b>0.73</b> | <b>\$433,030,211</b>     | <b>\$1,029,223</b> | <b>\$357,516,199</b>     | <b>\$228,585,843</b>          | <b>\$586,102,042</b> | <b>\$152,042,607</b> | <b>\$388,419,631</b> | <b>0.82</b> | <b>1.35</b> | <b>11.29%</b> |             |  |  |

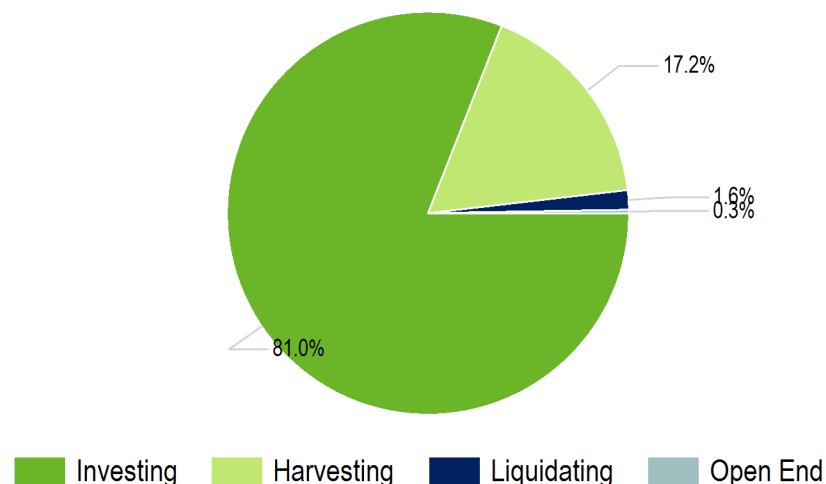


# ANALYSIS BY LIFECYCLE

### Commitment by Lifecycle



### Unfunded Commitment by Lifecycle



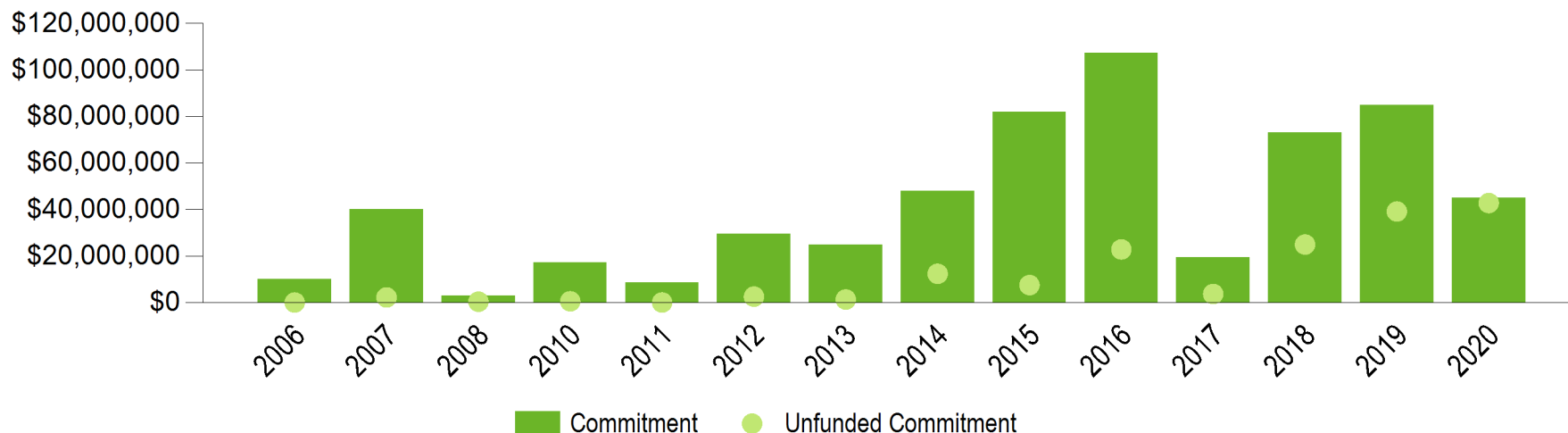
| Lifecycle         | Commitments          |                      |             | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |               |
|-------------------|----------------------|----------------------|-------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|---------------|
|                   | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions      | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR           |
| Total Investing   | \$291,815,430        | \$129,424,119        | 0.56        | \$162,391,311                 | \$681,435          | \$45,128,609             | \$146,899,064        | \$192,027,673        | \$28,954,927         | 0.28        | 1.18        | 10.36%        |
| Total Harvesting  | \$177,304,065        | \$27,476,056         | 0.85        | \$149,828,009                 | \$30,378           | \$145,836,194            | \$67,238,156         | \$213,074,350        | \$63,215,963         | 0.97        | 1.42        | 11.72%        |
| Total Liquidating | \$42,915,830         | \$2,503,723          | 0.94        | \$40,412,108                  | \$315,395          | \$72,759,648             | \$358,221            | \$73,117,868         | \$32,390,366         | 1.79        | 1.80        | 12.41%        |
| Total Completed   | \$65,828,674         | \$0                  | 1.00        | \$65,828,674                  | \$2,016            | \$90,973,232             | \$0                  | \$90,973,232         | \$25,142,543         | 1.38        | 1.38        | 9.73%         |
| Total Open End    | \$15,000,000         | \$429,890            | 0.97        | \$14,570,110                  | \$0                | \$2,818,516              | \$14,090,402         | \$16,908,918         | \$2,338,808          | 0.19        | 1.16        | 8.22%         |
| <b>Total</b>      | <b>\$592,864,000</b> | <b>\$159,833,789</b> | <b>0.73</b> | <b>\$433,030,211</b>          | <b>\$1,029,223</b> | <b>\$357,516,199</b>     | <b>\$228,585,843</b> | <b>\$586,102,042</b> | <b>\$152,042,607</b> | <b>0.82</b> | <b>1.35</b> | <b>11.29%</b> |



# MPERS

## ANALYSIS BY VINTAGE YEAR

### Commitments By Vintage Year



| Investments  | Commitments          |                      |             | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |               |
|--------------|----------------------|----------------------|-------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|---------------|
| Vintage Year | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions      | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR           |
| Total 2006   | \$10,000,000         | \$0                  | 1.00        | \$10,000,000                  | \$2,016            | \$12,839,911             | \$0                  | \$12,839,911         | \$2,837,895          | 1.28        | 1.28        | 8.01%         |
| Total 2007   | \$40,000,000         | \$2,177,607          | 0.95        | \$37,822,393                  | \$315,395          | \$64,100,519             | \$234,882            | \$64,335,401         | \$26,197,613         | 1.68        | 1.69        | 11.45%        |
| Total 2008   | \$2,915,830          | \$326,116            | 0.89        | \$2,589,715                   | \$0                | \$8,659,129              | \$123,339            | \$8,782,467          | \$6,192,753          | 3.34        | 3.39        | 19.36%        |
| Total 2010   | \$17,180,453         | \$500,000            | 0.97        | \$16,680,453                  | \$0                | \$35,480,783             | \$205,734            | \$35,686,517         | \$19,006,065         | 2.13        | 2.14        | 20.45%        |
| Total 2011   | \$8,583,466          | \$0                  | 1.00        | \$8,583,466                   | \$0                | \$11,262,394             | \$0                  | \$11,262,394         | \$2,678,928          | 1.31        | 1.31        | 6.60%         |
| Total 2012   | \$29,585,474         | \$2,518,116          | 0.91        | \$27,067,358                  | \$22,164           | \$37,625,734             | \$3,069,441          | \$40,695,175         | \$13,605,653         | 1.39        | 1.50        | 12.01%        |
| Total 2013   | \$24,718,591         | \$1,267,693          | 0.95        | \$23,450,898                  | \$0                | \$12,194,660             | \$21,442,729         | \$33,637,389         | \$10,186,490         | 0.52        | 1.43        | 8.29%         |
| Total 2014   | \$48,000,000         | \$12,340,685         | 0.74        | \$35,659,315                  | \$0                | \$31,965,824             | \$12,453,972         | \$44,419,796         | \$8,760,481          | 0.90        | 1.25        | 7.38%         |
| Total 2015   | \$82,000,000         | \$7,465,358          | 0.91        | \$74,534,642                  | -\$68,378          | \$67,583,614             | \$31,237,131         | \$98,820,745         | \$24,354,481         | 0.91        | 1.33        | 8.59%         |
| Total 2016   | \$107,400,300        | \$22,811,768         | 0.79        | \$84,588,533                  | -\$92,038          | \$66,129,613             | \$39,121,686         | \$105,251,299        | \$20,754,805         | 0.78        | 1.25        | 13.23%        |
| Total 2017   | \$19,500,000         | \$3,651,111          | 0.81        | \$15,848,889                  | \$53,982           | \$3,458,149              | \$13,012,497         | \$16,470,646         | \$567,775            | 0.22        | 1.04        | 1.77%         |
| Total 2018   | \$72,979,885         | \$24,903,306         | 0.66        | \$48,076,579                  | \$793,970          | \$6,215,870              | \$49,934,183         | \$56,150,053         | \$7,279,504          | 0.13        | 1.15        | 7.82%         |
| Total 2019   | \$85,000,000         | \$39,122,029         | 0.54        | \$45,877,971                  | \$2,113            | \$0                      | \$55,742,616         | \$55,742,616         | \$9,862,532          | 0.00        | 1.21        | 32.08%        |
| Total 2020   | \$45,000,000         | \$42,750,000         | 0.05        | \$2,250,000                   | \$0                | \$0                      | \$2,007,633          | \$2,007,633          | -\$242,367           | 0.00        | 0.89        | -22.61%       |
| <b>Total</b> | <b>\$592,864,000</b> | <b>\$159,833,789</b> | <b>0.73</b> | <b>\$433,030,211</b>          | <b>\$1,029,223</b> | <b>\$357,516,199</b>     | <b>\$228,585,843</b> | <b>\$586,102,042</b> | <b>\$152,042,607</b> | <b>0.82</b> | <b>1.35</b> | <b>11.29%</b> |



# APPENDIX

## MPERS

December 31, 2020



# MPERS

## RETURN SUMMARY

| Investments  |              |              | Trailing Period Returns (IRR) % |         |         |         |         |          |         |
|--|--------------|--------------|---------------------------------|---------|---------|---------|---------|----------|---------|
| Investment Name                                      | Vintage Year | Commitment   | (Qtr)                           | (YTD)   | (1 Yr)  | (3 Yrs) | (5 Yrs) | (10 Yrs) | SI IRR  |
| <b>Private Debt</b>                                  |              |              |                                 |         |         |         |         |          |         |
| ABRY Advanced Securities Fund, L.P.                  | 2008         | \$2,915,830  | 2.62%                           | -16.61% | -16.61% | -12.27% | -5.97%  | 15.70%   | 19.36%  |
| Anchorage Illiquid Opportunities Fund V, L.P.        | 2015         | \$15,000,000 | 4.93%                           | 10.72%  | 10.72%  | 8.99%   | 8.78%   |          | 8.78%   |
| Anchorage Illiquid Opportunities II, L.P.            | 2010         | \$7,180,453  |                                 |         |         |         |         |          | 13.48%  |
| Anchorage Illiquid Opportunities Offshore III, L.P.  | 2012         | \$9,654,154  | -0.31%                          | -35.03% | -35.03% | -7.86%  | 0.51%   |          | 10.80%  |
| Anchorage Structured Credit Fund, L.P.               | 2019         | \$15,000,000 | 16.08%                          | 29.62%  | 29.62%  |         |         |          | 24.99%  |
| Audax Mezzanine Fund II, L.P.                        | 2006         | \$10,000,000 |                                 | 0.47%   | 0.47%   | 7.71%   | -13.02% | 8.42%    | 8.01%   |
| Banner Ridge Secondary Fund III (TE), L.P.           | 2019         | \$22,500,000 | 0.00%                           | 23.60%  | 23.60%  |         |         |          | 36.86%  |
| Banner Ridge Secondary Fund III Co, L.P.             | 2019         | \$7,500,000  | 0.00%                           | 4.55%   | 4.55%   |         |         |          | 9.39%   |
| CarVal Credit Value Fund III, L.P.                   | 2015         | \$15,000,000 | 1.95%                           | 2.39%   | 2.39%   | 3.41%   | 7.86%   |          | 7.84%   |
| CarVal Credit Value Fund, L.P.                       | 2010         | \$10,000,000 | -4.54%                          | 0.68%   | 0.68%   | 8.07%   | 13.12%  |          | 23.89%  |
| CVI Global Value Fund A, L.P.                        | 2007         | \$25,000,000 | 2.64%                           | 1.36%   | 1.36%   | 2.22%   | 3.01%   | 13.94%   | 9.85%   |
| Fortress Credit Opportunities Fund V Expansion, L.P. | 2020         | \$25,000,000 |                                 |         |         |         |         |          | -1.64%  |
| Francisco Credit Partners Fund I, L.P.               | 2019         | \$15,000,000 | 11.53%                          |         |         |         |         |          | 42.99%  |
| Golub Capital Investment Corp                        | 2015         | \$25,000,000 |                                 |         |         | 12.91%  | 10.47%  |          | 10.01%  |
| Golub Capital PEARLS Direct Lending Program, L.P.    | 2011         | \$8,583,466  |                                 |         |         |         |         |          | 6.60%   |
| GSO Capital Opportunities Fund II, L.P.              | 2012         | \$9,931,320  | 10.92%                          | -5.73%  | -5.73%  | 1.33%   | 6.68%   |          | 9.53%   |
| GSO Capital Opportunities Fund III, L.P.             | 2016         | \$20,000,000 | 5.43%                           | 4.62%   | 4.62%   | 8.91%   |         |          | 9.68%   |
| GSO Capital Opportunities Fund, L.P.                 | 2007         | \$15,000,000 | 7.86%                           | -7.95%  | -7.95%  | -20.39% | -14.53% | 19.46%   | 15.95%  |
| GSO Credit Alpha Annex Fund, L.P.                    | 2016         | \$3,210,116  |                                 |         |         |         |         |          | 16.29%  |
| GSO Credit Alpha Fund, L.P.                          | 2014         | \$25,000,000 | 3.51%                           | -3.27%  | -3.27%  | -0.30%  | 8.67%   |          | 6.84%   |
| GSO Energy Select Opportunities Fund II L.P.         | 2018         | \$10,000,000 | 12.39%                          | 28.56%  | 28.56%  |         |         |          | 22.75%  |
| GSO Energy Select Opportunities Fund, L.P.           | 2015         | \$10,000,000 | 6.39%                           | -13.53% | -13.53% | -0.27%  | 4.38%   |          | 4.25%   |
| Kamsarmax Shipping, LLC                              | 2015         | \$2,000,000  | -0.84%                          | -1.44%  | -1.44%  | 7.35%   | 11.47%  |          | 9.50%   |
| Longford Capital Fund II, L.P.                       | 2016         | \$20,000,000 | 5.98%                           | 6.24%   | 6.24%   | 15.74%  |         |          | 11.92%  |
| Longford Capital Fund III, L.P.                      | 2020         | \$20,000,000 | -7.82%                          |         |         |         |         |          | -22.18% |
| M&G Real Estate Debt Fund III, L.P.                  | 2013         | \$9,718,591  | 6.85%                           | 2.19%   | 2.19%   | 4.71%   | 2.68%   |          | 2.41%   |
| MGG SF Evergreen Fund, L.P.                          | 2018         | \$15,000,000 | 2.92%                           | 5.94%   | 5.94%   |         |         |          | 8.22%   |
| Miravast ILS Credit Opportunities, L.P.              | 2018         | \$20,000,000 | 1.04%                           | 15.34%  | 15.34%  |         |         |          | 3.31%   |
| Northern Chasseral, LLC                              | 2014         | \$3,000,000  |                                 |         |         | 7.82%   | 10.17%  |          | 9.70%   |
| Northern Shipping Fund II, LLC                       | 2014         | \$20,000,000 | 9.19%                           | -8.89%  | -8.89%  | 3.91%   | 4.17%   |          | 7.61%   |
| Northern Shipping Fund III, L.P.                     | 2016         | \$15,000,000 | 1.97%                           | 7.98%   | 7.98%   | 8.52%   |         |          | 7.94%   |
| Orchard Landmark II (US), L.P.                       | 2016         | \$5,780,545  | 5.39%                           | 13.12%  | 13.12%  | 13.54%  |         |          | 15.20%  |
| Orchard Landmark, L.P.                               | 2013         | \$15,000,000 | 11.11%                          | 0.00%   | 0.00%   | 4.56%   | 8.75%   |          | 9.99%   |



# MPERS

## RETURN SUMMARY

| Investments  |              |                      | Trailing Period Returns (IRR) % |              |              |              |              |               |               |
|--|--------------|----------------------|---------------------------------|--------------|--------------|--------------|--------------|---------------|---------------|
| Investment Name                                    | Vintage Year | Commitment           | (Qtr)                           | (YTD)        | (1 Yr)       | (3 Yrs)      | (5 Yrs)      | (10 Yrs)      | SI IRR        |
| Owl Rock Alternatives                              | 2016         | \$20,000,000         |                                 | -0.52%       | -0.52%       | 7.00%        |              |               | 7.12%         |
| Owl Rock Tech Mgmt.                                | 2018         | \$78,067             | 67.73%                          | 51.21%       | 51.21%       |              |              |               | 501.21%       |
| Owl Rock Technology Finance Corp.                  | 2018         | \$10,000,000         | 3.00%                           | 7.14%        | 7.14%        |              |              |               | 4.03%         |
| OZ Structured Products Domestic Partners II, L.P.  | 2012         | \$10,000,000         | 10.02%                          | -5.76%       | -5.76%       | 5.60%        | 15.81%       |               | 14.13%        |
| RCP Apex II Syndication Partners, L.P.             | 2017         | \$2,500,000          | 28.51%                          | -27.03%      | -27.03%      | -3.81%       |              |               | -0.29%        |
| RCP Apex Syndication Partners, L.P.                | 2015         | \$2,500,000          |                                 |              |              |              |              |               | 12.30%        |
| RCP Deep Gulf Energy II Syndication Partners, L.P. | 2016         | \$1,442,609          |                                 |              |              | 33.50%       |              |               | 25.18%        |
| RCP Fairway Syndication Partners, L.P.             | 2017         | \$1,000,000          | -0.60%                          | 19.37%       | 19.37%       | 0.32%        |              |               | 2.50%         |
| RCP II HFG Syndication Partners, L.P.              | 2018         | \$965,000            | -0.61%                          | 12.20%       | 12.20%       |              |              |               | 15.39%        |
| RCP II Seawolf Syndication Partners, L.P.          | 2018         | \$956,818            | -2.23%                          | -42.46%      | -42.46%      |              |              |               | -16.22%       |
| RCP Renegade Syndication Partners, L.P.            | 2017         | \$1,000,000          |                                 |              |              |              |              |               | 13.67%        |
| RCP Swift Dog Syndication Partners, L.P.           | 2016         | \$967,030            |                                 |              |              | 16.69%       |              |               | 16.85%        |
| RCP TPCG Syndication Partners, L.P.                | 2016         | \$1,000,000          |                                 |              |              | 18.96%       |              |               | 19.58%        |
| Riverstone Credit Partners II, L.P.                | 2017         | \$15,000,000         | 1.39%                           | -9.11%       | -9.11%       |              |              |               | 1.97%         |
| Riverstone Credit Partners, L.P.                   | 2015         | \$12,500,000         | -2.08%                          | -19.04%      | -19.04%      | -0.11%       | 8.64%        |               | 5.51%         |
| Siguler Guff Secondary Opportunities Fund, L.P.    | 2016         | \$20,000,000         | 0.00%                           | -7.31%       | -7.31%       | 5.71%        |              |               | 49.06%        |
| Silver Point Distressed Opportunity Fund, L.P.     | 2019         | \$25,000,000         | 17.36%                          | 49.12%       | 49.12%       |              |              |               | 43.37%        |
| Transperfect Global, Inc.                          | 2018         | \$980,000            |                                 |              |              |              |              |               | 12.92%        |
| Varde Asia Credit Fund, L.P.                       | 2018         | \$15,000,000         | 3.66%                           | 10.88%       | 10.88%       |              |              |               | 8.01%         |
| <b>Total Private Debt</b>                          |              | <b>\$592,864,000</b> | <b>6.40%</b>                    | <b>6.33%</b> | <b>6.33%</b> | <b>7.44%</b> | <b>9.40%</b> | <b>11.77%</b> | <b>11.29%</b> |
| <b>Total</b>                                       |              | <b>\$592,864,000</b> | <b>6.40%</b>                    | <b>6.33%</b> | <b>6.33%</b> | <b>7.44%</b> | <b>9.40%</b> | <b>11.77%</b> | <b>11.29%</b> |





# MPERS

## ANALYSIS BY FUND

| Investments  |              | Commitments  |                     | Contributions & Distributions |                 |                          | Valuations   |              |              | Performance |      |         |
|--|--------------|--------------|---------------------|-------------------------------|-----------------|--------------------------|--------------|--------------|--------------|-------------|------|---------|
| Investment Name                                      | Vintage Year | Commitment   | Unfunded Commitment | Paid In Capital               | Additional Fees | Cumulative Distributions | Valuation    | Total Value  | Net Benefit  | DPI         | TVPI | IRR     |
| ABRY Advanced Securities Fund, L.P.                  | 2008         | \$2,915,830  | \$326,116           | \$2,589,715                   | \$0             | \$8,659,129              | \$123,339    | \$8,782,467  | \$6,192,753  | 3.34        | 3.39 | 19.36%  |
| Anchorage Illiquid Opportunities Fund V, L.P.        | 2015         | \$15,000,000 | \$1,425,000         | \$13,575,000                  | \$0             | \$2,993,712              | \$15,148,954 | \$18,142,666 | \$4,567,666  | 0.22        | 1.34 | 8.78%   |
| Anchorage Illiquid Opportunities II, L.P.            | 2010         | \$7,180,453  | \$0                 | \$7,180,453                   | \$0             | \$10,566,802             | \$0          | \$10,566,802 | \$3,386,349  | 1.47        | 1.47 | 13.48%  |
| Anchorage Illiquid Opportunities Offshore III, L.P.  | 2012         | \$9,654,154  | \$0                 | \$9,654,154                   | \$2,187         | \$13,134,189             | \$642,110    | \$13,776,299 | \$4,119,958  | 1.36        | 1.43 | 10.80%  |
| Anchorage Structured Credit Fund, L.P.               | 2019         | \$15,000,000 | \$0                 | \$15,000,000                  | -\$1,783        | \$0                      | \$18,813,766 | \$18,813,766 | \$3,815,549  | 0.00        | 1.25 | 24.99%  |
| Audax Mezzanine Fund II, L.P.                        | 2006         | \$10,000,000 | \$0                 | \$10,000,000                  | \$2,016         | \$12,839,911             | \$0          | \$12,839,911 | \$2,837,895  | 1.28        | 1.28 | 8.01%   |
| Banner Ridge Secondary Fund III (TE), L.P.           | 2019         | \$22,500,000 | \$9,623,472         | \$12,876,528                  | \$3,331         | \$0                      | \$14,715,065 | \$14,715,065 | \$1,835,206  | 0.00        | 1.14 | 36.86%  |
| Banner Ridge Secondary Fund III Co, L.P.             | 2019         | \$7,500,000  | \$3,882,300         | \$3,617,700                   | \$763           | \$0                      | \$3,745,218  | \$3,745,218  | \$126,755    | 0.00        | 1.04 | 9.39%   |
| CarVal Credit Value Fund III, L.P.                   | 2015         | \$15,000,000 | \$750,000           | \$14,250,000                  | \$0             | \$12,014,669             | \$6,132,538  | \$18,147,207 | \$3,897,207  | 0.84        | 1.27 | 7.84%   |
| CarVal Credit Value Fund, L.P.                       | 2010         | \$10,000,000 | \$500,000           | \$9,500,000                   | \$0             | \$24,913,981             | \$205,734    | \$25,119,715 | \$15,619,715 | 2.62        | 2.64 | 23.89%  |
| CVI Global Value Fund A, L.P.                        | 2007         | \$25,000,000 | \$1,250,000         | \$23,750,000                  | \$0             | \$40,256,587             | \$32,070     | \$40,288,657 | \$16,538,657 | 1.70        | 1.70 | 9.85%   |
| Fortress Credit Opportunities Fund V Expansion, L.P. | 2020         | \$25,000,000 | \$23,750,000        | \$1,250,000                   | \$0             | \$0                      | \$1,229,469  | \$1,229,469  | -\$20,531    | 0.00        | 0.98 | -1.64%  |
| Francisco Credit Partners Fund I, L.P.               | 2019         | \$15,000,000 | \$12,510,000        | \$2,490,000                   | -\$198          | \$0                      | \$3,258,705  | \$3,258,705  | \$768,903    | 0.00        | 1.31 | 42.99%  |
| Golub Capital Investment Corp                        | 2015         | \$25,000,000 | \$0                 | \$25,000,000                  | \$0             | \$37,411,020             | \$0          | \$37,411,020 | \$12,411,020 | 1.50        | 1.50 | 10.01%  |
| Golub Capital PEARLS Direct Lending Program, L.P.    | 2011         | \$8,583,466  | \$0                 | \$8,583,466                   | \$0             | \$11,262,394             | \$0          | \$11,262,394 | \$2,678,928  | 1.31        | 1.31 | 6.60%   |
| GSO Capital Opportunities Fund II, L.P.              | 2012         | \$9,931,320  | \$2,518,116         | \$7,413,204                   | \$19,977        | \$8,089,660              | \$1,979,288  | \$10,068,948 | \$2,635,767  | 1.09        | 1.35 | 9.53%   |
| GSO Capital Opportunities Fund III, L.P.             | 2016         | \$20,000,000 | \$6,348,409         | \$13,651,591                  | -\$1,691        | \$3,322,293              | \$13,175,965 | \$16,498,258 | \$2,848,358  | 0.24        | 1.21 | 9.68%   |
| GSO Capital Opportunities Fund, L.P.                 | 2007         | \$15,000,000 | \$927,607           | \$14,072,393                  | \$315,395       | \$23,843,932             | \$202,812    | \$24,046,744 | \$9,658,956  | 1.66        | 1.67 | 15.95%  |
| GSO Credit Alpha Annex Fund, L.P.                    | 2016         | \$3,210,116  | \$0                 | \$3,210,116                   | \$0             | \$3,489,537              | \$0          | \$3,489,537  | \$279,421    | 1.09        | 1.09 | 16.29%  |
| GSO Credit Alpha Fund, L.P.                          | 2014         | \$25,000,000 | \$9,477,517         | \$15,522,483                  | \$0             | \$10,653,703             | \$9,336,704  | \$19,990,407 | \$4,467,924  | 0.69        | 1.29 | 6.84%   |
| GSO Energy Select Opportunities Fund II L.P.         | 2018         | \$10,000,000 | \$9,314,818         | \$685,182                     | -\$191          | \$117,695                | \$820,148    | \$937,843    | \$252,852    | 0.17        | 1.37 | 22.75%  |
| GSO Energy Select Opportunities Fund, L.P.           | 2015         | \$10,000,000 | \$4,647,491         | \$5,352,509                   | \$23,426        | \$2,149,642              | \$3,956,378  | \$6,106,020  | \$730,085    | 0.40        | 1.14 | 4.25%   |
| Kamsarmax Shipping, LLC                              | 2015         | \$2,000,000  | \$0                 | \$2,000,000                   | \$0             | \$1,886,237              | \$653,185    | \$2,539,422  | \$539,422    | 0.94        | 1.27 | 9.50%   |
| Longford Capital Fund II, L.P.                       | 2016         | \$20,000,000 | \$8,000,000         | \$12,000,000                  | -\$79,233       | \$4,703,539              | \$9,420,227  | \$14,123,766 | \$2,202,999  | 0.39        | 1.18 | 11.92%  |
| Longford Capital Fund III, L.P.                      | 2020         | \$20,000,000 | \$19,000,000        | \$1,000,000                   | \$0             | \$0                      | \$778,164    | \$778,164    | -\$221,836   | 0.00        | 0.78 | -22.18% |
| M&G Real Estate Debt Fund III, L.P.                  | 2013         | \$9,718,591  | \$1,267,693         | \$8,450,898                   | \$0             | \$7,669,747              | \$1,444,906  | \$9,114,653  | \$663,755    | 0.91        | 1.08 | 2.41%   |
| MGG SF Evergreen Fund, L.P.                          | 2018         | \$15,000,000 | \$429,890           | \$14,570,110                  | \$0             | \$2,818,516              | \$14,090,402 | \$16,908,918 | \$2,338,808  | 0.19        | 1.16 | 8.22%   |
| Miravast ILS Credit Opportunities, L.P.              | 2018         | \$20,000,000 | \$9,761,387         | \$10,238,613                  | \$857,701       | \$0                      | \$11,964,079 | \$11,964,079 | \$867,765    | 0.00        | 1.08 | 3.31%   |
| Northern Chasseral, LLC                              | 2014         | \$3,000,000  | \$0                 | \$3,000,000                   | \$0             | \$3,953,654              | \$0          | \$3,953,654  | \$953,654    | 1.32        | 1.32 | 9.70%   |
| Northern Shipping Fund II, LLC                       | 2014         | \$20,000,000 | \$2,863,168         | \$17,136,832                  | \$0             | \$17,358,467             | \$3,117,268  | \$20,475,735 | \$3,338,903  | 1.01        | 1.19 | 7.61%   |
| Northern Shipping Fund III, L.P.                     | 2016         | \$15,000,000 | \$463,279           | \$14,536,721                  | -\$103,898      | \$8,444,171              | \$9,176,245  | \$17,620,416 | \$3,187,593  | 0.59        | 1.22 | 7.94%   |
| Orchard Landmark II (US), L.P.                       | 2016         | \$5,780,545  | \$0                 | \$5,780,545                   | -\$7,234        | \$1,439,855              | \$7,343,746  | \$8,783,601  | \$3,010,290  | 0.25        | 1.52 | 15.20%  |
| Orchard Landmark, L.P.                               | 2013         | \$15,000,000 | \$0                 | \$15,000,000                  | \$0             | \$4,524,913              | \$19,997,822 | \$24,522,735 | \$9,522,735  | 0.30        | 1.63 | 9.99%   |

\*The below funds show an adjusted commitment due to the fund liquidating before funding the entire commitment amount, or due to the GP retiring a portion of the unfunded commitment early. The original commitments are listed below:



Anchorage II - \$10,000,000  
 Golub Capital PEARLS - \$15,000,000  
 GSO Credit Opportunities Fund II - \$10,000,000  
 GSO Credit Alpha Annex

# MPERS

## ANALYSIS BY FUND

| Investments  |              | Commitments          |                      | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |               |
|--|--------------|----------------------|----------------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|---------------|
| Investment Name                                    | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR           |
| Owl Rock Alternatives                              | 2016         | \$20,000,000         | \$0                  | \$20,000,000                  | \$0                | \$22,445,139             | \$0                  | \$22,445,139         | \$2,445,139          | 1.12        | 1.12        | 7.12%         |
| Owl Rock Tech Mgmt.                                | 2018         | \$78,067             | \$0                  | \$78,067                      | \$0                | \$6,747                  | \$1,933,333          | \$1,940,080          | \$1,862,013          | 0.09        | 24.85       | 501.21%       |
| Owl Rock Technology Finance Corp.                  | 2018         | \$10,000,000         | \$2,031,830          | \$7,968,170                   | \$0                | \$690,807                | \$8,011,815          | \$8,702,622          | \$734,452            | 0.09        | 1.09        | 4.03%         |
| OZ Structured Products Domestic Partners II, L.P.  | 2012         | \$10,000,000         | \$0                  | \$10,000,000                  | \$0                | \$16,401,885             | \$448,043            | \$16,849,928         | \$6,849,928          | 1.64        | 1.68        | 14.13%        |
| RCP Apex II Syndication Partners, L.P.             | 2017         | \$2,500,000          | \$0                  | \$2,500,000                   | \$0                | \$678,582                | \$1,800,106          | \$2,478,688          | -\$21,312            | 0.27        | 0.99        | -0.29%        |
| RCP Apex Syndication Partners, L.P.                | 2015         | \$2,500,000          | \$0                  | \$2,500,000                   | \$0                | \$2,790,219              | \$0                  | \$2,790,219          | \$290,219            | 1.12        | 1.12        | 12.30%        |
| RCP Deep Gulf Energy II Syndication Partners, L.P. | 2016         | \$1,442,609          | \$0                  | \$1,442,609                   | \$0                | \$2,362,824              | \$0                  | \$2,362,824          | \$920,215            | 1.64        | 1.64        | 25.18%        |
| RCP Fairway Syndication Partners, L.P.             | 2017         | \$1,000,000          | \$31,616             | \$968,384                     | \$0                | \$69,068                 | \$979,918            | \$1,048,986          | \$80,602             | 0.07        | 1.08        | 2.50%         |
| RCP II HFG Syndication Partners, L.P.              | 2018         | \$965,000            | \$0                  | \$965,000                     | \$0                | \$1,270,661              | \$0                  | \$1,270,661          | \$305,661            | 1.32        | 1.32        | 15.39%        |
| RCP II Seawolf Syndication Partners, L.P.          | 2018         | \$956,818            | \$0                  | \$956,818                     | \$0                | \$194,452                | \$497,155            | \$691,607            | -\$265,211           | 0.20        | 0.72        | -16.22%       |
| RCP Renegade Syndication Partners, L.P.            | 2017         | \$1,000,000          | \$0                  | \$1,000,000                   | \$0                | \$1,096,230              | \$0                  | \$1,096,230          | \$96,230             | 1.10        | 1.10        | 13.67%        |
| RCP Swift Dog Syndication Partners, L.P.           | 2016         | \$967,030            | \$0                  | \$967,030                     | \$0                | \$1,337,273              | \$0                  | \$1,337,273          | \$370,243            | 1.38        | 1.38        | 16.85%        |
| RCP TPCG Syndication Partners, L.P.                | 2016         | \$1,000,000          | \$0                  | \$1,000,000                   | \$0                | \$1,475,716              | \$0                  | \$1,475,716          | \$475,716            | 1.48        | 1.48        | 19.58%        |
| Riverstone Credit Partners II, L.P.                | 2017         | \$15,000,000         | \$3,619,495          | \$11,380,505                  | \$53,982           | \$1,614,270              | \$10,232,473         | \$11,846,743         | \$412,256            | 0.14        | 1.04        | 1.97%         |
| Riverstone Credit Partners, L.P.                   | 2015         | \$12,500,000         | \$642,867            | \$11,857,133                  | -\$91,804          | \$8,338,116              | \$5,346,076          | \$13,684,192         | \$1,918,863          | 0.71        | 1.16        | 5.51%         |
| Siguler Guff Secondary Opportunities Fund, L.P.    | 2016         | \$20,000,000         | \$8,000,079          | \$11,999,921                  | \$100,018          | \$17,109,266             | \$5,503              | \$17,114,770         | \$5,014,831          | 1.41        | 1.41        | 49.06%        |
| Silver Point Distressed Opportunity Fund, L.P.     | 2019         | \$25,000,000         | \$13,106,257         | \$11,893,743                  | \$0                | \$0                      | \$15,209,862         | \$15,209,862         | \$3,316,119          | 0.00        | 1.28        | 43.37%        |
| Transperfect Global, Inc.                          | 2018         | \$980,000            | \$0                  | \$980,000                     | \$0                | \$1,116,992              | \$0                  | \$1,116,992          | \$136,992            | 1.14        | 1.14        | 12.92%        |
| Varde Asia Credit Fund, L.P.                       | 2018         | \$15,000,000         | \$3,365,381          | \$11,634,619                  | -\$63,540          | \$0                      | \$12,617,250         | \$12,617,250         | \$1,046,171          | 0.00        | 1.09        | 8.01%         |
| <b>Total</b>                                       |              | <b>\$592,864,000</b> | <b>\$159,833,789</b> | <b>\$433,030,211</b>          | <b>\$1,029,223</b> | <b>\$357,516,199</b>     | <b>\$228,585,843</b> | <b>\$586,102,042</b> | <b>\$152,042,607</b> | <b>0.82</b> | <b>1.35</b> | <b>11.29%</b> |



MPERS

# ANALYSIS BY LIFECYCLE

| Investments  |              | Commitments          |                      | Contributions & Distributions |                  |                          | Valuations           |                      |                     | Performance |             |               |
|--|--------------|----------------------|----------------------|-------------------------------|------------------|--------------------------|----------------------|----------------------|---------------------|-------------|-------------|---------------|
| Investment Name                                      | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation            | Total Value          | Net Benefit         | DPI         | TVPI        | IRR           |
| <b>Investing</b>                                     |              |                      |                      |                               |                  |                          |                      |                      |                     |             |             |               |
| Anchorage Structured Credit Fund, L.P.               | 2019         | \$15,000,000         | \$0                  | \$15,000,000                  | -\$1,783         | \$0                      | \$18,813,766         | \$18,813,766         | \$3,815,549         | 0.00        | 1.25        | 24.99%        |
| Banner Ridge Secondary Fund III (TE), L.P.           | 2019         | \$22,500,000         | \$9,623,472          | \$12,876,528                  | \$3,331          | \$0                      | \$14,715,065         | \$14,715,065         | \$1,835,206         | 0.00        | 1.14        | 36.86%        |
| Banner Ridge Secondary Fund III Co, L.P.             | 2019         | \$7,500,000          | \$3,882,300          | \$3,617,700                   | \$763            | \$0                      | \$3,745,218          | \$3,745,218          | \$126,755           | 0.00        | 1.04        | 9.39%         |
| Fortress Credit Opportunities Fund V Expansion, L.P. | 2020         | \$25,000,000         | \$23,750,000         | \$1,250,000                   | \$0              | \$0                      | \$1,229,469          | \$1,229,469          | -\$20,531           | 0.00        | 0.98        | -1.64%        |
| Francisco Credit Partners Fund I, L.P.               | 2019         | \$15,000,000         | \$12,510,000         | \$2,490,000                   | -\$198           | \$0                      | \$3,258,705          | \$3,258,705          | \$768,903           | 0.00        | 1.31        | 42.99%        |
| GSO Capital Opportunities Fund III, L.P.             | 2016         | \$20,000,000         | \$6,348,409          | \$13,651,591                  | -\$1,691         | \$3,322,293              | \$13,175,965         | \$16,498,258         | \$2,848,358         | 0.24        | 1.21        | 9.68%         |
| GSO Energy Select Opportunities Fund II L.P.         | 2018         | \$10,000,000         | \$9,314,818          | \$685,182                     | -\$191           | \$117,695                | \$820,148            | \$937,843            | \$252,852           | 0.17        | 1.37        | 22.75%        |
| GSO Energy Select Opportunities Fund, L.P.           | 2015         | \$10,000,000         | \$4,647,491          | \$5,352,509                   | \$23,426         | \$2,149,642              | \$3,956,378          | \$6,106,020          | \$730,085           | 0.40        | 1.14        | 4.25%         |
| Longford Capital Fund II, L.P.                       | 2016         | \$20,000,000         | \$8,000,000          | \$12,000,000                  | -\$79,233        | \$4,703,539              | \$9,420,227          | \$14,123,766         | \$2,202,999         | 0.39        | 1.18        | 11.92%        |
| Longford Capital Fund III, L.P.                      | 2020         | \$20,000,000         | \$19,000,000         | \$1,000,000                   | \$0              | \$0                      | \$778,164            | \$778,164            | -\$221,836          | 0.00        | 0.78        | -22.18%       |
| Miravast ILS Credit Opportunities, L.P.              | 2018         | \$20,000,000         | \$9,761,387          | \$10,238,613                  | \$857,701        | \$0                      | \$11,964,079         | \$11,964,079         | \$867,765           | 0.00        | 1.08        | 3.31%         |
| Northern Shipping Fund III, L.P.                     | 2016         | \$15,000,000         | \$463,279            | \$14,536,721                  | -\$103,898       | \$8,444,171              | \$9,176,245          | \$17,620,416         | \$3,187,593         | 0.59        | 1.22        | 7.94%         |
| Orchard Landmark II (US), L.P.                       | 2016         | \$5,780,545          | \$0                  | \$5,780,545                   | -\$7,234         | \$1,439,855              | \$7,343,746          | \$8,783,601          | \$3,010,290         | 0.25        | 1.52        | 15.20%        |
| Owl Rock Alternatives                                | 2016         | \$20,000,000         | \$0                  | \$20,000,000                  | \$0              | \$22,445,139             | \$0                  | \$22,445,139         | \$2,445,139         | 1.12        | 1.12        | 7.12%         |
| Owl Rock Tech Mgmt.                                  | 2018         | \$78,067             | \$0                  | \$78,067                      | \$0              | \$6,747                  | \$1,933,333          | \$1,940,080          | \$1,862,013         | 0.09        | 24.85       | 501.21%       |
| Owl Rock Technology Finance Corp.                    | 2018         | \$10,000,000         | \$2,031,830          | \$7,968,170                   | \$0              | \$690,807                | \$8,011,815          | \$8,702,622          | \$734,452           | 0.09        | 1.09        | 4.03%         |
| RCP II Seawolf Syndication Partners, L.P.            | 2018         | \$956,818            | \$0                  | \$956,818                     | \$0              | \$194,452                | \$497,155            | \$691,607            | -\$265,211          | 0.20        | 0.72        | -16.22%       |
| Riverstone Credit Partners II, L.P.                  | 2017         | \$15,000,000         | \$3,619,495          | \$11,380,505                  | \$53,982         | \$1,614,270              | \$10,232,473         | \$11,846,743         | \$412,256           | 0.14        | 1.04        | 1.97%         |
| Silver Point Distressed Opportunity Fund, L.P.       | 2019         | \$25,000,000         | \$13,106,257         | \$11,893,743                  | \$0              | \$0                      | \$15,209,862         | \$15,209,862         | \$3,316,119         | 0.00        | 1.28        | 43.37%        |
| Varde Asia Credit Fund, L.P.                         | 2018         | \$15,000,000         | \$3,365,381          | \$11,634,619                  | -\$63,540        | \$0                      | \$12,617,250         | \$12,617,250         | \$1,046,171         | 0.00        | 1.09        | 8.01%         |
| <b>Total Investing</b>                               |              | <b>\$291,815,430</b> | <b>\$129,424,119</b> | <b>\$162,391,311</b>          | <b>\$681,435</b> | <b>\$45,128,609</b>      | <b>\$146,899,064</b> | <b>\$192,027,673</b> | <b>\$28,954,927</b> | <b>0.28</b> | <b>1.18</b> | <b>10.36%</b> |
| <b>Harvesting</b>                                    |              |                      |                      |                               |                  |                          |                      |                      |                     |             |             |               |
| Anchorage Illiquid Opportunities Fund V, L.P.        | 2015         | \$15,000,000         | \$1,425,000          | \$13,575,000                  | \$0              | \$2,993,712              | \$15,148,954         | \$18,142,666         | \$4,567,666         | 0.22        | 1.34        | 8.78%         |
| Anchorage Illiquid Opportunities Offshore III, L.P.  | 2012         | \$9,654,154          | \$0                  | \$9,654,154                   | \$2,187          | \$13,134,189             | \$642,110            | \$13,776,299         | \$4,119,958         | 1.36        | 1.43        | 10.80%        |
| CarVal Credit Value Fund III, L.P.                   | 2015         | \$15,000,000         | \$750,000            | \$14,250,000                  | \$0              | \$12,014,669             | \$6,132,538          | \$18,147,207         | \$3,897,207         | 0.84        | 1.27        | 7.84%         |
| CarVal Credit Value Fund, L.P.                       | 2010         | \$10,000,000         | \$500,000            | \$9,500,000                   | \$0              | \$24,913,981             | \$205,734            | \$25,119,715         | \$15,619,715        | 2.62        | 2.64        | 23.89%        |
| GSO Capital Opportunities Fund II, L.P.              | 2012         | \$9,931,320          | \$2,518,116          | \$7,413,204                   | \$19,977         | \$8,089,660              | \$1,979,288          | \$10,068,948         | \$2,635,767         | 1.09        | 1.35        | 9.53%         |
| GSO Credit Alpha Fund, L.P.                          | 2014         | \$25,000,000         | \$9,477,517          | \$15,522,483                  | \$0              | \$10,653,703             | \$9,336,704          | \$19,990,407         | \$4,467,924         | 0.69        | 1.29        | 6.84%         |
| Kamsarmax Shipping, LLC                              | 2015         | \$2,000,000          | \$0                  | \$2,000,000                   | \$0              | \$1,886,237              | \$653,185            | \$2,539,422          | \$539,422           | 0.94        | 1.27        | 9.50%         |
| M&G Real Estate Debt Fund III, L.P.                  | 2013         | \$9,718,591          | \$1,267,693          | \$8,450,898                   | \$0              | \$7,669,747              | \$1,444,906          | \$9,114,653          | \$663,755           | 0.91        | 1.08        | 2.41%         |
| Northern Shipping Fund II, LLC                       | 2014         | \$20,000,000         | \$2,863,168          | \$17,136,832                  | \$0              | \$17,358,467             | \$3,117,268          | \$20,475,735         | \$3,338,903         | 1.01        | 1.19        | 7.61%         |
| Orchard Landmark, L.P.                               | 2013         | \$15,000,000         | \$0                  | \$15,000,000                  | \$0              | \$4,524,913              | \$19,997,822         | \$24,522,735         | \$9,522,735         | 0.30        | 1.63        | 9.99%         |
| OZ Structured Products Domestic Partners II, L.P.    | 2012         | \$10,000,000         | \$0                  | \$10,000,000                  | \$0              | \$16,401,885             | \$448,043            | \$16,849,928         | \$6,849,928         | 1.64        | 1.68        | 14.13%        |



MPERS

# ANALYSIS BY LIFECYCLE

| Investments  |              | Commitments          |                      | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |               |
|--|--------------|----------------------|----------------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|---------------|
| Investment Name                                    | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR           |
| RCP Apex II Syndication Partners, L.P.             | 2017         | \$2,500,000          | \$0                  | \$2,500,000                   | \$0                | \$678,582                | \$1,800,106          | \$2,478,688          | -\$21,312            | 0.27        | 0.99        | -0.29%        |
| RCP Fairway Syndication Partners, L.P.             | 2017         | \$1,000,000          | \$31,616             | \$968,384                     | \$0                | \$69,068                 | \$979,918            | \$1,048,986          | \$80,602             | 0.07        | 1.08        | 2.50%         |
| Riverstone Credit Partners, L.P.                   | 2015         | \$12,500,000         | \$642,867            | \$11,857,133                  | -\$91,804          | \$8,338,116              | \$5,346,076          | \$13,684,192         | \$1,918,863          | 0.71        | 1.16        | 5.51%         |
| Siguler Guff Secondary Opportunities Fund, L.P.    | 2016         | \$20,000,000         | \$8,000,079          | \$11,999,921                  | \$100,018          | \$17,109,266             | \$5,503              | \$17,114,770         | \$5,014,831          | 1.41        | 1.41        | 49.06%        |
| <b>Total Harvesting</b>                            |              | <b>\$177,304,065</b> | <b>\$27,476,056</b>  | <b>\$149,828,009</b>          | <b>\$30,378</b>    | <b>\$145,836,194</b>     | <b>\$67,238,156</b>  | <b>\$213,074,350</b> | <b>\$63,215,963</b>  | <b>0.97</b> | <b>1.42</b> | <b>11.72%</b> |
| <b>Liquidating</b>                                 |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| ABRY Advanced Securities Fund, L.P.                | 2008         | \$2,915,830          | \$326,116            | \$2,589,715                   | \$0                | \$8,659,129              | \$123,339            | \$8,782,467          | \$6,192,753          | 3.34        | 3.39        | 19.36%        |
| CVI Global Value Fund A, L.P.                      | 2007         | \$25,000,000         | \$1,250,000          | \$23,750,000                  | \$0                | \$40,256,587             | \$32,070             | \$40,288,657         | \$16,538,657         | 1.70        | 1.70        | 9.85%         |
| GSO Capital Opportunities Fund, L.P.               | 2007         | \$15,000,000         | \$927,607            | \$14,072,393                  | \$315,395          | \$23,843,932             | \$202,812            | \$24,046,744         | \$9,658,956          | 1.66        | 1.67        | 15.95%        |
| <b>Total Liquidating</b>                           |              | <b>\$42,915,830</b>  | <b>\$2,503,723</b>   | <b>\$40,412,108</b>           | <b>\$315,395</b>   | <b>\$72,759,648</b>      | <b>\$358,221</b>     | <b>\$73,117,868</b>  | <b>\$32,390,366</b>  | <b>1.79</b> | <b>1.80</b> | <b>12.41%</b> |
| <b>Completed</b>                                   |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| Anchorage Illiquid Opportunities II, L.P.          | 2010         | \$7,180,453          | \$0                  | \$7,180,453                   | \$0                | \$10,566,802             | \$0                  | \$10,566,802         | \$3,386,349          | 1.47        | 1.47        | 13.48%        |
| Audax Mezzanine Fund II, L.P.                      | 2006         | \$10,000,000         | \$0                  | \$10,000,000                  | \$2,016            | \$12,839,911             | \$0                  | \$12,839,911         | \$2,837,895          | 1.28        | 1.28        | 8.01%         |
| Golub Capital Investment Corp                      | 2015         | \$25,000,000         | \$0                  | \$25,000,000                  | \$0                | \$37,411,020             | \$0                  | \$37,411,020         | \$12,411,020         | 1.50        | 1.50        | 10.01%        |
| Golub Capital PEARLS Direct Lending Program, L.P.  | 2011         | \$8,583,466          | \$0                  | \$8,583,466                   | \$0                | \$11,262,394             | \$0                  | \$11,262,394         | \$2,678,928          | 1.31        | 1.31        | 6.60%         |
| GSO Credit Alpha Annex Fund, L.P.                  | 2016         | \$3,210,116          | \$0                  | \$3,210,116                   | \$0                | \$3,489,537              | \$0                  | \$3,489,537          | \$279,421            | 1.09        | 1.09        | 16.29%        |
| Northern Chasseral, LLC                            | 2014         | \$3,000,000          | \$0                  | \$3,000,000                   | \$0                | \$3,953,654              | \$0                  | \$3,953,654          | \$953,654            | 1.32        | 1.32        | 9.70%         |
| RCP Apex Syndication Partners, L.P.                | 2015         | \$2,500,000          | \$0                  | \$2,500,000                   | \$0                | \$2,790,219              | \$0                  | \$2,790,219          | \$290,219            | 1.12        | 1.12        | 12.30%        |
| RCP Deep Gulf Energy II Syndication Partners, L.P. | 2016         | \$1,442,609          | \$0                  | \$1,442,609                   | \$0                | \$2,362,824              | \$0                  | \$2,362,824          | \$920,215            | 1.64        | 1.64        | 25.18%        |
| RCP II HFG Syndication Partners, L.P.              | 2018         | \$965,000            | \$0                  | \$965,000                     | \$0                | \$1,270,661              | \$0                  | \$1,270,661          | \$305,661            | 1.32        | 1.32        | 15.39%        |
| RCP Renegade Syndication Partners, L.P.            | 2017         | \$1,000,000          | \$0                  | \$1,000,000                   | \$0                | \$1,096,230              | \$0                  | \$1,096,230          | \$96,230             | 1.10        | 1.10        | 13.67%        |
| RCP Swift Dog Syndication Partners, L.P.           | 2016         | \$967,030            | \$0                  | \$967,030                     | \$0                | \$1,337,273              | \$0                  | \$1,337,273          | \$370,243            | 1.38        | 1.38        | 16.85%        |
| RCP TPCG Syndication Partners, L.P.                | 2016         | \$1,000,000          | \$0                  | \$1,000,000                   | \$0                | \$1,475,716              | \$0                  | \$1,475,716          | \$475,716            | 1.48        | 1.48        | 19.58%        |
| Transperfect Global, Inc.                          | 2018         | \$980,000            | \$0                  | \$980,000                     | \$0                | \$1,116,992              | \$0                  | \$1,116,992          | \$136,992            | 1.14        | 1.14        | 12.92%        |
| <b>Total Completed</b>                             |              | <b>\$65,828,674</b>  | <b>\$0</b>           | <b>\$65,828,674</b>           | <b>\$2,016</b>     | <b>\$90,973,232</b>      | <b>\$0</b>           | <b>\$90,973,232</b>  | <b>\$25,142,543</b>  | <b>1.38</b> | <b>1.38</b> | <b>9.73%</b>  |
| <b>Open End</b>                                    |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| MGG SF Evergreen Fund, L.P.                        | 2018         | \$15,000,000         | \$429,890            | \$14,570,110                  | \$0                | \$2,818,516              | \$14,090,402         | \$16,908,918         | \$2,338,808          | 0.19        | 1.16        | 8.22%         |
| <b>Total Open End</b>                              |              | <b>\$15,000,000</b>  | <b>\$429,890</b>     | <b>\$14,570,110</b>           | <b>\$0</b>         | <b>\$2,818,516</b>       | <b>\$14,090,402</b>  | <b>\$16,908,918</b>  | <b>\$2,338,808</b>   | <b>0.19</b> | <b>1.16</b> | <b>8.22%</b>  |
| <b>Total</b>                                       |              | <b>\$592,864,000</b> | <b>\$159,833,789</b> | <b>\$433,030,211</b>          | <b>\$1,029,223</b> | <b>\$357,516,199</b>     | <b>\$228,585,843</b> | <b>\$586,102,042</b> | <b>\$152,042,607</b> | <b>0.82</b> | <b>1.35</b> | <b>11.29%</b> |



# MPERS

## ANALYSIS BY VINTAGE YEAR

| Investments   |              | Commitments         |                     | Contributions & Distributions |                  |                          | Valuations          |                     |                     | Performance |             |               |
|---|--------------|---------------------|---------------------|-------------------------------|------------------|--------------------------|---------------------|---------------------|---------------------|-------------|-------------|---------------|
| Investment Name                                     | Vintage Year | Commitment          | Unfunded Commitment | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation           | Total Value         | Net Benefit         | DPI         | TVPI        | IRR           |
| <b>2006</b>   |              |                     |                     |                               |                  |                          |                     |                     |                     |             |             |               |
| Audax Mezzanine Fund II, L.P.                       | 2006         | \$10,000,000        | \$0                 | \$10,000,000                  | \$2,016          | \$12,839,911             | \$0                 | \$12,839,911        | \$2,837,895         | 1.28        | 1.28        | 8.01%         |
| <b>Total 2006</b>                                   |              | <b>\$10,000,000</b> | <b>\$0</b>          | <b>\$10,000,000</b>           | <b>\$2,016</b>   | <b>\$12,839,911</b>      | <b>\$0</b>          | <b>\$12,839,911</b> | <b>\$2,837,895</b>  | <b>1.28</b> | <b>1.28</b> | <b>8.01%</b>  |
| <b>2007</b>   |              |                     |                     |                               |                  |                          |                     |                     |                     |             |             |               |
| CVI Global Value Fund A, L.P.                       | 2007         | \$25,000,000        | \$1,250,000         | \$23,750,000                  | \$0              | \$40,256,587             | \$32,070            | \$40,288,657        | \$16,538,657        | 1.70        | 1.70        | 9.85%         |
| GSO Capital Opportunities Fund, L.P.                | 2007         | \$15,000,000        | \$927,607           | \$14,072,393                  | \$315,395        | \$23,843,932             | \$202,812           | \$24,046,744        | \$9,658,956         | 1.66        | 1.67        | 15.95%        |
| <b>Total 2007</b>                                   |              | <b>\$40,000,000</b> | <b>\$2,177,607</b>  | <b>\$37,822,393</b>           | <b>\$315,395</b> | <b>\$64,100,519</b>      | <b>\$234,882</b>    | <b>\$64,335,401</b> | <b>\$26,197,613</b> | <b>1.68</b> | <b>1.69</b> | <b>11.45%</b> |
| <b>2008</b>   |              |                     |                     |                               |                  |                          |                     |                     |                     |             |             |               |
| ABRY Advanced Securities Fund, L.P.                 | 2008         | \$2,915,830         | \$326,116           | \$2,589,715                   | \$0              | \$8,659,129              | \$123,339           | \$8,782,467         | \$6,192,753         | 3.34        | 3.39        | 19.36%        |
| <b>Total 2008</b>                                   |              | <b>\$2,915,830</b>  | <b>\$326,116</b>    | <b>\$2,589,715</b>            | <b>\$0</b>       | <b>\$8,659,129</b>       | <b>\$123,339</b>    | <b>\$8,782,467</b>  | <b>\$6,192,753</b>  | <b>3.34</b> | <b>3.39</b> | <b>19.36%</b> |
| <b>2010</b>   |              |                     |                     |                               |                  |                          |                     |                     |                     |             |             |               |
| Anchorage Illiquid Opportunities II, L.P.           | 2010         | \$7,180,453         | \$0                 | \$7,180,453                   | \$0              | \$10,566,802             | \$0                 | \$10,566,802        | \$3,386,349         | 1.47        | 1.47        | 13.48%        |
| CarVal Credit Value Fund, L.P.                      | 2010         | \$10,000,000        | \$500,000           | \$9,500,000                   | \$0              | \$24,913,981             | \$205,734           | \$25,119,715        | \$15,619,715        | 2.62        | 2.64        | 23.89%        |
| <b>Total 2010</b>                                   |              | <b>\$17,180,453</b> | <b>\$500,000</b>    | <b>\$16,680,453</b>           | <b>\$0</b>       | <b>\$35,480,783</b>      | <b>\$205,734</b>    | <b>\$35,686,517</b> | <b>\$19,006,065</b> | <b>2.13</b> | <b>2.14</b> | <b>20.45%</b> |
| <b>2011</b>   |              |                     |                     |                               |                  |                          |                     |                     |                     |             |             |               |
| Golub Capital PEARLS Direct Lending Program, L.P.   | 2011         | \$8,583,466         | \$0                 | \$8,583,466                   | \$0              | \$11,262,394             | \$0                 | \$11,262,394        | \$2,678,928         | 1.31        | 1.31        | 6.60%         |
| <b>Total 2011</b>                                   |              | <b>\$8,583,466</b>  | <b>\$0</b>          | <b>\$8,583,466</b>            | <b>\$0</b>       | <b>\$11,262,394</b>      | <b>\$0</b>          | <b>\$11,262,394</b> | <b>\$2,678,928</b>  | <b>1.31</b> | <b>1.31</b> | <b>6.60%</b>  |
| <b>2012</b>   |              |                     |                     |                               |                  |                          |                     |                     |                     |             |             |               |
| Anchorage Illiquid Opportunities Offshore III, L.P. | 2012         | \$9,654,154         | \$0                 | \$9,654,154                   | \$2,187          | \$13,134,189             | \$642,110           | \$13,776,299        | \$4,119,958         | 1.36        | 1.43        | 10.80%        |
| GSO Capital Opportunities Fund II, L.P.             | 2012         | \$9,931,320         | \$2,518,116         | \$7,413,204                   | \$19,977         | \$8,089,660              | \$1,979,288         | \$10,068,948        | \$2,635,767         | 1.09        | 1.35        | 9.53%         |
| OZ Structured Products Domestic Partners II, L.P.   | 2012         | \$10,000,000        | \$0                 | \$10,000,000                  | \$0              | \$16,401,885             | \$448,043           | \$16,849,928        | \$6,849,928         | 1.64        | 1.68        | 14.13%        |
| <b>Total 2012</b>                                   |              | <b>\$29,585,474</b> | <b>\$2,518,116</b>  | <b>\$27,067,358</b>           | <b>\$22,164</b>  | <b>\$37,625,734</b>      | <b>\$3,069,441</b>  | <b>\$40,695,175</b> | <b>\$13,605,653</b> | <b>1.39</b> | <b>1.50</b> | <b>12.01%</b> |
| <b>2013</b>   |              |                     |                     |                               |                  |                          |                     |                     |                     |             |             |               |
| M&G Real Estate Debt Fund III, L.P.                 | 2013         | \$9,718,591         | \$1,267,693         | \$8,450,898                   | \$0              | \$7,669,747              | \$1,444,906         | \$9,114,653         | \$663,755           | 0.91        | 1.08        | 2.41%         |
| Orchard Landmark, L.P.                              | 2013         | \$15,000,000        | \$0                 | \$15,000,000                  | \$0              | \$4,524,913              | \$19,997,822        | \$24,522,735        | \$9,522,735         | 0.30        | 1.63        | 9.99%         |
| <b>Total 2013</b>                                   |              | <b>\$24,718,591</b> | <b>\$1,267,693</b>  | <b>\$23,450,898</b>           | <b>\$0</b>       | <b>\$12,194,660</b>      | <b>\$21,442,729</b> | <b>\$33,637,389</b> | <b>\$10,186,490</b> | <b>0.52</b> | <b>1.43</b> | <b>8.29%</b>  |
| <b>2014</b>   |              |                     |                     |                               |                  |                          |                     |                     |                     |             |             |               |
| GSO Credit Alpha Fund, L.P.                         | 2014         | \$25,000,000        | \$9,477,517         | \$15,522,483                  | \$0              | \$10,653,703             | \$9,336,704         | \$19,990,407        | \$4,467,924         | 0.69        | 1.29        | 6.84%         |
| Northern Chasseral, LLC                             | 2014         | \$3,000,000         | \$0                 | \$3,000,000                   | \$0              | \$3,953,654              | \$0                 | \$3,953,654         | \$953,654           | 1.32        | 1.32        | 9.70%         |
| Northern Shipping Fund II, LLC                      | 2014         | \$20,000,000        | \$2,863,168         | \$17,136,832                  | \$0              | \$17,358,467             | \$3,117,268         | \$20,475,735        | \$3,338,903         | 1.01        | 1.19        | 7.61%         |
| <b>Total 2014</b>                                   |              | <b>\$48,000,000</b> | <b>\$12,340,685</b> | <b>\$35,659,315</b>           | <b>\$0</b>       | <b>\$31,965,824</b>      | <b>\$12,453,972</b> | <b>\$44,419,796</b> | <b>\$8,760,481</b>  | <b>0.90</b> | <b>1.25</b> | <b>7.38%</b>  |



**MPERS**

# ANALYSIS BY VINTAGE YEAR

| Investments  |              | Commitments          |                     | Contributions & Distributions |                  |                          | Valuations          |                      |                     | Performance |             |               |
|--|--------------|----------------------|---------------------|-------------------------------|------------------|--------------------------|---------------------|----------------------|---------------------|-------------|-------------|---------------|
| Investment Name                                    | Vintage Year | Commitment           | Unfunded Commitment | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation           | Total Value          | Net Benefit         | DPI         | TVPI        | IRR           |
| <b>2015</b>  |              |                      |                     |                               |                  |                          |                     |                      |                     |             |             |               |
| Anchorage Illiquid Opportunities Fund V, L.P.      | 2015         | \$15,000,000         | \$1,425,000         | \$13,575,000                  | \$0              | \$2,993,712              | \$15,148,954        | \$18,142,666         | \$4,567,666         | 0.22        | 1.34        | 8.78%         |
| CarVal Credit Value Fund III, L.P.                 | 2015         | \$15,000,000         | \$750,000           | \$14,250,000                  | \$0              | \$12,014,669             | \$6,132,538         | \$18,147,207         | \$3,897,207         | 0.84        | 1.27        | 7.84%         |
| Golub Capital Investment Corp                      | 2015         | \$25,000,000         | \$0                 | \$25,000,000                  | \$0              | \$37,411,020             | \$0                 | \$37,411,020         | \$12,411,020        | 1.50        | 1.50        | 10.01%        |
| GSO Energy Select Opportunities Fund, L.P.         | 2015         | \$10,000,000         | \$4,647,491         | \$5,352,509                   | \$23,426         | \$2,149,642              | \$3,956,378         | \$6,106,020          | \$730,085           | 0.40        | 1.14        | 4.25%         |
| Kamsarmax Shipping, LLC                            | 2015         | \$2,000,000          | \$0                 | \$2,000,000                   | \$0              | \$1,886,237              | \$653,185           | \$2,539,422          | \$539,422           | 0.94        | 1.27        | 9.50%         |
| RCP Apex Syndication Partners, L.P.                | 2015         | \$2,500,000          | \$0                 | \$2,500,000                   | \$0              | \$2,790,219              | \$0                 | \$2,790,219          | \$290,219           | 1.12        | 1.12        | 12.30%        |
| Riverstone Credit Partners, L.P.                   | 2015         | \$12,500,000         | \$642,867           | \$11,857,133                  | -\$91,804        | \$8,338,116              | \$5,346,076         | \$13,684,192         | \$1,918,863         | 0.71        | 1.16        | 5.51%         |
| <b>Total 2015</b>                                  |              | <b>\$82,000,000</b>  | <b>\$7,465,358</b>  | <b>\$74,534,642</b>           | <b>-\$68,378</b> | <b>\$67,583,614</b>      | <b>\$31,237,131</b> | <b>\$98,820,745</b>  | <b>\$24,354,481</b> | <b>0.91</b> | <b>1.33</b> | <b>8.59%</b>  |
| <b>2016</b>  |              |                      |                     |                               |                  |                          |                     |                      |                     |             |             |               |
| GSO Capital Opportunities Fund III, L.P.           | 2016         | \$20,000,000         | \$6,348,409         | \$13,651,591                  | -\$1,691         | \$3,322,293              | \$13,175,965        | \$16,498,258         | \$2,848,358         | 0.24        | 1.21        | 9.68%         |
| GSO Credit Alpha Annex Fund, L.P.                  | 2016         | \$3,210,116          | \$0                 | \$3,210,116                   | \$0              | \$3,489,537              | \$0                 | \$3,489,537          | \$279,421           | 1.09        | 1.09        | 16.29%        |
| Longford Capital Fund II, L.P.                     | 2016         | \$20,000,000         | \$8,000,000         | \$12,000,000                  | -\$79,233        | \$4,703,539              | \$9,420,227         | \$14,123,766         | \$2,202,999         | 0.39        | 1.18        | 11.92%        |
| Northern Shipping Fund III, L.P.                   | 2016         | \$15,000,000         | \$463,279           | \$14,536,721                  | -\$103,898       | \$8,444,171              | \$9,176,245         | \$17,620,416         | \$3,187,593         | 0.59        | 1.22        | 7.94%         |
| Orchard Landmark II (US), L.P.                     | 2016         | \$5,780,545          | \$0                 | \$5,780,545                   | -\$7,234         | \$1,439,855              | \$7,343,746         | \$8,783,601          | \$3,010,290         | 0.25        | 1.52        | 15.20%        |
| Owl Rock Alternatives                              | 2016         | \$20,000,000         | \$0                 | \$20,000,000                  | \$0              | \$22,445,139             | \$0                 | \$22,445,139         | \$2,445,139         | 1.12        | 1.12        | 7.12%         |
| RCP Deep Gulf Energy II Syndication Partners, L.P. | 2016         | \$1,442,609          | \$0                 | \$1,442,609                   | \$0              | \$2,362,824              | \$0                 | \$2,362,824          | \$920,215           | 1.64        | 1.64        | 25.18%        |
| RCP Swift Dog Syndication Partners, L.P.           | 2016         | \$967,030            | \$0                 | \$967,030                     | \$0              | \$1,337,273              | \$0                 | \$1,337,273          | \$370,243           | 1.38        | 1.38        | 16.85%        |
| RCP TPCG Syndication Partners, L.P.                | 2016         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0              | \$1,475,716              | \$0                 | \$1,475,716          | \$475,716           | 1.48        | 1.48        | 19.58%        |
| Siguler Guff Secondary Opportunities Fund, L.P.    | 2016         | \$20,000,000         | \$8,000,079         | \$11,999,921                  | \$100,018        | \$17,109,266             | \$5,503             | \$17,114,770         | \$5,014,831         | 1.41        | 1.41        | 49.06%        |
| <b>Total 2016</b>                                  |              | <b>\$107,400,300</b> | <b>\$22,811,768</b> | <b>\$84,588,533</b>           | <b>-\$92,038</b> | <b>\$66,129,613</b>      | <b>\$39,121,686</b> | <b>\$105,251,299</b> | <b>\$20,754,805</b> | <b>0.78</b> | <b>1.25</b> | <b>13.23%</b> |
| <b>2017</b>  |              |                      |                     |                               |                  |                          |                     |                      |                     |             |             |               |
| RCP Apex II Syndication Partners, L.P.             | 2017         | \$2,500,000          | \$0                 | \$2,500,000                   | \$0              | \$678,582                | \$1,800,106         | \$2,478,688          | -\$21,312           | 0.27        | 0.99        | -0.29%        |
| RCP Fairway Syndication Partners, L.P.             | 2017         | \$1,000,000          | \$31,616            | \$968,384                     | \$0              | \$69,068                 | \$979,918           | \$1,048,986          | \$80,602            | 0.07        | 1.08        | 2.50%         |
| RCP Renegade Syndication Partners, L.P.            | 2017         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0              | \$1,096,230              | \$0                 | \$1,096,230          | \$96,230            | 1.10        | 1.10        | 13.67%        |
| Riverstone Credit Partners II, L.P.                | 2017         | \$15,000,000         | \$3,619,495         | \$11,380,505                  | \$53,982         | \$1,614,270              | \$10,232,473        | \$11,846,743         | \$412,256           | 0.14        | 1.04        | 1.97%         |
| <b>Total 2017</b>                                  |              | <b>\$19,500,000</b>  | <b>\$3,651,111</b>  | <b>\$15,848,889</b>           | <b>\$53,982</b>  | <b>\$3,458,149</b>       | <b>\$13,012,497</b> | <b>\$16,470,646</b>  | <b>\$567,775</b>    | <b>0.22</b> | <b>1.04</b> | <b>1.77%</b>  |
| <b>2018</b>  |              |                      |                     |                               |                  |                          |                     |                      |                     |             |             |               |
| GSO Energy Select Opportunities Fund II L.P.       | 2018         | \$10,000,000         | \$9,314,818         | \$685,182                     | -\$191           | \$117,695                | \$820,148           | \$937,843            | \$252,852           | 0.17        | 1.37        | 22.75%        |
| MGG SF Evergreen Fund, L.P.                        | 2018         | \$15,000,000         | \$429,890           | \$14,570,110                  | \$0              | \$2,818,516              | \$14,090,402        | \$16,908,918         | \$2,338,808         | 0.19        | 1.16        | 8.22%         |
| Miravast ILS Credit Opportunities, L.P.            | 2018         | \$20,000,000         | \$9,761,387         | \$10,238,613                  | \$857,701        | \$0                      | \$11,964,079        | \$11,964,079         | \$867,765           | 0.00        | 1.08        | 3.31%         |
| Owl Rock Tech Mgmt.                                | 2018         | \$78,067             | \$0                 | \$78,067                      | \$0              | \$6,747                  | \$1,933,333         | \$1,940,080          | \$1,862,013         | 0.09        | 24.85       | 501.21%       |



## MPERS

# ANALYSIS BY VINTAGE YEAR

| Investments  |              | Commitments          |                      | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |                |
|--|--------------|----------------------|----------------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|----------------|
| Investment Name                                      | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR            |
| Owl Rock Technology Finance Corp.                    | 2018         | \$10,000,000         | \$2,031,830          | \$7,968,170                   | \$0                | \$690,807                | \$8,011,815          | \$8,702,622          | \$734,452            | 0.09        | 1.09        | 4.03%          |
| RCP II HFG Syndication Partners, L.P.                | 2018         | \$965,000            | \$0                  | \$965,000                     | \$0                | \$1,270,661              | \$0                  | \$1,270,661          | \$305,661            | 1.32        | 1.32        | 15.39%         |
| RCP II Seawolf Syndication Partners, L.P.            | 2018         | \$956,818            | \$0                  | \$956,818                     | \$0                | \$194,452                | \$497,155            | \$691,607            | -\$265,211           | 0.20        | 0.72        | -16.22%        |
| Transperfect Global, Inc.                            | 2018         | \$980,000            | \$0                  | \$980,000                     | \$0                | \$1,116,992              | \$0                  | \$1,116,992          | \$136,992            | 1.14        | 1.14        | 12.92%         |
| Varde Asia Credit Fund, L.P.                         | 2018         | \$15,000,000         | \$3,365,381          | \$11,634,619                  | -\$63,540          | \$0                      | \$12,617,250         | \$12,617,250         | \$1,046,171          | 0.00        | 1.09        | 8.01%          |
| <b>Total 2018</b>                                    |              | <b>\$72,979,885</b>  | <b>\$24,903,306</b>  | <b>\$48,076,579</b>           | <b>\$793,970</b>   | <b>\$6,215,870</b>       | <b>\$49,934,183</b>  | <b>\$56,150,053</b>  | <b>\$7,279,504</b>   | <b>0.13</b> | <b>1.15</b> | <b>7.82%</b>   |
| <b>2019</b>  |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |                |
| Anchorage Structured Credit Fund, L.P.               | 2019         | \$15,000,000         | \$0                  | \$15,000,000                  | -\$1,783           | \$0                      | \$18,813,766         | \$18,813,766         | \$3,815,549          | 0.00        | 1.25        | 24.99%         |
| Banner Ridge Secondary Fund III (TE), L.P.           | 2019         | \$22,500,000         | \$9,623,472          | \$12,876,528                  | \$3,331            | \$0                      | \$14,715,065         | \$14,715,065         | \$1,835,206          | 0.00        | 1.14        | 36.86%         |
| Banner Ridge Secondary Fund III Co, L.P.             | 2019         | \$7,500,000          | \$3,882,300          | \$3,617,700                   | \$763              | \$0                      | \$3,745,218          | \$3,745,218          | \$126,755            | 0.00        | 1.04        | 9.39%          |
| Francisco Credit Partners Fund I, L.P.               | 2019         | \$15,000,000         | \$12,510,000         | \$2,490,000                   | -\$198             | \$0                      | \$3,258,705          | \$3,258,705          | \$768,903            | 0.00        | 1.31        | 42.99%         |
| Silver Point Distressed Opportunity Fund, L.P.       | 2019         | \$25,000,000         | \$13,106,257         | \$11,893,743                  | \$0                | \$0                      | \$15,209,862         | \$15,209,862         | \$3,316,119          | 0.00        | 1.28        | 43.37%         |
| <b>Total 2019</b>                                    |              | <b>\$85,000,000</b>  | <b>\$39,122,029</b>  | <b>\$45,877,971</b>           | <b>\$2,113</b>     | <b>\$0</b>               | <b>\$55,742,616</b>  | <b>\$55,742,616</b>  | <b>\$9,862,532</b>   | <b>0.00</b> | <b>1.21</b> | <b>32.08%</b>  |
| <b>2020</b>  |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |                |
| Fortress Credit Opportunities Fund V Expansion, L.P. | 2020         | \$25,000,000         | \$23,750,000         | \$1,250,000                   | \$0                | \$0                      | \$1,229,469          | \$1,229,469          | -\$20,531            | 0.00        | 0.98        | -1.64%         |
| Longford Capital Fund III, L.P.                      | 2020         | \$20,000,000         | \$19,000,000         | \$1,000,000                   | \$0                | \$0                      | \$778,164            | \$778,164            | -\$221,836           | 0.00        | 0.78        | -22.18%        |
| <b>Total 2020</b>                                    |              | <b>\$45,000,000</b>  | <b>\$42,750,000</b>  | <b>\$2,250,000</b>            | <b>\$0</b>         | <b>\$0</b>               | <b>\$2,007,633</b>   | <b>\$2,007,633</b>   | <b>-\$242,367</b>    | <b>0.00</b> | <b>0.89</b> | <b>-22.61%</b> |
| <b>Total</b>   |              | <b>\$592,864,000</b> | <b>\$159,833,789</b> | <b>\$433,030,211</b>          | <b>\$1,029,223</b> | <b>\$357,516,199</b>     | <b>\$228,585,843</b> | <b>\$586,102,042</b> | <b>\$152,042,607</b> | <b>0.82</b> | <b>1.35</b> | <b>11.29%</b>  |



**MPERS**

# ANALYSIS BY INVESTMENT STRATEGY

| Investments  |              | Commitments          |                     | Contributions & Distributions |                   |                          | Valuations          |                      |                     | Performance |             |               |
|--|--------------|----------------------|---------------------|-------------------------------|-------------------|--------------------------|---------------------|----------------------|---------------------|-------------|-------------|---------------|
| Investment Name                                      | Vintage Year | Commitment           | Unfunded Commitment | Paid In Capital               | Additional Fees   | Cumulative Distributions | Valuation           | Total Value          | Net Benefit         | DPI         | TVPI        | IRR           |
| <b>Credit Opportunities</b>                          |              |                      |                     |                               |                   |                          |                     |                      |                     |             |             |               |
| Anchorage Structured Credit Fund, L.P.               | 2019         | \$15,000,000         | \$0                 | \$15,000,000                  | -\$1,783          | \$0                      | \$18,813,766        | \$18,813,766         | \$3,815,549         | 0.00        | 1.25        | 24.99%        |
| Fortress Credit Opportunities Fund V Expansion, L.P. | 2020         | \$25,000,000         | \$23,750,000        | \$1,250,000                   | \$0               | \$0                      | \$1,229,469         | \$1,229,469          | -\$20,531           | 0.00        | 0.98        | -1.64%        |
| Francisco Credit Partners Fund I, L.P.               | 2019         | \$15,000,000         | \$12,510,000        | \$2,490,000                   | -\$198            | \$0                      | \$3,258,705         | \$3,258,705          | \$768,903           | 0.00        | 1.31        | 42.99%        |
| Miravast ILS Credit Opportunities, L.P.              | 2018         | \$20,000,000         | \$9,761,387         | \$10,238,613                  | \$857,701         | \$0                      | \$11,964,079        | \$11,964,079         | \$867,765           | 0.00        | 1.08        | 3.31%         |
| Orchard Landmark II (US), L.P.                       | 2016         | \$5,780,545          | \$0                 | \$5,780,545                   | -\$7,234          | \$1,439,855              | \$7,343,746         | \$8,783,601          | \$3,010,290         | 0.25        | 1.52        | 15.20%        |
| Orchard Landmark, L.P.                               | 2013         | \$15,000,000         | \$0                 | \$15,000,000                  | \$0               | \$4,524,913              | \$19,997,822        | \$24,522,735         | \$9,522,735         | 0.30        | 1.63        | 9.99%         |
| OZ Structured Products Domestic Partners II, L.P.    | 2012         | \$10,000,000         | \$0                 | \$10,000,000                  | \$0               | \$16,401,885             | \$448,043           | \$16,849,928         | \$6,849,928         | 1.64        | 1.68        | 14.13%        |
| <b>Total Credit Opportunities</b>                    |              | <b>\$105,780,545</b> | <b>\$46,021,387</b> | <b>\$59,759,158</b>           | <b>\$848,486</b>  | <b>\$22,366,653</b>      | <b>\$63,055,630</b> | <b>\$85,422,283</b>  | <b>\$24,814,639</b> | <b>0.37</b> | <b>1.41</b> | <b>12.02%</b> |
| <b>Direct Lending</b>                                |              |                      |                     |                               |                   |                          |                     |                      |                     |             |             |               |
| ABRY Advanced Securities Fund, L.P.                  | 2008         | \$2,915,830          | \$326,116           | \$2,589,715                   | \$0               | \$8,659,129              | \$123,339           | \$8,782,467          | \$6,192,753         | 3.34        | 3.39        | 19.36%        |
| Golub Capital Investment Corp                        | 2015         | \$25,000,000         | \$0                 | \$25,000,000                  | \$0               | \$37,411,020             | \$0                 | \$37,411,020         | \$12,411,020        | 1.50        | 1.50        | 10.01%        |
| Golub Capital PEARLS Direct Lending Program, L.P.    | 2011         | \$8,583,466          | \$0                 | \$8,583,466                   | \$0               | \$11,262,394             | \$0                 | \$11,262,394         | \$2,678,928         | 1.31        | 1.31        | 6.60%         |
| GSO Credit Alpha Annex Fund, L.P.                    | 2016         | \$3,210,116          | \$0                 | \$3,210,116                   | \$0               | \$3,489,537              | \$0                 | \$3,489,537          | \$279,421           | 1.09        | 1.09        | 16.29%        |
| GSO Energy Select Opportunities Fund II L.P.         | 2018         | \$10,000,000         | \$9,314,818         | \$685,182                     | -\$191            | \$117,695                | \$820,148           | \$937,843            | \$252,852           | 0.17        | 1.37        | 22.75%        |
| GSO Energy Select Opportunities Fund, L.P.           | 2015         | \$10,000,000         | \$4,647,491         | \$5,352,509                   | \$23,426          | \$2,149,642              | \$3,956,378         | \$6,106,020          | \$730,085           | 0.40        | 1.14        | 4.25%         |
| Kamsarmax Shipping, LLC                              | 2015         | \$2,000,000          | \$0                 | \$2,000,000                   | \$0               | \$1,886,237              | \$653,185           | \$2,539,422          | \$539,422           | 0.94        | 1.27        | 9.50%         |
| MGG SF Evergreen Fund, L.P.                          | 2018         | \$15,000,000         | \$429,890           | \$14,570,110                  | \$0               | \$2,818,516              | \$14,090,402        | \$16,908,918         | \$2,338,808         | 0.19        | 1.16        | 8.22%         |
| Northern Chasseral, LLC                              | 2014         | \$3,000,000          | \$0                 | \$3,000,000                   | \$0               | \$3,953,654              | \$0                 | \$3,953,654          | \$953,654           | 1.32        | 1.32        | 9.70%         |
| Northern Shipping Fund II, LLC                       | 2014         | \$20,000,000         | \$2,863,168         | \$17,136,832                  | \$0               | \$17,358,467             | \$3,117,268         | \$20,475,735         | \$3,338,903         | 1.01        | 1.19        | 7.61%         |
| Northern Shipping Fund III, L.P.                     | 2016         | \$15,000,000         | \$463,279           | \$14,536,721                  | -\$103,898        | \$8,444,171              | \$9,176,245         | \$17,620,416         | \$3,187,593         | 0.59        | 1.22        | 7.94%         |
| Owl Rock Alternatives                                | 2016         | \$20,000,000         | \$0                 | \$20,000,000                  | \$0               | \$22,445,139             | \$0                 | \$22,445,139         | \$2,445,139         | 1.12        | 1.12        | 7.12%         |
| Owl Rock Tech Mgmt.                                  | 2018         | \$78,067             | \$0                 | \$78,067                      | \$0               | \$6,747                  | \$1,933,333         | \$1,940,080          | \$1,862,013         | 0.09        | 24.85       | 501.21%       |
| Owl Rock Technology Finance Corp.                    | 2018         | \$10,000,000         | \$2,031,830         | \$7,968,170                   | \$0               | \$690,807                | \$8,011,815         | \$8,702,622          | \$734,452           | 0.09        | 1.09        | 4.03%         |
| RCP Deep Gulf Energy II Syndication Partners, L.P.   | 2016         | \$1,442,609          | \$0                 | \$1,442,609                   | \$0               | \$2,362,824              | \$0                 | \$2,362,824          | \$920,215           | 1.64        | 1.64        | 25.18%        |
| RCP Fairway Syndication Partners, L.P.               | 2017         | \$1,000,000          | \$31,616            | \$968,384                     | \$0               | \$69,068                 | \$979,918           | \$1,048,986          | \$80,602            | 0.07        | 1.08        | 2.50%         |
| RCP II HFG Syndication Partners, L.P.                | 2018         | \$965,000            | \$0                 | \$965,000                     | \$0               | \$1,270,661              | \$0                 | \$1,270,661          | \$305,661           | 1.32        | 1.32        | 15.39%        |
| RCP II Seawolf Syndication Partners, L.P.            | 2018         | \$956,818            | \$0                 | \$956,818                     | \$0               | \$194,452                | \$497,155           | \$691,607            | -\$265,211          | 0.20        | 0.72        | -16.22%       |
| RCP Renegade Syndication Partners, L.P.              | 2017         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0               | \$1,096,230              | \$0                 | \$1,096,230          | \$96,230            | 1.10        | 1.10        | 13.67%        |
| RCP Swift Dog Syndication Partners, L.P.             | 2016         | \$967,030            | \$0                 | \$967,030                     | \$0               | \$1,337,273              | \$0                 | \$1,337,273          | \$370,243           | 1.38        | 1.38        | 16.85%        |
| RCP TPCG Syndication Partners, L.P.                  | 2016         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0               | \$1,475,716              | \$0                 | \$1,475,716          | \$475,716           | 1.48        | 1.48        | 19.58%        |
| Riverstone Credit Partners II, L.P.                  | 2017         | \$15,000,000         | \$3,619,495         | \$11,380,505                  | \$53,982          | \$1,614,270              | \$10,232,473        | \$11,846,743         | \$412,256           | 0.14        | 1.04        | 1.97%         |
| Riverstone Credit Partners, L.P.                     | 2015         | \$12,500,000         | \$642,867           | \$11,857,133                  | -\$91,804         | \$8,338,116              | \$5,346,076         | \$13,684,192         | \$1,918,863         | 0.71        | 1.16        | 5.51%         |
| Transperfect Global, Inc.                            | 2018         | \$980,000            | \$0                 | \$980,000                     | \$0               | \$1,116,992              | \$0                 | \$1,116,992          | \$136,992           | 1.14        | 1.14        | 12.92%        |
| <b>Total Direct Lending</b>                          |              | <b>\$180,598,936</b> | <b>\$24,370,571</b> | <b>\$156,228,366</b>          | <b>-\$118,485</b> | <b>\$139,568,754</b>     | <b>\$58,937,736</b> | <b>\$198,506,490</b> | <b>\$42,396,609</b> | <b>0.89</b> | <b>1.27</b> | <b>9.50%</b>  |





MPERS

# ANALYSIS BY INVESTMENT STRATEGY

| Investments   |              | Commitments          |                      | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |               |
|---|--------------|----------------------|----------------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|---------------|
| Investment Name                                     | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR           |
| <b>Distressed</b>                                   |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| Banner Ridge Secondary Fund III (TE), L.P.          | 2019         | \$22,500,000         | \$9,623,472          | \$12,876,528                  | \$3,331            | \$0                      | \$14,715,065         | \$14,715,065         | \$1,835,206          | 0.00        | 1.14        | 36.86%        |
| CarVal Credit Value Fund III, L.P.                  | 2015         | \$15,000,000         | \$750,000            | \$14,250,000                  | \$0                | \$12,014,669             | \$6,132,538          | \$18,147,207         | \$3,897,207          | 0.84        | 1.27        | 7.84%         |
| CarVal Credit Value Fund, L.P.                      | 2010         | \$10,000,000         | \$500,000            | \$9,500,000                   | \$0                | \$24,913,981             | \$205,734            | \$25,119,715         | \$15,619,715         | 2.62        | 2.64        | 23.89%        |
| CVI Global Value Fund A, L.P.                       | 2007         | \$25,000,000         | \$1,250,000          | \$23,750,000                  | \$0                | \$40,256,587             | \$32,070             | \$40,288,657         | \$16,538,657         | 1.70        | 1.70        | 9.85%         |
| GSO Credit Alpha Fund, L.P.                         | 2014         | \$25,000,000         | \$9,477,517          | \$15,522,483                  | \$0                | \$10,653,703             | \$9,336,704          | \$19,990,407         | \$4,467,924          | 0.69        | 1.29        | 6.84%         |
| Silver Point Distressed Opportunity Fund, L.P.      | 2019         | \$25,000,000         | \$13,106,257         | \$11,893,743                  | \$0                | \$0                      | \$15,209,862         | \$15,209,862         | \$3,316,119          | 0.00        | 1.28        | 43.37%        |
| Varde Asia Credit Fund, L.P.                        | 2018         | \$15,000,000         | \$3,365,381          | \$11,634,619                  | -\$63,540          | \$0                      | \$12,617,250         | \$12,617,250         | \$1,046,171          | 0.00        | 1.09        | 8.01%         |
| <b>Total Distressed</b>                             |              | <b>\$137,500,000</b> | <b>\$38,072,627</b>  | <b>\$99,427,373</b>           | <b>-\$60,209</b>   | <b>\$87,838,940</b>      | <b>\$58,249,223</b>  | <b>\$146,088,164</b> | <b>\$46,721,000</b>  | <b>0.88</b> | <b>1.47</b> | <b>12.16%</b> |
| <b>Fund of Funds</b>                                |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| Banner Ridge Secondary Fund III Co, L.P.            | 2019         | \$7,500,000          | \$3,882,300          | \$3,617,700                   | \$763              | \$0                      | \$3,745,218          | \$3,745,218          | \$126,755            | 0.00        | 1.04        | 9.39%         |
| Siguler Guff Secondary Opportunities Fund, L.P.     | 2016         | \$20,000,000         | \$8,000,079          | \$11,999,921                  | \$100,018          | \$17,109,266             | \$5,503              | \$17,114,770         | \$5,014,831          | 1.41        | 1.41        | 49.06%        |
| <b>Total Fund of Funds</b>                          |              | <b>\$27,500,000</b>  | <b>\$11,882,379</b>  | <b>\$15,617,621</b>           | <b>\$100,781</b>   | <b>\$17,109,266</b>      | <b>\$3,750,721</b>   | <b>\$20,859,988</b>  | <b>\$5,141,586</b>   | <b>1.09</b> | <b>1.33</b> | <b>47.32%</b> |
| <b>Mezzanine</b>                                    |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| Audax Mezzanine Fund II, L.P.                       | 2006         | \$10,000,000         | \$0                  | \$10,000,000                  | \$2,016            | \$12,839,911             | \$0                  | \$12,839,911         | \$2,837,895          | 1.28        | 1.28        | 8.01%         |
| GSO Capital Opportunities Fund II, L.P.             | 2012         | \$9,931,320          | \$2,518,116          | \$7,413,204                   | \$19,977           | \$8,089,660              | \$1,979,288          | \$10,068,948         | \$2,635,767          | 1.09        | 1.35        | 9.53%         |
| GSO Capital Opportunities Fund III, L.P.            | 2016         | \$20,000,000         | \$6,348,409          | \$13,651,591                  | -\$1,691           | \$3,322,293              | \$13,175,965         | \$16,498,258         | \$2,848,358          | 0.24        | 1.21        | 9.68%         |
| GSO Capital Opportunities Fund, L.P.                | 2007         | \$15,000,000         | \$927,607            | \$14,072,393                  | \$315,395          | \$23,843,932             | \$202,812            | \$24,046,744         | \$9,658,956          | 1.66        | 1.67        | 15.95%        |
| Longford Capital Fund II, L.P.                      | 2016         | \$20,000,000         | \$8,000,000          | \$12,000,000                  | -\$79,233          | \$4,703,539              | \$9,420,227          | \$14,123,766         | \$2,202,999          | 0.39        | 1.18        | 11.92%        |
| Longford Capital Fund III, L.P.                     | 2020         | \$20,000,000         | \$19,000,000         | \$1,000,000                   | \$0                | \$0                      | \$778,164            | \$778,164            | -\$221,836           | 0.00        | 0.78        | -22.18%       |
| RCP Apex II Syndication Partners, L.P.              | 2017         | \$2,500,000          | \$0                  | \$2,500,000                   | \$0                | \$678,582                | \$1,800,106          | \$2,478,688          | -\$21,312            | 0.27        | 0.99        | -0.29%        |
| RCP Apex Syndication Partners, L.P.                 | 2015         | \$2,500,000          | \$0                  | \$2,500,000                   | \$0                | \$2,790,219              | \$0                  | \$2,790,219          | \$290,219            | 1.12        | 1.12        | 12.30%        |
| <b>Total Mezzanine</b>                              |              | <b>\$99,931,320</b>  | <b>\$36,794,132</b>  | <b>\$63,137,188</b>           | <b>\$256,464</b>   | <b>\$56,268,136</b>      | <b>\$27,356,562</b>  | <b>\$83,624,698</b>  | <b>\$20,231,046</b>  | <b>0.89</b> | <b>1.32</b> | <b>11.74%</b> |
| <b>Other/Diversified</b>                            |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| M&G Real Estate Debt Fund III, L.P.                 | 2013         | \$9,718,591          | \$1,267,693          | \$8,450,898                   | \$0                | \$7,669,747              | \$1,444,906          | \$9,114,653          | \$663,755            | 0.91        | 1.08        | 2.41%         |
| <b>Total Other/Diversified</b>                      |              | <b>\$9,718,591</b>   | <b>\$1,267,693</b>   | <b>\$8,450,898</b>            | <b>\$0</b>         | <b>\$7,669,747</b>       | <b>\$1,444,906</b>   | <b>\$9,114,653</b>   | <b>\$663,755</b>     | <b>0.91</b> | <b>1.08</b> | <b>2.41%</b>  |
| <b>Special Situations</b>                           |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| Anchorage Illiquid Opportunities Fund V, L.P.       | 2015         | \$15,000,000         | \$1,425,000          | \$13,575,000                  | \$0                | \$2,993,712              | \$15,148,954         | \$18,142,666         | \$4,567,666          | 0.22        | 1.34        | 8.78%         |
| Anchorage Illiquid Opportunities II, L.P.           | 2010         | \$7,180,453          | \$0                  | \$7,180,453                   | \$0                | \$10,566,802             | \$0                  | \$10,566,802         | \$3,386,349          | 1.47        | 1.47        | 13.48%        |
| Anchorage Illiquid Opportunities Offshore III, L.P. | 2012         | \$9,654,154          | \$0                  | \$9,654,154                   | \$2,187            | \$13,134,189             | \$642,110            | \$13,776,299         | \$4,119,958          | 1.36        | 1.43        | 10.80%        |
| <b>Total Special Situations</b>                     |              | <b>\$31,834,607</b>  | <b>\$1,425,000</b>   | <b>\$30,409,607</b>           | <b>\$2,187</b>     | <b>\$26,694,702</b>      | <b>\$15,791,064</b>  | <b>\$42,485,766</b>  | <b>\$12,073,973</b>  | <b>0.88</b> | <b>1.40</b> | <b>10.93%</b> |
| <b>Total</b>  |              | <b>\$592,864,000</b> | <b>\$159,833,789</b> | <b>\$433,030,211</b>          | <b>\$1,029,223</b> | <b>\$357,516,199</b>     | <b>\$228,585,843</b> | <b>\$586,102,042</b> | <b>\$152,042,607</b> | <b>0.82</b> | <b>1.35</b> | <b>11.29%</b> |



## MPERS

# QUARTERLY TRANSACTION SUMMARY

| Fund Name  | Date       | Capital Call     | Distribution      | Net Cash Flow    |
|--|------------|------------------|-------------------|------------------|
| Anchorage Illiquid Opportunities Fund V, L.P.                      | 12/31/2020 |                  | -663,286          | -663,286         |
| <b>Total: Anchorage Illiquid Opportunities Fund V, L.P.</b>        |            |                  | <b>-663,286</b>   | <b>-663,286</b>  |
| Banner Ridge Secondary Fund III (TE), L.P.                         | 10/31/2020 | 571,726          |                   | 571,726          |
|  | 12/31/2020 | 5,992,590        |                   | 5,992,590        |
| <b>Total: Banner Ridge Secondary Fund III (TE), L.P.</b>           |            | <b>6,564,316</b> |                   | <b>6,564,316</b> |
| Banner Ridge Secondary Fund III Co, L.P.                           | 12/31/2020 | 2,172,088        |                   | 2,172,088        |
| <b>Total: Banner Ridge Secondary Fund III Co, L.P.</b>             |            | <b>2,172,088</b> |                   | <b>2,172,088</b> |
| CarVal Credit Value Fund III, L.P.                                 | 12/31/2020 |                  | -250,039          | -250,039         |
| <b>Total: CarVal Credit Value Fund III, L.P.</b>                   |            |                  | <b>-250,039</b>   | <b>-250,039</b>  |
| CVI Global Value Fund A, L.P.                                      | 12/31/2020 |                  | -40,264           | -40,264          |
| <b>Total: CVI Global Value Fund A, L.P.</b>                        |            |                  | <b>-40,264</b>    | <b>-40,264</b>   |
| Fortress Credit Opportunities Fund V Expansion, L.P.               | 12/31/2020 | 1,250,000        |                   | 1,250,000        |
| <b>Total: Fortress Credit Opportunities Fund V Expansion, L.P.</b> |            | <b>1,250,000</b> |                   | <b>1,250,000</b> |
| GSO Capital Opportunities Fund II, L.P.                            | 12/31/2020 | 81               | -523,417          | -523,336         |
| <b>Total: GSO Capital Opportunities Fund II, L.P.</b>              |            | <b>81</b>        | <b>-523,417</b>   | <b>-523,336</b>  |
| GSO Capital Opportunities Fund III, L.P.                           | 11/30/2020 | 1,167,947        |                   | 1,167,947        |
|  | 12/31/2020 | 1,981,172        | -1,355,626        | 625,546          |
| <b>Total: GSO Capital Opportunities Fund III, L.P.</b>             |            | <b>3,149,119</b> | <b>-1,355,626</b> | <b>1,793,493</b> |
| GSO Energy Select Opportunities Fund II L.P.                       | 11/30/2020 |                  | -23,930           | -23,930          |
| <b>Total: GSO Energy Select Opportunities Fund II L.P.</b>         |            |                  | <b>-23,930</b>    | <b>-23,930</b>   |
| GSO Energy Select Opportunities Fund, L.P.                         | 11/30/2020 |                  | -17,778           | -17,778          |
|  | 12/31/2020 |                  | -428,398          | -428,398         |
| <b>Total: GSO Energy Select Opportunities Fund, L.P.</b>           |            |                  | <b>-446,176</b>   | <b>-446,176</b>  |



## MPERS

# QUARTERLY TRANSACTION SUMMARY

| Fund Name   | Date       | Capital Call     | Distribution      | Net Cash Flow     |
|---|------------|------------------|-------------------|-------------------|
| Kamsarmax Shipping, LLC                               | 11/30/2020 |                  | -60,916           | -60,916           |
| <b>Total: Kamsarmax Shipping, LLC</b>                 |            |                  | <b>-60,916</b>    | <b>-60,916</b>    |
| Longford Capital Fund II, L.P.                        | 10/31/2020 | 800,000          |                   | 800,000           |
|   | 12/31/2020 |                  | -990,518          | -990,518          |
| <b>Total: Longford Capital Fund II, L.P.</b>          |            | <b>800,000</b>   | <b>-990,518</b>   | <b>-190,518</b>   |
| M&G Real Estate Debt Fund III, L.P.                   | 10/31/2020 |                  | -1,515,109        | -1,515,109        |
|   | 11/30/2020 |                  | -189,295          | -189,295          |
| <b>Total: M&amp;G Real Estate Debt Fund III, L.P.</b> |            |                  | <b>-1,704,403</b> | <b>-1,704,403</b> |
| MGG SF Evergreen Fund, L.P.                           | 11/30/2020 |                  | -229,249          | -229,249          |
|   | 12/31/2020 | 441,627          |                   | 441,627           |
| <b>Total: MGG SF Evergreen Fund, L.P.</b>             |            | <b>441,627</b>   | <b>-229,249</b>   | <b>212,378</b>    |
| Miravast ILS Credit Opportunities, L.P.               | 11/30/2020 | 921,338          |                   | 921,338           |
|   | 12/31/2020 | 416,288          |                   | 416,288           |
| <b>Total: Miravast ILS Credit Opportunities, L.P.</b> |            | <b>1,337,626</b> |                   | <b>1,337,626</b>  |
| Northern Shipping Fund II, LLC                        | 11/30/2020 |                  | -121,504          | -121,504          |
| <b>Total: Northern Shipping Fund II, LLC</b>          |            |                  | <b>-121,504</b>   | <b>-121,504</b>   |
| Northern Shipping Fund III, L.P.                      | 11/30/2020 |                  | -188,981          | -188,981          |
| <b>Total: Northern Shipping Fund III, L.P.</b>        |            |                  | <b>-188,981</b>   | <b>-188,981</b>   |
| Owl Rock Tech Mgmt.                                   | 10/31/2020 |                  | -3,493            | -3,493            |
|   | 12/31/2020 | 15,000           |                   | 15,000            |
| <b>Total: Owl Rock Tech Mgmt.</b>                     |            | <b>15,000</b>    | <b>-3,493</b>     | <b>11,507</b>     |
| Owl Rock Technology Finance Corp.                     | 11/30/2020 |                  | -116,588          | -116,588          |
| <b>Total: Owl Rock Technology Finance Corp.</b>       |            |                  | <b>-116,588</b>   | <b>-116,588</b>   |



## MPERS

# QUARTERLY TRANSACTION SUMMARY

| Fund Name   | Date       | Capital Call      | Distribution      | Net Cash Flow     |
|---|------------|-------------------|-------------------|-------------------|
| OZ Structured Products Domestic Partners II, L.P.               | 10/31/2020 |                   | -52,870           | -52,870           |
| <b>Total: OZ Structured Products Domestic Partners II, L.P.</b> |            |                   | <b>-52,870</b>    | <b>-52,870</b>    |
| RCP II HFG Syndication Partners, L.P.                           | 10/31/2020 |                   | -919,058          | -919,058          |
|   | 12/31/2020 |                   | -52,415           | -52,415           |
| <b>Total: RCP II HFG Syndication Partners, L.P.</b>             |            |                   | <b>-971,473</b>   | <b>-971,473</b>   |
| Riverstone Credit Partners II, L.P.                             | 10/31/2020 |                   | -227,212          | -227,212          |
| <b>Total: Riverstone Credit Partners II, L.P.</b>               |            |                   | <b>-227,212</b>   | <b>-227,212</b>   |
| Riverstone Credit Partners, L.P.                                | 11/30/2020 |                   | -226,694          | -226,694          |
| <b>Total: Riverstone Credit Partners, L.P.</b>                  |            |                   | <b>-226,694</b>   | <b>-226,694</b>   |
| Siguler Guff Secondary Opportunities Fund, L.P.                 | 12/31/2020 |                   | -19,283           | -19,283           |
| <b>Total: Siguler Guff Secondary Opportunities Fund, L.P.</b>   |            |                   | <b>-19,283</b>    | <b>-19,283</b>    |
| Silver Point Distressed Opportunity Fund, L.P.                  | 12/31/2020 | 1,894,887         |                   | 1,894,887         |
| <b>Total: Silver Point Distressed Opportunity Fund, L.P.</b>    |            | <b>1,894,887</b>  |                   | <b>1,894,887</b>  |
| Varde Asia Credit Fund, L.P.                                    | 12/31/2020 | 1,500,000         |                   | 1,500,000         |
| <b>Total: Varde Asia Credit Fund, L.P.</b>                      |            | <b>1,500,000</b>  |                   | <b>1,500,000</b>  |
| <b>Grand Total</b>  |            | <b>19,124,744</b> | <b>-8,215,923</b> | <b>10,908,821</b> |



# PME Analysis

| Public Markets Equivalent (PME)                      |              |                               |                     |                     |                     |                               |               |                         |                            |                  |                       |
|--|--------------|-------------------------------|---------------------|---------------------|---------------------|-------------------------------|---------------|-------------------------|----------------------------|------------------|-----------------------|
| Investments  |              |                               | PME Valuation       |                     |                     | PME Multiples (Kaplan Schoar) |               |                         | PME Returns (Direct Alpha) |                  |                       |
| Investment Name                                      | Vintage Year | Benchmark                     | Valuation           | Valuation ICM       | Valuation Spread    | TVPI                          | Kaplan Schoar | Market Related Multiple | SI IRR                     | Direct Alpha PME | Market Related Return |
| <b>Credit Opportunities</b>                          |              |                               |                     |                     |                     |                               |               |                         |                            |                  |                       |
| Anchorage Structured Credit Fund, L.P.               | 2019         | ICE BofA Global High Yield TR | \$18,813,766        | \$17,208,678        | \$1,605,088         | 1.25                          | 1.09          | 1.15                    | 24.99%                     | 9.29%            | 15.70%                |
| Fortress Credit Opportunities Fund V Expansion, L.P. | 2020         | ICE BofA US High Yield TR     | \$1,229,469         | \$1,258,190         | -\$28,721           | 0.98                          | 0.98          | 1.01                    | -1.64%                     | -2.28%           | 0.64%                 |
| Francisco Credit Partners Fund I, L.P.               | 2019         | ICE BofA US High Yield TR     | \$3,258,705         | \$2,865,970         | \$392,735           | 1.31                          | 1.14          | 1.15                    | 42.99%                     | 18.45%           | 24.54%                |
| Miravast ILS Credit Opportunities, L.P.              | 2018         | ICE BofA US High Yield TR     | \$11,964,079        | \$13,071,936        | -\$1,107,857        | 1.17                          | 0.95          | 1.23                    | 3.31%                      | -3.77%           | 7.08%                 |
| Orchard Landmark II (US), L.P.                       | 2016         | ICE BofA US High Yield TR     | \$7,343,746         | \$5,378,025         | \$1,965,721         | 1.52                          | 1.28          | 1.19                    | 15.20%                     | 8.63%            | 6.57%                 |
| Orchard Landmark, L.P.                               | 2013         | ICE BofA US High Yield TR     | \$19,997,822        | \$15,381,060        | \$4,616,762         | 1.63                          | 1.22          | 1.34                    | 9.99%                      | 3.89%            | 6.10%                 |
| OZ Structured Products Domestic Partners II, L.P.    | 2012         | ICE BofA US High Yield TR     | \$448,043           | -\$5,150,168        | \$5,598,211         | 1.68                          | 1.34          | 1.26                    | 14.13%                     | 7.80%            | 6.33%                 |
| <b>Total Credit Opportunities</b>                    |              |                               | <b>\$63,055,630</b> | <b>\$50,013,690</b> | <b>\$13,041,940</b> | <b>1.43</b>                   | <b>1.15</b>   | <b>1.24</b>             | <b>12.02%</b>              | <b>5.11%</b>     | <b>6.91%</b>          |
| <b>Direct Lending</b>                                |              |                               |                     |                     |                     |                               |               |                         |                            |                  |                       |
| ABRY Advanced Securities Fund, L.P.                  | 2008         | ICE BofA US High Yield TR     | \$123,339           | -\$2,180,990        | \$2,304,329         | 3.39                          | 1.07          | 3.16                    | 19.36%                     | 3.24%            | 16.12%                |
| Golub Capital Investment Corp                        | 2015         | ICE BofA US High Yield TR     | \$0                 | -\$6,263,859        | \$6,263,859         | 1.50                          | 1.18          | 1.27                    | 10.01%                     | 3.96%            | 6.05%                 |
| Golub Capital PEARLS Direct Lending Program, L.P.    | 2011         | ICE BofA US High Yield TR     | \$0                 | \$698,461           | -\$698,461          | 1.31                          | 0.98          | 1.34                    | 6.60%                      | -1.43%           | 8.02%                 |
| GSO Credit Alpha Annex Fund, L.P.                    | 2016         | ICE BofA US High Yield TR     | \$0                 | \$5,513             | -\$5,513            | 1.09                          | 1.00          | 1.09                    | 16.29%                     | -0.27%           | 16.56%                |
| GSO Energy Select Opportunities Fund II L.P.         | 2018         | ICE BofA US High Yield TR     | \$820,148           | \$637,799           | \$182,349           | 1.37                          | 1.23          | 1.12                    | 22.75%                     | 14.95%           | 7.80%                 |
| GSO Energy Select Opportunities Fund, L.P.           | 2015         | ICE BofA US High Yield TR     | \$3,956,378         | \$4,412,619         | -\$456,241          | 1.14                          | 0.94          | 1.22                    | 4.25%                      | -2.28%           | 6.53%                 |
| Kamsarmax Shipping, LLC                              | 2015         | ICE BofA US High Yield TR     | \$653,185           | \$507,024           | \$146,161           | 1.27                          | 1.05          | 1.21                    | 9.50%                      | 1.98%            | 7.52%                 |
| MGG SF Evergreen Fund, L.P.                          | 2018         | ICE BofA US High Yield TR     | \$14,090,402        | \$13,761,468        | \$328,934           | 1.16                          | 1.01          | 1.15                    | 8.22%                      | 1.04%            | 7.18%                 |
| Northern Chasseral, LLC                              | 2014         | ICE BofA US High Yield TR     | \$0                 | -\$530,949          | \$530,949           | 1.32                          | 1.12          | 1.17                    | 9.70%                      | 4.15%            | 5.55%                 |
| Northern Shipping Fund II, LLC                       | 2014         | ICE BofA US High Yield TR     | \$3,117,268         | \$1,491,315         | \$1,625,953         | 1.19                          | 1.07          | 1.12                    | 7.61%                      | 2.94%            | 4.67%                 |
| Northern Shipping Fund III, L.P.                     | 2016         | ICE BofA US High Yield TR     | \$9,176,245         | \$8,698,715         | \$477,530           | 1.21                          | 1.01          | 1.20                    | 7.94%                      | 0.99%            | 6.95%                 |
| Owl Rock Alternatives                                | 2016         | ICE BofA US High Yield TR     | \$0                 | -\$1,208,730        | \$1,208,730         | 1.12                          | 1.05          | 1.07                    | 7.12%                      | 2.98%            | 4.14%                 |
| Owl Rock Tech Mgmt.                                  | 2018         | ICE BofA US High Yield TR     | \$1,933,333         | \$78,347            | \$1,854,986         | 24.85                         | 22.67         | 1.10                    | 501.21%                    | 462.71%          | 38.50%                |
| Owl Rock Technology Finance Corp.                    | 2018         | ICE BofA US High Yield TR     | \$8,011,815         | \$8,503,186         | -\$491,371          | 1.09                          | 0.95          | 1.15                    | 4.03%                      | -2.42%           | 6.45%                 |
| RCP Deep Gulf Energy II Syndication Partners, L.P.   | 2016         | ICE BofA US High Yield TR     | \$0                 | -\$724,817          | \$724,817           | 1.64                          | 1.36          | 1.21                    | 25.18%                     | 14.87%           | 10.31%                |
| RCP Fairway Syndication Partners, L.P.               | 2017         | ICE BofA US High Yield TR     | \$979,918           | \$1,086,621         | -\$106,703          | 1.08                          | 0.91          | 1.19                    | 2.50%                      | -2.93%           | 5.44%                 |
| RCP II HFG Syndication Partners, L.P.                | 2018         | ICE BofA US High Yield TR     | \$0                 | -\$214,254          | \$214,254           | 1.32                          | 1.19          | 1.11                    | 15.39%                     | 9.45%            | 5.94%                 |
| RCP II Seawolf Syndication Partners, L.P.            | 2018         | ICE BofA US High Yield TR     | \$497,155           | \$910,616           | -\$413,461          | 0.72                          | 0.63          | 1.14                    | -16.22%                    | -22.25%          | 6.03%                 |
| RCP Renegade Syndication Partners, L.P.              | 2017         | ICE BofA US High Yield TR     | \$0                 | -\$75,598           | \$75,598            | 1.10                          | 1.08          | 1.02                    | 13.67%                     | 10.72%           | 2.95%                 |
| RCP Swift Dog Syndication Partners, L.P.             | 2016         | ICE BofA US High Yield TR     | \$0                 | -\$269,909          | \$269,909           | 1.38                          | 1.22          | 1.14                    | 16.85%                     | 9.98%            | 6.87%                 |



## PME Analysis

| Investments                                     |              |                               | PME Valuation       |                     |                     | PME Multiples (Kaplan Schoar) |               |                         | PME Returns (Direct Alpha) |                  |                       |
|---|--------------|-------------------------------|---------------------|---------------------|---------------------|-------------------------------|---------------|-------------------------|----------------------------|------------------|-----------------------|
| Investment Name                                 | Vintage Year | Benchmark                     | Valuation           | Valuation ICM       | Valuation Spread    | TVPI                          | Kaplan Schoar | Market Related Multiple | SI IRR                     | Direct Alpha PME | Market Related Return |
| RCP TPCG Syndication Partners, L.P.             | 2016         | ICE BofA US High Yield TR     | \$0                 | -\$343,344          | \$343,344           | 1.48                          | 1.26          | 1.17                    | 19.58%                     | 10.97%           | 8.61%                 |
| Riverstone Credit Partners II, L.P.             | 2017         | ICE BofA US High Yield TR     | \$10,232,473        | \$11,358,343        | -\$1,125,870        | 1.04                          | 0.94          | 1.10                    | 1.97%                      | -4.83%           | 6.79%                 |
| Riverstone Credit Partners, L.P.                | 2015         | ICE BofA US High Yield TR     | \$5,346,076         | \$5,797,889         | -\$451,813          | 1.15                          | 0.98          | 1.17                    | 5.51%                      | -1.06%           | 6.57%                 |
| Transperfect Global, Inc.                       | 2018         | ICE BofA US High Yield TR     | \$0                 | -\$85,336           | \$85,336            | 1.14                          | 1.08          | 1.06                    | 12.92%                     | 7.52%            | 5.40%                 |
| <b>Total Direct Lending</b>                     |              |                               | <b>\$58,937,736</b> | <b>\$46,050,129</b> | <b>\$12,887,607</b> | <b>1.27</b>                   | <b>1.04</b>   | <b>1.22</b>             | <b>9.50%</b>               | <b>2.14%</b>     | <b>7.36%</b>          |
| <b>Distressed</b>                               |              |                               |                     |                     |                     |                               |               |                         |                            |                  |                       |
| Banner Ridge Secondary Fund III (TE), L.P.      | 2019         | ICE BofA US High Yield TR     | \$14,715,065        | \$14,189,089        | \$525,976           | 1.14                          | 1.03          | 1.11                    | 36.86%                     | 8.73%            | 28.13%                |
| CarVal Credit Value Fund III, L.P.              | 2015         | ICE BofA US High Yield TR     | \$6,132,538         | \$5,291,223         | \$841,315           | 1.27                          | 1.04          | 1.22                    | 7.84%                      | 1.38%            | 6.46%                 |
| CarVal Credit Value Fund, L.P.                  | 2010         | ICE BofA US High Yield TR     | \$205,734           | -\$15,638,268       | \$15,844,002        | 2.64                          | 1.91          | 1.39                    | 23.89%                     | 15.36%           | 8.53%                 |
| CVI Global Value Fund A, L.P.                   | 2007         | BBgBarc US Universal TR       | \$32,070            | -\$10,446,483       | \$10,478,553        | 1.70                          | 1.25          | 1.36                    | 9.85%                      | 3.99%            | 5.86%                 |
| GSO Credit Alpha Fund, L.P.                     | 2014         | ICE BofA US High Yield TR     | \$9,336,704         | \$9,463,612         | -\$126,908          | 1.29                          | 0.99          | 1.29                    | 6.84%                      | -0.15%           | 6.99%                 |
| Silver Point Distressed Opportunity Fund, L.P.  | 2019         | ICE BofA US High Yield TR     | \$15,209,862        | \$14,154,117        | \$1,055,745         | 1.28                          | 1.07          | 1.19                    | 43.37%                     | 11.07%           | 32.30%                |
| Varde Asia Credit Fund, L.P.                    | 2018         | ICE BofA Global High Yield TR | \$12,617,250        | \$13,961,013        | -\$1,343,763        | 1.08                          | 0.93          | 1.16                    | 8.01%                      | -9.05%           | 17.06%                |
| <b>Total Distressed</b>                         |              |                               | <b>\$58,249,223</b> | <b>\$30,974,302</b> | <b>\$27,274,921</b> | <b>1.47</b>                   | <b>1.18</b>   | <b>1.25</b>             | <b>12.16%</b>              | <b>5.23%</b>     | <b>6.92%</b>          |
| <b>Fund of Funds</b>                            |              |                               |                     |                     |                     |                               |               |                         |                            |                  |                       |
| Banner Ridge Secondary Fund III Co, L.P.        | 2019         | ICE BofA US High Yield TR     | \$3,745,218         | \$3,884,380         | -\$139,162          | 1.04                          | 0.97          | 1.06                    | 9.39%                      | -8.87%           | 18.26%                |
| Siguler Guff Secondary Opportunities Fund, L.P. | 2016         | ICE BofA US High Yield TR     | \$5,503             |                     |                     | 1.43                          | 1.26          | 1.13                    | 49.06%                     | 41.79%           | 7.27%                 |
| <b>Total Fund of Funds</b>                      |              |                               | <b>\$3,750,721</b>  | <b>-\$1,579,745</b> | <b>\$5,330,466</b>  | <b>1.34</b>                   | <b>1.20</b>   | <b>1.11</b>             | <b>47.32%</b>              | <b>39.46%</b>    | <b>7.85%</b>          |
| <b>Mezzanine</b>                                |              |                               |                     |                     |                     |                               |               |                         |                            |                  |                       |
| Audax Mezzanine Fund II, L.P.                   | 2006         | BBgBarc US High Yield TR      | \$0                 | \$979,808           | -\$979,808          | 1.28                          | 0.97          | 1.33                    | 8.01%                      | -1.29%           | 9.31%                 |
| GSO Capital Opportunities Fund II, L.P.         | 2012         | ICE BofA US High Yield TR     | \$1,979,288         | \$923,099           | \$1,056,189         | 1.36                          | 1.07          | 1.27                    | 9.53%                      | 2.80%            | 6.73%                 |
| GSO Capital Opportunities Fund III, L.P.        | 2016         | ICE BofA US High Yield TR     | \$13,175,965        | \$12,184,503        | \$991,462           | 1.21                          | 1.05          | 1.15                    | 9.68%                      | 2.97%            | 6.71%                 |
| GSO Capital Opportunities Fund, L.P.            | 2007         | BBgBarc US Universal TR       | \$202,812           | -\$8,790,456        | \$8,993,268         | 1.71                          | 1.28          | 1.34                    | 15.95%                     | 9.62%            | 6.34%                 |
| Longford Capital Fund II, L.P.                  | 2016         | ICE BofA US High Yield TR     | \$9,420,227         | \$8,579,863         | \$840,364           | 1.18                          | 1.06          | 1.11                    | 11.92%                     | 4.03%            | 7.89%                 |
| Longford Capital Fund III, L.P.                 | 2020         | ICE BofA US High Yield TR     | \$778,164           | \$1,238,047         | -\$459,883          | 0.78                          | 0.63          | 1.24                    | -22.18%                    | -37.15%          | 14.96%                |
| RCP Apex II Syndication Partners, L.P.          | 2017         | ICE BofA US High Yield TR     | \$1,800,106         | \$2,308,843         | -\$508,737          | 0.99                          | 0.86          | 1.16                    | -0.29%                     | -6.03%           | 5.74%                 |
| RCP Apex Syndication Partners, L.P.             | 2015         | ICE BofA US High Yield TR     | \$0                 | \$9,931             | -\$9,931            | 1.12                          | 1.00          | 1.12                    | 12.30%                     | -0.35%           | 12.65%                |
| <b>Total Mezzanine</b>                          |              |                               | <b>\$27,356,562</b> | <b>\$17,433,638</b> | <b>\$9,922,924</b>  | <b>1.32</b>                   | <b>1.08</b>   | <b>1.22</b>             | <b>11.74%</b>              | <b>3.74%</b>     | <b>8.00%</b>          |
| <b>Other/Diversified</b>                        |              |                               |                     |                     |                     |                               |               |                         |                            |                  |                       |
| M&G Real Estate Debt Fund III, L.P.             | 2013         | ICE BofA Global High Yield TR | \$1,444,906         | \$2,874,553         | -\$1,429,646        | 1.08                          | 0.90          | 1.20                    | 2.41%                      | -3.99%           | 6.41%                 |
| <b>Total Other/Diversified</b>                  |              |                               | <b>\$1,444,906</b>  | <b>\$2,874,553</b>  | <b>-\$1,429,646</b> | <b>1.08</b>                   | <b>0.90</b>   | <b>1.20</b>             | <b>2.41%</b>               | <b>-3.99%</b>    | <b>6.41%</b>          |



## MPERS

# PME Analysis

| Investments   |              |                           | PME Valuation        |                      |                     | PME Multiples (Kaplan Schoar) |               |                         | PME Returns (Direct Alpha) |                  |                       |
|---|--------------|---------------------------|----------------------|----------------------|---------------------|-------------------------------|---------------|-------------------------|----------------------------|------------------|-----------------------|
| Investment Name                                     | Vintage Year | Benchmark                 | Valuation            | Valuation ICM        | Valuation Spread    | TVPI                          | Kaplan Schoar | Market Related Multiple | SI IRR                     | Direct Alpha PME | Market Related Return |
| <b>Special Situations</b>                           |              |                           |                      |                      |                     |                               |               |                         |                            |                  |                       |
| Anchorage Illiquid Opportunities Fund V, L.P.       | 2015         | ICE BofA US High Yield TR | \$15,148,954         | \$13,693,852         | \$1,455,102         | 1.34                          | 1.09          | 1.23                    | 8.78%                      | 2.40%            | 6.37%                 |
| Anchorage Illiquid Opportunities II, L.P.           | 2010         | ICE BofA US High Yield TR | \$0                  | -\$1,808,625         | \$1,808,625         | 1.47                          | 1.16          | 1.27                    | 13.48%                     | 5.08%            | 8.40%                 |
| Anchorage Illiquid Opportunities Offshore III, L.P. | 2012         | ICE BofA US High Yield TR | \$642,110            | -\$2,156,037         | \$2,798,147         | 1.43                          | 1.18          | 1.21                    | 10.80%                     | 5.03%            | 5.76%                 |
| <b>Total Special Situations</b>                     |              |                           | <b>\$15,791,064</b>  | <b>\$9,729,189</b>   | <b>\$6,061,875</b>  | <b>1.40</b>                   | <b>1.14</b>   | <b>1.23</b>             | <b>10.93%</b>              | <b>4.11%</b>     | <b>6.81%</b>          |
| <b>Total</b>  |              |                           | <b>\$228,585,843</b> | <b>\$155,495,757</b> | <b>\$73,090,086</b> | <b>1.35</b>                   | <b>1.10</b>   | <b>1.23</b>             | <b>11.29%</b>              | <b>4.00%</b>     | <b>7.29%</b>          |



# GLOSSARY OF TERMS

- **Commitment**– The amount an investor has committed to invest with the General Partner
- **Paid In Capital** – The amount an investor has contributed for investments and management fees, minus recallable distributions
- **Unfunded Commitment**– The remaining amount an investor is contractually obligated to contribute for investment
- **Additional Fees** – Fees that are paid outside the capital commitment, also includes interest paid/received due from subsequent closings of the fund
- **Cumulative Distributions** – The amount an investor has received from realized and partially realized investments
- **Valuation** – Sum of the fair market value of all investments plus cash
- **Call Ratio** – Calculated by dividing Paid in Capital by Commitment
- **Market Exposure** – Calculated by adding Reported Value to Unfunded Commitment
- **Total Value** – Calculated by adding Cumulative Distributions and Valuation. Represents the total amount an investor should expect to receive from their investments
- **Net Benefit** – Calculated by subtracting (Paid In Capital + Additional Fees) from Total Value.
- **Distributions to Paid In Capital (DPI) Ratio\*\*** - Calculated by dividing Cumulative Distributions by (Paid In Capital + Additional Fees)
- **Total Value to Paid In Capital (TVPI) Ratio\*\*** – Calculated by dividing Total Value by (Paid in Capital + Additional Fees). Represents the multiple of the overall cash invested that an investor is expected to receive
- **IRR** - The calculation of the IRR (Internal Rate of Return) takes into consideration the timing of cash contributions and distributions to and from the partnerships, the length of time the investments have been held and the sum of the Valuation. It is the discount rate at which the net present value of all cash flows and the valuation is equal to zero.
- **Direct Alpha PME** - The calculation is deduced from the Kaplan Schoar PME calculation by computing an IRR of the discounted cash flows and taking the natural logarithm of the resulting IRR.
- **Market Related Multiple** - Calculated by dividing the TVPI by the Kaplan Schoar PME.
- **Market Related Return** - Calculated by subtracting the Direct Alpha PME from the since inception IRR.
- **Valuation ICM** – The valuation equivalent that ICM calculates for the public market is called valuation ICM
- **KS PME** – The Kaplan Schoar Public Markets Equivalent is a ratio of the future value of all distributions divided by the future value of all contributions using the index return as the discount rate. The ending valuation is treated as a distribution in this method
- **\*\*Note that NEPC uses a method where recallable distributions are subtracted from Paid In Capital rather than added to Cumulative Distributions, which may affect the calculation of the DPI/TVPI multiples**



# QUARTERLY PERFORMANCE REPORT

## MPERS Private Equity Report

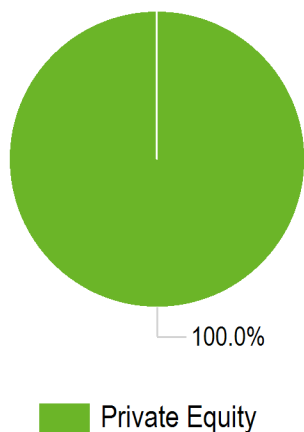
December 31, 2020



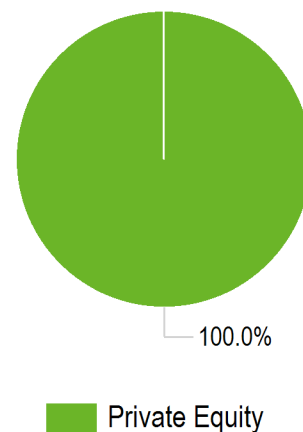
BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

# EXECUTIVE SUMMARY

## Valuation by Asset Class



## Fund Exposure by Asset Class



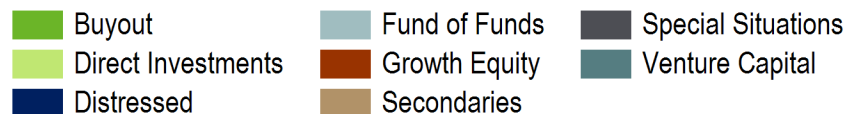
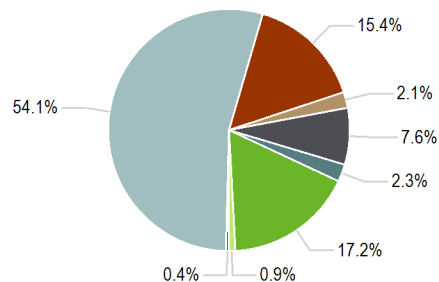
| Asset Class                 | Investments \$ |                          |                     |               | Trailing Period Performance (IRR) |        |        |         |         |          | Multiples |      |      |
|-----------------------------|----------------|--------------------------|---------------------|---------------|-----------------------------------|--------|--------|---------|---------|----------|-----------|------|------|
|                             | Commitment     | Cumulative Contributions | Unfunded Commitment | Valuation     | (QTR)                             | (YTD)  | (1 YR) | (3 YRS) | (5 YRS) | (10 YRS) | SI IRR    | DPI  | TVPI |
| <b>Total Private Equity</b> | \$734,243,317  | \$607,058,556            | \$127,184,761       | \$467,401,933 | 15.01%                            | 26.44% | 26.44% | 18.04%  | 14.71%  | 13.87%   | 10.86%    | 0.99 | 1.76 |
| <b>Total</b>                | \$734,243,317  | \$607,058,556            | \$127,184,761       | \$467,401,933 | 15.01%                            | 26.44% | 26.44% | 18.04%  | 14.71%  | 13.87%   | 10.86%    | 0.99 | 1.76 |



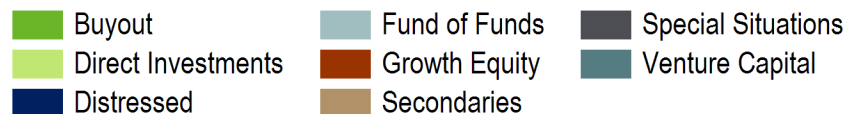
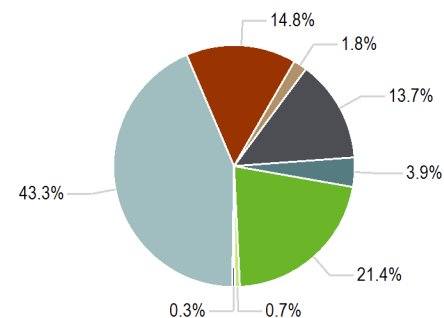
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## ANALYSIS BY STRATEGY

### Private Equity Valuation by Strategy



### Private Equity Fund Exposure by Strategy

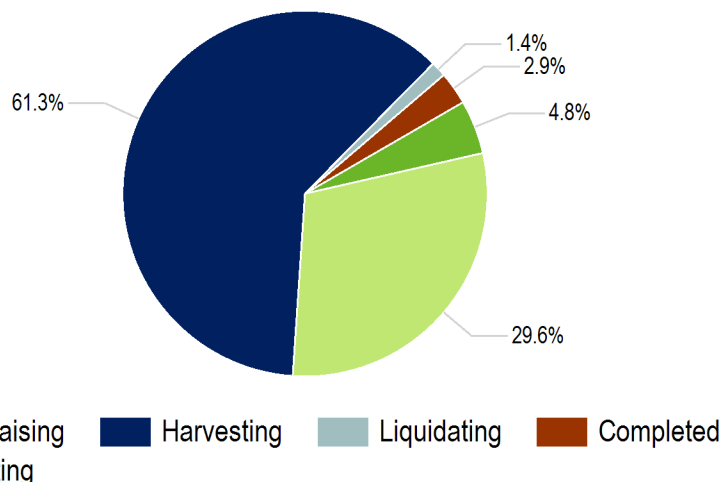


| Investment Strategy      | Investments          |                      |             | Commitments              |                  |                          | Contributions & Distributions |                        |                      | Valuations           |             |             |               | Performance |  |  |
|--------------------------|----------------------|----------------------|-------------|--------------------------|------------------|--------------------------|-------------------------------|------------------------|----------------------|----------------------|-------------|-------------|---------------|-------------|--|--|
|                          | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions | Additional Fees  | Cumulative Distributions | Valuation                     | Total Value            | Net Benefit          | Fund Exposure        | DPI         | TVPI        | IRR           |             |  |  |
| Total Buyout             | \$130,923,317        | \$47,025,307         | 0.64        | \$83,898,010             | \$913,923        | \$46,206,840             | \$80,444,485                  | \$126,651,324          | \$41,839,391         | \$127,469,792        | 0.54        | 1.49        | 12.22%        |             |  |  |
| Total Direct Investments | \$2,750,000          | \$0                  | 1.00        | \$2,750,000              | \$0              | \$0                      | \$4,092,500                   | \$4,092,500            | \$1,342,500          | \$4,092,500          | 0.00        | 1.49        | 17.76%        |             |  |  |
| Total Distressed         | \$4,500,000          | \$190,852            | 0.96        | \$4,309,148              | -\$3,327         | \$3,447,746              | \$1,745,172                   | \$5,192,918            | \$887,097            | \$1,936,024          | 0.80        | 1.21        | 5.67%         |             |  |  |
| Total Fund of Funds      | \$415,000,000        | \$4,856,348          | 0.99        | \$410,143,652            | -\$3,906         | \$516,773,246            | \$252,887,512                 | \$769,660,758          | \$359,521,013        | \$257,743,860        | 1.26        | 1.88        | 10.42%        |             |  |  |
| Total Growth Equity      | \$62,350,000         | \$15,698,871         | 0.75        | \$46,651,129             | -\$184,170       | \$11,491,454             | \$72,096,407                  | \$83,587,861           | \$37,120,903         | \$87,795,278         | 0.25        | 1.80        | 30.63%        |             |  |  |
| Total Secondaries        | \$7,500,000          | \$992,095            | 0.87        | \$6,507,905              | \$0              | \$0                      | \$9,873,834                   | \$9,873,834            | \$3,365,929          | \$10,865,929         | 0.00        | 1.52        | 18.11%        |             |  |  |
| Total Special Situations | \$91,220,000         | \$45,977,051         | 0.50        | \$45,242,949             | \$12,459         | \$26,194,918             | \$35,385,278                  | \$61,580,196           | \$16,324,788         | \$81,362,329         | 0.58        | 1.36        | 8.40%         |             |  |  |
| Total Venture Capital    | \$20,000,000         | \$12,444,236         | 0.38        | \$7,555,764              | \$0              | \$0                      | \$10,876,745                  | \$10,876,745           | \$3,320,981          | \$23,320,981         | 0.00        | 1.44        | 46.03%        |             |  |  |
| <b>Total</b>             | <b>\$734,243,317</b> | <b>\$127,184,761</b> | <b>0.83</b> | <b>\$607,058,556</b>     | <b>\$734,979</b> | <b>\$604,114,205</b>     | <b>\$467,401,933</b>          | <b>\$1,071,516,137</b> | <b>\$463,722,602</b> | <b>\$594,586,693</b> | <b>0.99</b> | <b>1.76</b> | <b>10.86%</b> |             |  |  |

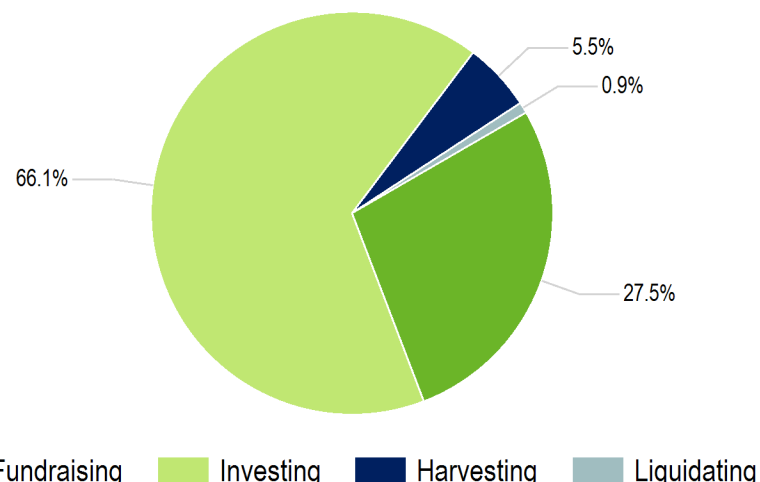


# ANALYSIS BY LIFECYCLE

### Commitment by Lifecycle



### Unfunded Commitment by Lifecycle



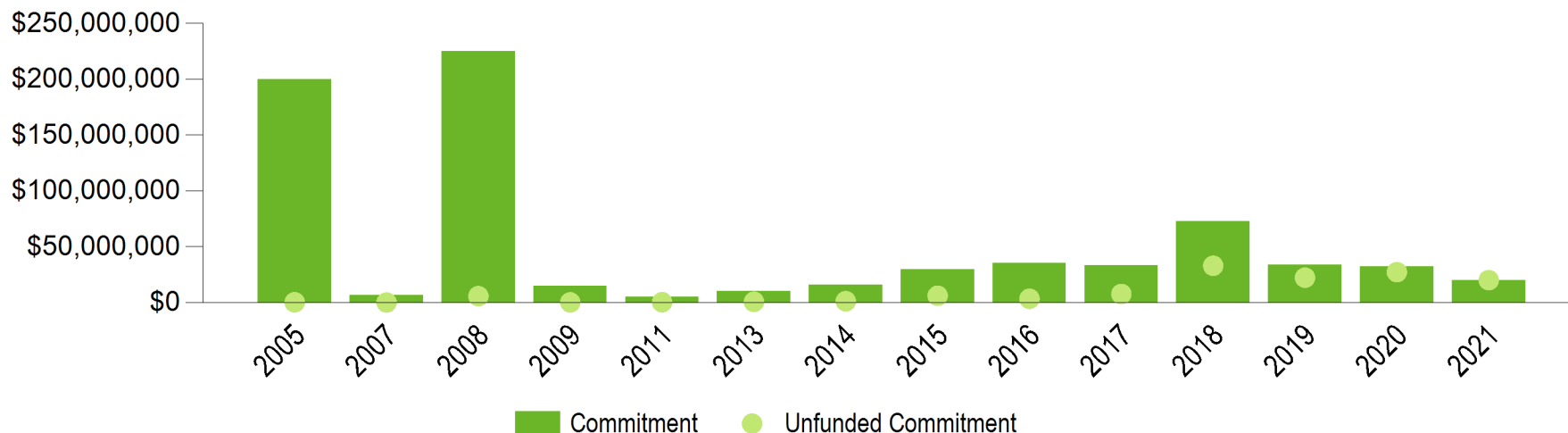
| Investments       | Commitments          |                      |             | Contributions & Distributions |                  |                          | Valuations           |                        |                      | Performance |             |               |
|-------------------|----------------------|----------------------|-------------|-------------------------------|------------------|--------------------------|----------------------|------------------------|----------------------|-------------|-------------|---------------|
|                   | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions      | Additional Fees  | Cumulative Distributions | Valuation            | Total Value            | Net Benefit          | DPI         | TVPI        | IRR           |
| Total Fundraising | \$35,000,000         | \$35,000,000         |             | \$0                           | \$0              | \$0                      | \$0                  | \$0                    | \$0                  |             |             |               |
| Total Investing   | \$217,648,317        | \$84,074,144         | 0.61        | \$133,574,174                 | \$601,186        | \$24,529,077             | \$183,612,208        | \$208,141,285          | \$73,965,926         | 0.18        | 1.55        | 23.49%        |
| Total Harvesting  | \$450,220,000        | \$6,991,231          | 0.98        | \$443,228,769                 | \$94,214         | \$540,769,242            | \$283,610,298        | \$824,379,540          | \$381,056,557        | 1.22        | 1.86        | 10.58%        |
| Total Liquidating | \$10,000,000         | \$1,119,386          | 0.89        | \$8,880,614                   | \$0              | \$18,404,747             | \$179,427            | \$18,584,173           | \$9,703,559          | 2.07        | 2.09        | 19.84%        |
| Total Completed   | \$21,375,000         | \$0                  | 1.00        | \$21,375,000                  | \$39,580         | \$20,411,139             | \$0                  | \$20,411,139           | -\$1,003,441         | 0.95        | 0.95        | -0.88%        |
| <b>Total</b>      | <b>\$734,243,317</b> | <b>\$127,184,761</b> | <b>0.83</b> | <b>\$607,058,556</b>          | <b>\$734,979</b> | <b>\$604,114,205</b>     | <b>\$467,401,933</b> | <b>\$1,071,516,137</b> | <b>\$463,722,602</b> | <b>0.99</b> | <b>1.76</b> | <b>10.86%</b> |



# MPERS

## ANALYSIS BY VINTAGE YEAR

### Commitments By Vintage Year



| Vintage Year | Commitments          |                      |             | Contributions & Distributions |                  |                          | Valuations           |                        |                      | Performance |             |               |
|--------------|----------------------|----------------------|-------------|-------------------------------|------------------|--------------------------|----------------------|------------------------|----------------------|-------------|-------------|---------------|
|              | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions      | Additional Fees  | Cumulative Distributions | Valuation            | Total Value            | Net Benefit          | DPI         | TVPI        | IRR           |
| Total 2005   | \$200,000,000        | \$222,805            | 1.00        | \$199,777,195                 | \$0              | \$277,198,900            | \$76,775,849         | \$353,974,749          | \$154,197,554        | 1.39        | 1.77        | 8.30%         |
| Total 2007   | \$6,375,000          | \$0                  | 1.00        | \$6,375,000                   | \$27,121         | \$2,727,083              | \$0                  | \$2,727,083            | -\$3,675,038         | 0.43        | 0.43        | -17.61%       |
| Total 2008   | \$225,000,000        | \$5,677,930          | 0.97        | \$219,322,071                 | \$12,459         | \$254,075,965            | \$167,702,252        | \$421,778,217          | \$202,443,687        | 1.16        | 1.92        | 13.12%        |
| Total 2009   | \$15,000,000         | \$75,000             | 1.00        | \$14,925,000                  | -\$3,906         | \$21,587,183             | \$8,588,838          | \$30,176,021           | \$15,254,927         | 1.45        | 2.02        | 15.48%        |
| Total 2011   | \$5,000,000          | \$214,332            | 0.96        | \$4,785,668                   | \$0              | \$6,557,940              | \$1,573,231          | \$8,131,172            | \$3,345,503          | 1.37        | 1.70        | 13.00%        |
| Total 2013   | \$10,000,000         | \$614,933            | 0.94        | \$9,385,067                   | \$101,447        | \$5,890,392              | \$8,367,227          | \$14,257,619           | \$4,771,105          | 0.62        | 1.50        | 12.22%        |
| Total 2014   | \$15,720,000         | \$1,114,767          | 0.93        | \$14,605,233                  | \$0              | \$8,099,917              | \$19,037,156         | \$27,137,073           | \$12,531,840         | 0.55        | 1.86        | 29.69%        |
| Total 2015   | \$29,685,099         | \$6,054,114          | 0.80        | \$23,630,985                  | \$55,615         | \$9,485,164              | \$23,372,467         | \$32,857,631           | \$9,171,032          | 0.40        | 1.39        | 10.36%        |
| Total 2016   | \$35,500,000         | \$3,317,865          | 0.91        | \$32,182,135                  | -\$60,883        | \$9,103,337              | \$49,466,913         | \$58,570,250           | \$26,448,998         | 0.28        | 1.82        | 30.45%        |
| Total 2017   | \$33,343,437         | \$7,624,734          | 0.77        | \$25,718,703                  | -\$120,043       | \$7,805,979              | \$29,793,316         | \$37,599,295           | \$12,000,635         | 0.30        | 1.47        | 18.94%        |
| Total 2018   | \$72,869,781         | \$32,871,830         | 0.55        | \$39,997,951                  | \$723,170        | \$1,465,009              | \$62,657,359         | \$64,122,368           | \$23,401,246         | 0.04        | 1.57        | 34.59%        |
| Total 2019   | \$33,750,000         | \$22,236,256         | 0.34        | \$11,513,744                  | \$0              | \$0                      | \$15,361,354         | \$15,361,354           | \$3,847,610          | 0.00        | 1.33        | 30.49%        |
| Total 2020   | \$32,000,000         | \$27,160,197         | 0.15        | \$4,839,804                   | \$0              | \$117,333                | \$4,705,971          | \$4,823,304            | -\$16,500            | 0.02        | 1.00        | -0.41%        |
| Total 2021   | \$20,000,000         | \$20,000,000         |             | \$0                           | \$0              | \$0                      | \$0                  | \$0                    | \$0                  |             |             |               |
| <b>Total</b> | <b>\$734,243,317</b> | <b>\$127,184,761</b> | <b>0.83</b> | <b>\$607,058,556</b>          | <b>\$734,979</b> | <b>\$604,114,205</b>     | <b>\$467,401,933</b> | <b>\$1,071,516,137</b> | <b>\$463,722,602</b> | <b>0.99</b> | <b>1.76</b> | <b>10.86%</b> |



# APPENDIX

## MPERS

December 31, 2020



# MPERS

## RETURN SUMMARY

| Investments                                    |              |               | Trailing Period Returns (IRR) % |         |         |         |         |          |         |
|--|--------------|---------------|---------------------------------|---------|---------|---------|---------|----------|---------|
| Investment Name                                | Vintage Year | Commitment    | (Qtr)                           | (YTD)   | (1 Yr)  | (3 Yrs) | (5 Yrs) | (10 Yrs) | SI IRR  |
| <b>Private Equity</b>                          |              |               |                                 |         |         |         |         |          |         |
| ABRY Partners VI, L.P.                         | 2008         | \$10,000,000  | -15.65%                         | -12.27% | -12.27% | 70.50%  | 29.13%  | 20.23%   | 19.84%  |
| ABRY Partners VII, L.P.                        | 2011         | \$5,000,000   | 8.01%                           | -9.88%  | -9.88%  | -6.29%  | 9.84%   |          | 13.00%  |
| Aisling Capital IV, L.P.                       | 2016         | \$10,000,000  | 58.89%                          | 63.55%  | 63.55%  | 36.27%  |         |          | 31.34%  |
| Arrowroot Capital III, L.P.                    | 2017         | \$10,000,000  | -0.43%                          | 2.49%   | 2.49%   | 7.24%   |         |          | 8.37%   |
| Arrowroot Capital IV, L.P.                     | 2018         | \$10,000,000  | 10.89%                          | 64.92%  | 64.92%  |         |         |          | 37.51%  |
| Blackstone Capital Partners Asia Fund II, L.P. | 2021         | \$20,000,000  |                                 |         |         |         |         |          |         |
| Blackstone Capital Partners Asia, L.P.         | 2018         | \$15,000,000  | 15.59%                          | 42.65%  | 42.65%  |         |         |          | 34.87%  |
| CP ChromaScape, LLC                            | 2018         | \$750,000     | 2.93%                           | 1.88%   | 1.88%   |         |         |          | 5.28%   |
| CP CMI, LLC                                    | 2017         | \$843,437     | 9.22%                           | 32.54%  | 32.54%  | 15.70%  |         |          | 14.74%  |
| CP M&Q, LLC                                    | 2018         | \$1,000,000   | 3.35%                           | 23.27%  | 23.27%  |         |         |          | -1.79%  |
| CP Parkway, LLC                                | 2015         | \$1,760,099   | 5.13%                           | -16.86% | -16.86% | 4.61%   | 12.81%  |          | 11.71%  |
| CP Premier, LLC                                | 2015         | \$1,425,000   | -5.98%                          | 31.37%  | 31.37%  | 17.34%  | 15.30%  |          | 13.91%  |
| CP Sur-Seal, LLC                               | 2018         | \$1,000,000   | 14.13%                          | -1.07%  | -1.07%  |         |         |          | 0.78%   |
| CP Thor, LLC                                   | 2018         | \$1,000,000   | 2.68%                           | 1.42%   | 1.42%   |         |         |          | 4.62%   |
| CVI Specialized Ventures Fund A, L.P.          | 2007         | \$6,375,000   |                                 |         |         |         |         |          | -17.61% |
| DC Capital Partners Fund II, L.P.              | 2016         | \$8,000,000   | 14.26%                          | 33.46%  | 33.46%  | 31.65%  |         |          | 30.76%  |
| Drive Capital Fund III, L.P.                   | 2019         | \$10,000,000  | -5.05%                          | -3.42%  | -3.42%  |         |         |          | -10.07% |
| Drive Capital Overdrive Fund I, L.P.           | 2019         | \$10,000,000  | 13.67%                          | 75.89%  | 75.89%  |         |         |          | 51.59%  |
| Dyal IV US Investors, L.P.                     | 2018         | \$20,000,000  | 51.36%                          | 146.98% | 146.98% |         |         |          | 76.77%  |
| Evergage, Inc.                                 | 2017         | \$1,000,000   | 0.00%                           | 0.00%   | 0.00%   | 23.18%  |         |          | 19.78%  |
| Heartwood Partners II, L.P.                    | 2013         | \$10,000,000  | 4.53%                           | 8.26%   | 8.26%   | 4.87%   | 13.08%  |          | 12.22%  |
| Heartwood Partners III, L.P.                   | 2017         | \$10,000,000  | 7.47%                           | 18.34%  | 18.34%  |         |         |          | 8.86%   |
| KPS Special Situations Fund IV, L.P.           | 2014         | \$9,720,000   | 6.01%                           | 16.71%  | 16.71%  | 12.56%  | 16.37%  |          | 16.25%  |
| KPS Special Situations Fund V, L.P.            | 2020         | \$15,000,000  | 0.45%                           |         |         |         |         |          | -0.76%  |
| KPS Special Situations Mid-Cap Fund, L.P.      | 2019         | \$12,000,000  | 9.78%                           | 4.95%   | 4.95%   |         |         |          | 2.59%   |
| Leadspace, Inc.                                | 2019         | \$1,750,000   | -8.63%                          | -5.91%  | -5.91%  |         |         |          | 14.63%  |
| Long Ridge Equity Partners II, L.P.            | 2016         | \$10,000,000  | 16.32%                          | 44.68%  | 44.68%  | 45.12%  |         |          | 39.74%  |
| Long Ridge Parallel Broadway Holdings, LLC     | 2017         | \$1,500,000   | -0.06%                          | 9.25%   | 9.25%   | 59.30%  |         |          | 58.56%  |
| Long Ridge Parallel Processunity Holdings, LLC | 2018         | \$850,000     | 11.26%                          | 52.97%  | 52.97%  |         |         |          | 57.04%  |
| Mersive Investment Holdings, LLC               | 2018         | \$1,000,000   | 0.00%                           | 0.00%   | 0.00%   |         |         |          | 31.22%  |
| Monomoy Capital Partners III, L.P.             | 2017         | \$10,000,000  | 11.54%                          | 57.59%  | 57.59%  | 34.93%  |         |          | 30.04%  |
| MP Ventures II, L.P.                           | 2008         | \$200,000,000 | 14.61%                          | 21.07%  | 21.07%  | 13.43%  | 13.43%  | 14.23%   | 13.97%  |
| MP Ventures, L.P.                              | 2005         | \$200,000,000 | 22.66%                          | 37.62%  | 37.62%  | 21.54%  | 10.95%  | 12.06%   | 8.30%   |



## MPERS

# RETURN SUMMARY

| Investments                                     |              |                      | Trailing Period Returns (IRR) % |               |               |               |               |               |               |
|---|--------------|----------------------|---------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Investment Name                                 | Vintage Year | Commitment           | (Qtr)                           | (YTD)         | (1 Yr)        | (3 Yrs)       | (5 Yrs)       | (10 Yrs)      | SI IRR        |
| NewQuest Asia Fund III, L.P.                    | 2016         | \$7,500,000          | 27.02%                          | 25.10%        | 25.10%        | 22.10%        |               |               | 18.11%        |
| Nexus Special Situations Fund III, L.P.         | 2020         | \$15,000,000         |                                 |               |               |               |               |               |               |
| Nexus Special Situations II, L.P.               | 2018         | \$10,000,000         | 10.01%                          | 58.57%        | 58.57%        |               |               |               | 69.15%        |
| OpenGate Capital Partners I, L.P.               | 2015         | \$7,500,000          | 10.48%                          | 8.13%         | 8.13%         | 11.84%        | 17.05%        |               | 14.80%        |
| OpenGate Capital Partners II, L.P.              | 2018         | \$10,000,000         | 23.82%                          | 28.02%        | 28.02%        |               |               |               | 28.39%        |
| Ospraie Special Opportunities (Offshore), Ltd.  | 2008         | \$15,000,000         |                                 |               |               |               |               |               | 3.07%         |
| PBK Holdco, LLC                                 | 2020         | \$2,000,000          | 0.00%                           |               |               |               |               |               | 0.00%         |
| Pfingsten Partners Fund V, L.P.                 | 2015         | \$10,000,000         | 6.10%                           | -0.26%        | -0.26%        | 10.32%        |               |               | 6.54%         |
| Shore Capital Partners Fund I, L.P.             | 2014         | \$6,000,000          | 1.98%                           | 7.74%         | 7.74%         | 36.08%        | 43.22%        |               | 39.08%        |
| Shoreline China Value III, L.P.                 | 2015         | \$4,500,000          | 3.36%                           | 5.38%         | 5.38%         | -0.97%        | 3.77%         |               | 5.67%         |
| Shoreline III Co-Investment L.P.                | 2015         | \$4,500,000          | 3.66%                           | 4.80%         | 4.80%         | 2.85%         | 9.29%         |               | 9.15%         |
| SVP Holdings, LLC                               | 2018         | \$2,269,781          | 0.00%                           | 0.00%         | 0.00%         |               |               |               | 0.00%         |
| Vectis Healthcare & Life Sciences Fund II, L.P. | 2009         | \$15,000,000         | 0.00%                           | 10.09%        | 10.09%        | 21.51%        | 22.46%        | 16.85%        | 15.48%        |
| <b>Total Private Equity</b>                     |              | <b>\$734,243,317</b> | <b>15.01%</b>                   | <b>26.44%</b> | <b>26.44%</b> | <b>18.04%</b> | <b>14.71%</b> | <b>13.87%</b> | <b>10.86%</b> |
| <b>Total</b>                                    |              | <b>\$734,243,317</b> | <b>15.01%</b>                   | <b>26.44%</b> | <b>26.44%</b> | <b>18.04%</b> | <b>14.71%</b> | <b>13.87%</b> | <b>10.86%</b> |





# MPERS

## ANALYSIS BY FUND

| Investments                                    |              | Commitments   |                     | Contributions & Distributions |                 |                          | Valuations    |               |               | Performance |      |         |
|--|--------------|---------------|---------------------|-------------------------------|-----------------|--------------------------|---------------|---------------|---------------|-------------|------|---------|
| Investment Name                                | Vintage Year | Commitment    | Unfunded Commitment | Paid In Capital               | Additional Fees | Cumulative Distributions | Valuation     | Total Value   | Net Benefit   | DPI         | TVPI | IRR     |
| <b>Private Equity</b>                          |              |               |                     |                               |                 |                          |               |               |               |             |      |         |
| ABRY Partners VI, L.P.                         | 2008         | \$10,000,000  | \$1,119,386         | \$8,880,614                   | \$0             | \$18,404,747             | \$179,427     | \$18,584,173  | \$9,703,559   | 2.07        | 2.09 | 19.84%  |
| ABRY Partners VII, L.P.                        | 2011         | \$5,000,000   | \$214,332           | \$4,785,668                   | \$0             | \$6,557,940              | \$1,573,231   | \$8,131,172   | \$3,345,503   | 1.37        | 1.70 | 13.00%  |
| Aising Capital IV, L.P.                        | 2016         | \$10,000,000  | \$389,954           | \$9,610,046                   | -\$84,774       | \$2,085,350              | \$19,543,808  | \$21,629,158  | \$12,103,886  | 0.22        | 2.27 | 31.34%  |
| Arrowroot Capital III, L.P.                    | 2017         | \$10,000,000  | \$0                 | \$10,000,000                  | -\$128,940      | \$0                      | \$12,550,200  | \$12,550,200  | \$2,679,140   | 0.00        | 1.27 | 8.37%   |
| Arrowroot Capital IV, L.P.                     | 2018         | \$10,000,000  | \$0                 | \$10,000,000                  | \$3,074         | \$0                      | \$15,710,721  | \$15,710,721  | \$5,707,647   | 0.00        | 1.57 | 37.51%  |
| Blackstone Capital Partners Asia Fund II, L.P. | 2021         | \$20,000,000  | \$20,000,000        | \$0                           | \$0             | \$0                      | \$0           | \$0           | \$0           |             |      |         |
| Blackstone Capital Partners Asia, L.P.         | 2018         | \$15,000,000  | \$8,236,154         | \$6,763,846                   | \$600,938       | \$454,726                | \$10,782,554  | \$11,237,280  | \$3,872,496   | 0.06        | 1.53 | 34.87%  |
| CP ChromaScape, LLC                            | 2018         | \$750,000     | \$0                 | \$750,000                     | \$13,479        | \$137,976                | \$720,442     | \$858,418     | \$94,939      | 0.18        | 1.12 | 5.28%   |
| CP CMI, LLC                                    | 2017         | \$843,437     | \$0                 | \$843,437                     | \$8,897         | \$246,738                | \$1,010,049   | \$1,256,787   | \$404,452     | 0.29        | 1.47 | 14.74%  |
| CP M&Q, LLC                                    | 2018         | \$1,000,000   | \$0                 | \$1,000,000                   | \$31,576        | \$54,334                 | \$932,618     | \$986,952     | -\$44,624     | 0.05        | 0.96 | -1.79%  |
| CP Parkway, LLC                                | 2015         | \$1,760,099   | \$0                 | \$1,760,099                   | \$49,824        | \$821,868                | \$1,914,053   | \$2,735,921   | \$925,999     | 0.45        | 1.51 | 11.71%  |
| CP Premier, LLC                                | 2015         | \$1,425,000   | \$0                 | \$1,425,000                   | \$11,047        | \$570,787                | \$2,195,115   | \$2,765,902   | \$1,329,856   | 0.40        | 1.93 | 13.91%  |
| CP Sur-Seal, LLC                               | 2018         | \$1,000,000   | \$0                 | \$1,000,000                   | \$19,014        | \$167,677                | \$868,366     | \$1,036,043   | \$17,029      | 0.16        | 1.02 | 0.78%   |
| CP Thor, LLC                                   | 2018         | \$1,000,000   | \$0                 | \$1,000,000                   | \$18,993        | \$144,630                | \$968,644     | \$1,113,274   | \$94,281      | 0.14        | 1.09 | 4.62%   |
| CVI Specialized Ventures Fund A, L.P.          | 2007         | \$6,375,000   | \$0                 | \$6,375,000                   | \$27,121        | \$2,727,083              | \$0           | \$2,727,083   | -\$3,675,038  | 0.43        | 0.43 | -17.61% |
| DC Capital Partners Fund II, L.P.              | 2016         | \$8,000,000   | \$1,408,321         | \$6,591,679                   | \$23,891        | \$2,932,655              | \$6,911,283   | \$9,843,938   | \$3,228,369   | 0.44        | 1.49 | 30.76%  |
| Drive Capital Fund III, L.P.                   | 2019         | \$10,000,000  | \$7,906,667         | \$2,093,333                   | \$0             | \$0                      | \$2,020,047   | \$2,020,047   | -\$73,286     | 0.00        | 0.96 | -10.07% |
| Drive Capital Overdrive Fund I, L.P.           | 2019         | \$10,000,000  | \$4,537,569         | \$5,462,431                   | \$0             | \$0                      | \$8,856,698   | \$8,856,698   | \$3,394,267   | 0.00        | 1.62 | 51.59%  |
| Dyal IV US Investors, L.P.                     | 2018         | \$20,000,000  | \$14,781,423        | \$5,218,577                   | \$26,470        | \$0                      | \$8,204,512   | \$8,204,512   | \$2,959,465   | 0.00        | 1.56 | 76.77%  |
| Evergage, Inc.                                 | 2017         | \$1,000,000   | \$0                 | \$1,000,000                   | \$0             | \$0                      | \$1,870,000   | \$1,870,000   | \$870,000     | 0.00        | 1.87 | 19.78%  |
| Heartwood Partners II, L.P.                    | 2013         | \$10,000,000  | \$614,933           | \$9,385,067                   | \$101,447       | \$5,890,392              | \$8,367,227   | \$14,257,619  | \$4,771,105   | 0.62        | 1.50 | 12.22%  |
| Heartwood Partners III, L.P.                   | 2017         | \$10,000,000  | \$4,180,734         | \$5,819,266                   | \$0             | \$622,367                | \$5,880,103   | \$6,502,470   | \$683,204     | 0.11        | 1.12 | 8.86%   |
| KPS Special Situations Fund IV, L.P.           | 2014         | \$9,720,000   | \$1,114,767         | \$8,605,233                   | \$0             | \$2,006,994              | \$9,562,611   | \$11,569,605  | \$2,964,372   | 0.23        | 1.34 | 16.25%  |
| KPS Special Situations Fund V, L.P.            | 2020         | \$15,000,000  | \$12,160,197        | \$2,839,804                   | \$0             | \$0                      | \$2,823,304   | \$2,823,304   | -\$16,500     | 0.00        | 0.99 | -0.76%  |
| KPS Special Situations Mid-Cap Fund, L.P.      | 2019         | \$12,000,000  | \$9,792,020         | \$2,207,980                   | \$0             | \$0                      | \$2,262,109   | \$2,262,109   | \$54,129      | 0.00        | 1.02 | 2.59%   |
| Leadspace, Inc.                                | 2019         | \$1,750,000   | \$0                 | \$1,750,000                   | \$0             | \$0                      | \$2,222,500   | \$2,222,500   | \$472,500     | 0.00        | 1.27 | 14.63%  |
| Long Ridge Equity Partners II, L.P.            | 2016         | \$10,000,000  | \$527,494           | \$9,472,506                   | \$0             | \$4,085,332              | \$13,137,988  | \$17,223,320  | \$7,750,814   | 0.43        | 1.82 | 39.74%  |
| Long Ridge Parallel Broadway Holdings, LLC     | 2017         | \$1,500,000   | \$0                 | \$1,500,000                   | \$0             | \$5,314,150              | \$535,439     | \$5,849,589   | \$4,349,589   | 3.54        | 3.90 | 58.56%  |
| Long Ridge Parallel Processunity Holdings, LLC | 2018         | \$850,000     | \$0                 | \$850,000                     | \$0             | \$6,622                  | \$2,413,739   | \$2,420,361   | \$1,570,361   | 0.01        | 2.85 | 57.04%  |
| Mersive Investment Holdings, LLC               | 2018         | \$1,000,000   | \$0                 | \$1,000,000                   | \$23,405        | \$0                      | \$2,000,000   | \$2,000,000   | \$976,595     | 0.00        | 1.95 | 31.22%  |
| Monomoy Capital Partners III, L.P.             | 2017         | \$10,000,000  | \$3,444,000         | \$6,556,000                   | \$0             | \$1,622,725              | \$7,947,525   | \$9,570,250   | \$3,014,250   | 0.25        | 1.46 | 30.04%  |
| MP Ventures II, L.P.                           | 2008         | \$200,000,000 | \$4,558,543         | \$195,441,457                 | \$0             | \$217,987,163            | \$167,522,825 | \$385,509,988 | \$190,068,531 | 1.12        | 1.97 | 13.97%  |

\*CVI Specialized Ventures Fund A shows an adjusted commitment as the fund began liquidating before funding the entire commitment amount (original commitment of \$7.5M).

\*Capital Partners changed their name to Heartwood Partners as of September 2020. The name change will be reflected on the Q4 2020 report for Capital Partners Funds II and III.



# MPERS

## ANALYSIS BY FUND

| Investments                                     |              | Commitments          |                      | Contributions & Distributions |                  |                          | Valuations           |                        |                      | Performance |             |               |
|---|--------------|----------------------|----------------------|-------------------------------|------------------|--------------------------|----------------------|------------------------|----------------------|-------------|-------------|---------------|
| Investment Name                                 | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation            | Total Value            | Net Benefit          | DPI         | TVPI        | IRR           |
| MP Ventures, L.P.                               | 2005         | \$200,000,000        | \$222,805            | \$199,777,195                 | \$0              | \$277,198,900            | \$76,775,849         | \$353,974,749          | \$154,197,554        | 1.39        | 1.77        | 8.30%         |
| NewQuest Asia Fund III, L.P.                    | 2016         | \$7,500,000          | \$992,095            | \$6,507,905                   | \$0              | \$0                      | \$9,873,834          | \$9,873,834            | \$3,365,929          | 0.00        | 1.52        | 18.11%        |
| Nexus Special Situations Fund III, L.P.         | 2020         | \$15,000,000         | \$15,000,000         | \$0                           | \$0              | \$0                      | \$0                  | \$0                    | \$0                  |             |             |               |
| Nexus Special Situations II, L.P.               | 2018         | \$10,000,000         | \$4,175,655          | \$5,824,345                   | \$0              | \$499,043                | \$11,990,774         | \$12,489,817           | \$6,665,472          | 0.09        | 2.14        | 69.15%        |
| OpenGate Capital Partners I, L.P.               | 2015         | \$7,500,000          | \$1,318,885          | \$6,181,115                   | -\$1,928         | \$262,663                | \$9,817,763          | \$10,080,426           | \$3,901,239          | 0.04        | 1.63        | 14.80%        |
| OpenGate Capital Partners II, L.P.              | 2018         | \$10,000,000         | \$5,678,597          | \$4,321,403                   | -\$13,779        | \$0                      | \$5,795,208          | \$5,795,208            | \$1,487,584          | 0.00        | 1.35        | 28.39%        |
| Ospraie Special Opportunities (Offshore), Ltd.  | 2008         | \$15,000,000         | \$0                  | \$15,000,000                  | \$12,459         | \$17,684,056             | \$0                  | \$17,684,056           | \$2,671,597          | 1.18        | 1.18        | 3.07%         |
| PBK Holdco, LLC                                 | 2020         | \$2,000,000          | \$0                  | \$2,000,000                   | \$0              | \$117,333                | \$1,882,667          | \$2,000,000            | \$0                  | 0.06        | 1.00        | 0.00%         |
| Pfingsten Partners Fund V, L.P.                 | 2015         | \$10,000,000         | \$4,253,965          | \$5,746,035                   | \$0              | \$0                      | \$6,901,409          | \$6,901,409            | \$1,155,374          | 0.00        | 1.20        | 6.54%         |
| Shore Capital Partners Fund I, L.P.             | 2014         | \$6,000,000          | \$0                  | \$6,000,000                   | \$0              | \$6,092,923              | \$9,474,545          | \$15,567,468           | \$9,567,468          | 1.02        | 2.59        | 39.08%        |
| Shoreline China Value III, L.P.                 | 2015         | \$4,500,000          | \$190,852            | \$4,309,148                   | -\$3,327         | \$3,447,746              | \$1,745,172          | \$5,192,918            | \$887,097            | 0.80        | 1.21        | 5.67%         |
| Shoreline III Co-Investment L.P.                | 2015         | \$4,500,000          | \$290,412            | \$4,209,588                   | \$0              | \$4,382,100              | \$798,955            | \$5,181,055            | \$971,467            | 1.04        | 1.23        | 9.15%         |
| SVP Holdings, LLC                               | 2018         | \$2,269,781          | \$0                  | \$2,269,781                   | \$0              | \$0                      | \$2,269,781          | \$2,269,781            | \$0                  | 0.00        | 1.00        | 0.00%         |
| Vectis Healthcare & Life Sciences Fund II, L.P. | 2009         | \$15,000,000         | \$75,000             | \$14,925,000                  | -\$3,906         | \$21,587,183             | \$8,588,838          | \$30,176,021           | \$15,254,927         | 1.45        | 2.02        | 15.48%        |
| <b>Total Private Equity</b>                     |              | <b>\$734,243,317</b> | <b>\$127,184,761</b> | <b>\$607,058,556</b>          | <b>\$734,979</b> | <b>\$604,114,205</b>     | <b>\$467,401,933</b> | <b>\$1,071,516,137</b> | <b>\$463,722,602</b> | <b>0.99</b> | <b>1.76</b> | <b>10.86%</b> |
| <b>Total</b>                                    |              | <b>\$734,243,317</b> | <b>\$127,184,761</b> | <b>\$607,058,556</b>          | <b>\$734,979</b> | <b>\$604,114,205</b>     | <b>\$467,401,933</b> | <b>\$1,071,516,137</b> | <b>\$463,722,602</b> | <b>0.99</b> | <b>1.76</b> | <b>10.86%</b> |



# MPERS

## ANALYSIS BY LIFECYCLE

| Investments                                    |              | Commitments         |                     |            | Contributions & Distributions |                 |                          | Valuations   |              |              | Performance |      |         |
|--|--------------|---------------------|---------------------|------------|-------------------------------|-----------------|--------------------------|--------------|--------------|--------------|-------------|------|---------|
| Investment Name                                | Vintage Year | Commitment          | Unfunded Commitment | Call Ratio | Paid In Capital               | Additional Fees | Cumulative Distributions | Valuation    | Total Value  | Net Benefit  | DPI         | TVPI | IRR     |
| <b>Fundraising</b>                             |              |                     |                     |            |                               |                 |                          |              |              |              |             |      |         |
| Blackstone Capital Partners Asia Fund II, L.P. | 2021         | \$20,000,000        | \$20,000,000        |            | \$0                           | \$0             | \$0                      | \$0          | \$0          | \$0          |             |      |         |
| Nexus Special Situations Fund III, L.P.        | 2020         | \$15,000,000        | \$15,000,000        |            | \$0                           | \$0             | \$0                      | \$0          | \$0          | \$0          |             |      |         |
| <b>Total Fundraising</b>                       |              | <b>\$35,000,000</b> | <b>\$35,000,000</b> |            | <b>\$0</b>                    | <b>\$0</b>      | <b>\$0</b>               | <b>\$0</b>   | <b>\$0</b>   | <b>\$0</b>   |             |      |         |
| <b>Investing</b>                               |              |                     |                     |            |                               |                 |                          |              |              |              |             |      |         |
| Aisling Capital IV, L.P.                       | 2016         | \$10,000,000        | \$389,954           | 0.96       | \$9,610,046                   | -\$84,774       | \$2,085,350              | \$19,543,808 | \$21,629,158 | \$12,103,886 | 0.22        | 2.27 | 31.34%  |
| Arrowroot Capital III, L.P.                    | 2017         | \$10,000,000        | \$0                 | 1.00       | \$10,000,000                  | -\$128,940      | \$0                      | \$12,550,200 | \$12,550,200 | \$2,679,140  | 0.00        | 1.27 | 8.37%   |
| Arrowroot Capital IV, L.P.                     | 2018         | \$10,000,000        | \$0                 | 1.00       | \$10,000,000                  | \$3,074         | \$0                      | \$15,710,721 | \$15,710,721 | \$5,707,647  | 0.00        | 1.57 | 37.51%  |
| Blackstone Capital Partners Asia, L.P.         | 2018         | \$15,000,000        | \$8,236,154         | 0.45       | \$6,763,846                   | \$600,938       | \$454,726                | \$10,782,554 | \$11,237,280 | \$3,872,496  | 0.06        | 1.53 | 34.87%  |
| CP ChromaScape, LLC                            | 2018         | \$750,000           | \$0                 | 1.00       | \$750,000                     | \$13,479        | \$137,976                | \$720,442    | \$858,418    | \$94,939     | 0.18        | 1.12 | 5.28%   |
| CP CMI, LLC                                    | 2017         | \$843,437           | \$0                 | 1.00       | \$843,437                     | \$8,897         | \$246,738                | \$1,010,049  | \$1,256,787  | \$404,452    | 0.29        | 1.47 | 14.74%  |
| CP M&Q, LLC                                    | 2018         | \$1,000,000         | \$0                 | 1.00       | \$1,000,000                   | \$31,576        | \$54,334                 | \$932,618    | \$986,952    | -\$44,624    | 0.05        | 0.96 | -1.79%  |
| CP Parkway, LLC                                | 2015         | \$1,760,099         | \$0                 | 1.00       | \$1,760,099                   | \$49,824        | \$821,868                | \$1,914,053  | \$2,735,921  | \$925,999    | 0.45        | 1.51 | 11.71%  |
| CP Premier, LLC                                | 2015         | \$1,425,000         | \$0                 | 1.00       | \$1,425,000                   | \$11,047        | \$570,787                | \$2,195,115  | \$2,765,902  | \$1,329,856  | 0.40        | 1.93 | 13.91%  |
| CP Sur-Seal, LLC                               | 2018         | \$1,000,000         | \$0                 | 1.00       | \$1,000,000                   | \$19,014        | \$167,677                | \$868,366    | \$1,036,043  | \$17,029     | 0.16        | 1.02 | 0.78%   |
| CP Thor, LLC                                   | 2018         | \$1,000,000         | \$0                 | 1.00       | \$1,000,000                   | \$18,993        | \$144,630                | \$968,644    | \$1,113,274  | \$94,281     | 0.14        | 1.09 | 4.62%   |
| DC Capital Partners Fund II, L.P.              | 2016         | \$8,000,000         | \$1,408,321         | 0.82       | \$6,591,679                   | \$23,891        | \$2,932,655              | \$6,911,283  | \$9,843,938  | \$3,228,369  | 0.44        | 1.49 | 30.76%  |
| Drive Capital Fund III, L.P.                   | 2019         | \$10,000,000        | \$7,906,667         | 0.21       | \$2,093,333                   | \$0             | \$0                      | \$2,020,047  | \$2,020,047  | -\$73,286    | 0.00        | 0.96 | -10.07% |
| Drive Capital Overdrive Fund I, L.P.           | 2019         | \$10,000,000        | \$4,537,569         | 0.55       | \$5,462,431                   | \$0             | \$0                      | \$8,856,698  | \$8,856,698  | \$3,394,267  | 0.00        | 1.62 | 51.59%  |
| Dyal IV US Investors, L.P.                     | 2018         | \$20,000,000        | \$14,781,423        | 0.26       | \$5,218,577                   | \$26,470        | \$0                      | \$8,204,512  | \$8,204,512  | \$2,959,465  | 0.00        | 1.56 | 76.77%  |
| Evergage, Inc.                                 | 2017         | \$1,000,000         | \$0                 | 1.00       | \$1,000,000                   | \$0             | \$0                      | \$1,870,000  | \$1,870,000  | \$870,000    | 0.00        | 1.87 | 19.78%  |
| Heartwood Partners III, L.P.                   | 2017         | \$10,000,000        | \$4,180,734         | 0.58       | \$5,819,266                   | \$0             | \$622,367                | \$5,880,103  | \$6,502,470  | \$683,204    | 0.11        | 1.12 | 8.86%   |
| KPS Special Situations Fund V, L.P.            | 2020         | \$15,000,000        | \$12,160,197        | 0.19       | \$2,839,804                   | \$0             | \$0                      | \$2,823,304  | \$2,823,304  | -\$16,500    | 0.00        | 0.99 | -0.76%  |
| KPS Special Situations Mid-Cap Fund, L.P.      | 2019         | \$12,000,000        | \$9,792,020         | 0.18       | \$2,207,980                   | \$0             | \$0                      | \$2,262,109  | \$2,262,109  | \$54,129     | 0.00        | 1.02 | 2.59%   |
| Leadspace, Inc.                                | 2019         | \$1,750,000         | \$0                 | 1.00       | \$1,750,000                   | \$0             | \$0                      | \$2,222,500  | \$2,222,500  | \$472,500    | 0.00        | 1.27 | 14.63%  |
| Long Ridge Equity Partners II, L.P.            | 2016         | \$10,000,000        | \$527,494           | 0.95       | \$9,472,506                   | \$0             | \$4,085,332              | \$13,137,988 | \$17,223,320 | \$7,750,814  | 0.43        | 1.82 | 39.74%  |
| Long Ridge Parallel Broadway Holdings, LLC     | 2017         | \$1,500,000         | \$0                 | 1.00       | \$1,500,000                   | \$0             | \$5,314,150              | \$535,439    | \$5,849,589  | \$4,349,589  | 3.54        | 3.90 | 58.56%  |
| Long Ridge Parallel Processunity Holdings, LLC | 2018         | \$850,000           | \$0                 | 1.00       | \$850,000                     | \$0             | \$6,622                  | \$2,413,739  | \$2,420,361  | \$1,570,361  | 0.01        | 2.85 | 57.04%  |
| Mersive Investment Holdings, LLC               | 2018         | \$1,000,000         | \$0                 | 1.00       | \$1,000,000                   | \$23,405        | \$0                      | \$2,000,000  | \$2,000,000  | \$976,595    | 0.00        | 1.95 | 31.22%  |
| Monomoy Capital Partners III, L.P.             | 2017         | \$10,000,000        | \$3,444,000         | 0.66       | \$6,556,000                   | \$0             | \$1,622,725              | \$7,947,525  | \$9,570,250  | \$3,014,250  | 0.25        | 1.46 | 30.04%  |
| NewQuest Asia Fund III, L.P.                   | 2016         | \$7,500,000         | \$992,095           | 0.87       | \$6,507,905                   | \$0             | \$0                      | \$9,873,834  | \$9,873,834  | \$3,365,929  | 0.00        | 1.52 | 18.11%  |
| Nexus Special Situations II, L.P.              | 2018         | \$10,000,000        | \$4,175,655         | 0.58       | \$5,824,345                   | \$0             | \$499,043                | \$11,990,774 | \$12,489,817 | \$6,665,472  | 0.09        | 2.14 | 69.15%  |
| OpenGate Capital Partners I, L.P.              | 2015         | \$7,500,000         | \$1,318,885         | 0.82       | \$6,181,115                   | -\$1,928        | \$262,663                | \$9,817,763  | \$10,080,426 | \$3,901,239  | 0.04        | 1.63 | 14.80%  |



# MPERS

## ANALYSIS BY LIFECYCLE

| Investments                                     |              | Commitments          |                      |             | Contributions & Distributions |                  |                          | Valuations           |                        |                      | Performance |             |               |
|---|--------------|----------------------|----------------------|-------------|-------------------------------|------------------|--------------------------|----------------------|------------------------|----------------------|-------------|-------------|---------------|
| Investment Name                                 | Vintage Year | Commitment           | Unfunded Commitment  | Call Ratio  | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation            | Total Value            | Net Benefit          | DPI         | TVPI        | IRR           |
| OpenGate Capital Partners II, L.P.              | 2018         | \$10,000,000         | \$5,678,597          | 0.43        | \$4,321,403                   | -\$13,779        | \$0                      | \$5,795,208          | \$5,795,208            | \$1,487,584          | 0.00        | 1.35        | 28.39%        |
| PBK Holdco, LLC                                 | 2020         | \$2,000,000          | \$0                  | 1.00        | \$2,000,000                   | \$0              | \$117,333                | \$1,882,667          | \$2,000,000            | \$0                  | 0.06        | 1.00        | 0.00%         |
| Pfingsten Partners Fund V, L.P.                 | 2015         | \$10,000,000         | \$4,253,965          | 0.57        | \$5,746,035                   | \$0              | \$0                      | \$6,901,409          | \$6,901,409            | \$1,155,374          | 0.00        | 1.20        | 6.54%         |
| Shoreline III Co-Investment L.P.                | 2015         | \$4,500,000          | \$290,412            | 0.94        | \$4,209,588                   | \$0              | \$4,382,100              | \$798,955            | \$5,181,055            | \$971,467            | 1.04        | 1.23        | 9.15%         |
| SVP Holdings, LLC                               | 2018         | \$2,269,781          | \$0                  | 1.00        | \$2,269,781                   | \$0              | \$0                      | \$2,269,781          | \$2,269,781            | \$0                  | 0.00        | 1.00        | 0.00%         |
| <b>Total Investing</b>                          |              | <b>\$217,648,317</b> | <b>\$84,074,144</b>  | <b>0.61</b> | <b>\$133,574,174</b>          | <b>\$601,186</b> | <b>\$24,529,077</b>      | <b>\$183,612,208</b> | <b>\$208,141,285</b>   | <b>\$73,965,926</b>  | <b>0.18</b> | <b>1.55</b> | <b>23.48%</b> |
| <b>Harvesting</b>                               |              |                      |                      |             |                               |                  |                          |                      |                        |                      |             |             |               |
| ABRY Partners VII, L.P.                         | 2011         | \$5,000,000          | \$214,332            | 0.96        | \$4,785,668                   | \$0              | \$6,557,940              | \$1,573,231          | \$8,131,172            | \$3,345,503          | 1.37        | 1.70        | 13.00%        |
| Heartwood Partners II, L.P.                     | 2013         | \$10,000,000         | \$614,933            | 0.94        | \$9,385,067                   | \$101,447        | \$5,890,392              | \$8,367,227          | \$14,257,619           | \$4,771,105          | 0.62        | 1.50        | 12.22%        |
| KPS Special Situations Fund IV, L.P.            | 2014         | \$9,720,000          | \$1,114,767          | 0.89        | \$8,605,233                   | \$0              | \$2,006,994              | \$9,562,611          | \$11,569,605           | \$2,964,372          | 0.23        | 1.34        | 16.25%        |
| MP Ventures II, L.P.                            | 2008         | \$200,000,000        | \$4,558,543          | 0.98        | \$195,441,457                 | \$0              | \$217,987,163            | \$167,522,825        | \$385,509,988          | \$190,068,531        | 1.12        | 1.97        | 13.97%        |
| MP Ventures, L.P.                               | 2005         | \$200,000,000        | \$222,805            | 1.00        | \$199,777,195                 | \$0              | \$277,198,900            | \$76,775,849         | \$353,974,749          | \$154,197,554        | 1.39        | 1.77        | 8.30%         |
| Shore Capital Partners Fund I, L.P.             | 2014         | \$6,000,000          | \$0                  | 1.00        | \$6,000,000                   | \$0              | \$6,092,923              | \$9,474,545          | \$15,567,468           | \$9,567,468          | 1.02        | 2.59        | 39.08%        |
| Shoreline China Value III, L.P.                 | 2015         | \$4,500,000          | \$190,852            | 0.96        | \$4,309,148                   | -\$3,327         | \$3,447,746              | \$1,745,172          | \$5,192,918            | \$887,097            | 0.80        | 1.21        | 5.67%         |
| Vectis Healthcare & Life Sciences Fund II, L.P. | 2009         | \$15,000,000         | \$75,000             | 1.00        | \$14,925,000                  | -\$3,906         | \$21,587,183             | \$8,588,838          | \$30,176,021           | \$15,254,927         | 1.45        | 2.02        | 15.48%        |
| <b>Total Harvesting</b>                         |              | <b>\$450,220,000</b> | <b>\$6,991,231</b>   | <b>0.98</b> | <b>\$443,228,769</b>          | <b>\$94,214</b>  | <b>\$540,769,242</b>     | <b>\$283,610,298</b> | <b>\$824,379,540</b>   | <b>\$381,056,557</b> | <b>1.22</b> | <b>1.86</b> | <b>10.58%</b> |
| <b>Liquidating</b>                              |              |                      |                      |             |                               |                  |                          |                      |                        |                      |             |             |               |
| ABRY Partners VI, L.P.                          | 2008         | \$10,000,000         | \$1,119,386          | 0.89        | \$8,880,614                   | \$0              | \$18,404,747             | \$179,427            | \$18,584,173           | \$9,703,559          | 2.07        | 2.09        | 19.84%        |
| <b>Total Liquidating</b>                        |              | <b>\$10,000,000</b>  | <b>\$1,119,386</b>   | <b>0.89</b> | <b>\$8,880,614</b>            | <b>\$0</b>       | <b>\$18,404,747</b>      | <b>\$179,427</b>     | <b>\$18,584,173</b>    | <b>\$9,703,559</b>   | <b>2.07</b> | <b>2.09</b> | <b>19.84%</b> |
| <b>Completed</b>                                |              |                      |                      |             |                               |                  |                          |                      |                        |                      |             |             |               |
| CVI Specialized Ventures Fund A, L.P.           | 2007         | \$6,375,000          | \$0                  | 1.00        | \$6,375,000                   | \$27,121         | \$2,727,083              | \$0                  | \$2,727,083            | -\$3,675,038         | 0.43        | 0.43        | -17.61%       |
| Ospraie Special Opportunities (Offshore), Ltd.  | 2008         | \$15,000,000         | \$0                  | 1.00        | \$15,000,000                  | \$12,459         | \$17,684,056             | \$0                  | \$17,684,056           | \$2,671,597          | 1.18        | 1.18        | 3.07%         |
| <b>Total Completed</b>                          |              | <b>\$21,375,000</b>  | <b>\$0</b>           | <b>1.00</b> | <b>\$21,375,000</b>           | <b>\$39,580</b>  | <b>\$20,411,139</b>      | <b>\$0</b>           | <b>\$20,411,139</b>    | <b>-\$1,003,441</b>  | <b>0.95</b> | <b>0.95</b> | <b>-0.88%</b> |
| <b>Total</b>                                    |              | <b>\$734,243,317</b> | <b>\$127,184,761</b> | <b>0.83</b> | <b>\$607,058,556</b>          | <b>\$734,979</b> | <b>\$604,114,205</b>     | <b>\$467,401,933</b> | <b>\$1,071,516,137</b> | <b>\$463,722,602</b> | <b>0.99</b> | <b>1.76</b> | <b>10.86%</b> |



**MPERS**

# ANALYSIS BY VINTAGE YEAR

| Investments                                     |              | Commitments          |                     | Contributions & Distributions |                  |                          | Valuations           |                      |                      | Performance |             |                |
|---|--------------|----------------------|---------------------|-------------------------------|------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|----------------|
| Investment Name                                 | Vintage Year | Commitment           | Unfunded Commitment | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR            |
| <b>2005</b>                                     |              |                      |                     |                               |                  |                          |                      |                      |                      |             |             |                |
| MP Ventures, L.P.                               | 2005         | \$200,000,000        | \$222,805           | \$199,777,195                 | \$0              | \$277,198,900            | \$76,775,849         | \$353,974,749        | \$154,197,554        | 1.39        | 1.77        | 8.30%          |
| <b>Total 2005</b>                               |              | <b>\$200,000,000</b> | <b>\$222,805</b>    | <b>\$199,777,195</b>          | <b>\$0</b>       | <b>\$277,198,900</b>     | <b>\$76,775,849</b>  | <b>\$353,974,749</b> | <b>\$154,197,554</b> | <b>1.39</b> | <b>1.77</b> | <b>8.30%</b>   |
| <b>2007</b>                                     |              |                      |                     |                               |                  |                          |                      |                      |                      |             |             |                |
| CVI Specialized Ventures Fund A, L.P.           | 2007         | \$6,375,000          | \$0                 | \$6,375,000                   | \$27,121         | \$2,727,083              | \$0                  | \$2,727,083          | -\$3,675,038         | 0.43        | 0.43        | -17.61%        |
| <b>Total 2007</b>                               |              | <b>\$6,375,000</b>   | <b>\$0</b>          | <b>\$6,375,000</b>            | <b>\$27,121</b>  | <b>\$2,727,083</b>       | <b>\$0</b>           | <b>\$2,727,083</b>   | <b>-\$3,675,038</b>  | <b>0.43</b> | <b>0.43</b> | <b>-17.61%</b> |
| <b>2008</b>                                     |              |                      |                     |                               |                  |                          |                      |                      |                      |             |             |                |
| ABRY Partners VI, L.P.                          | 2008         | \$10,000,000         | \$1,119,386         | \$8,880,614                   | \$0              | \$18,404,747             | \$179,427            | \$18,584,173         | \$9,703,559          | 2.07        | 2.09        | 19.84%         |
| MP Ventures II, L.P.                            | 2008         | \$200,000,000        | \$4,558,543         | \$195,441,457                 | \$0              | \$217,987,163            | \$167,522,825        | \$385,509,988        | \$190,068,531        | 1.12        | 1.97        | 13.97%         |
| Ospraie Special Opportunities (Offshore), Ltd.  | 2008         | \$15,000,000         | \$0                 | \$15,000,000                  | \$12,459         | \$17,684,056             | \$0                  | \$17,684,056         | \$2,671,597          | 1.18        | 1.18        | 3.07%          |
| <b>Total 2008</b>                               |              | <b>\$225,000,000</b> | <b>\$5,677,930</b>  | <b>\$219,322,071</b>          | <b>\$12,459</b>  | <b>\$254,075,965</b>     | <b>\$167,702,252</b> | <b>\$421,778,217</b> | <b>\$202,443,687</b> | <b>1.16</b> | <b>1.92</b> | <b>13.12%</b>  |
| <b>2009</b>                                     |              |                      |                     |                               |                  |                          |                      |                      |                      |             |             |                |
| Vectis Healthcare & Life Sciences Fund II, L.P. | 2009         | \$15,000,000         | \$75,000            | \$14,925,000                  | -\$3,906         | \$21,587,183             | \$8,588,838          | \$30,176,021         | \$15,254,927         | 1.45        | 2.02        | 15.48%         |
| <b>Total 2009</b>                               |              | <b>\$15,000,000</b>  | <b>\$75,000</b>     | <b>\$14,925,000</b>           | <b>-\$3,906</b>  | <b>\$21,587,183</b>      | <b>\$8,588,838</b>   | <b>\$30,176,021</b>  | <b>\$15,254,927</b>  | <b>1.45</b> | <b>2.02</b> | <b>15.48%</b>  |
| <b>2011</b>                                     |              |                      |                     |                               |                  |                          |                      |                      |                      |             |             |                |
| ABRY Partners VII, L.P.                         | 2011         | \$5,000,000          | \$214,332           | \$4,785,668                   | \$0              | \$6,557,940              | \$1,573,231          | \$8,131,172          | \$3,345,503          | 1.37        | 1.70        | 13.00%         |
| <b>Total 2011</b>                               |              | <b>\$5,000,000</b>   | <b>\$214,332</b>    | <b>\$4,785,668</b>            | <b>\$0</b>       | <b>\$6,557,940</b>       | <b>\$1,573,231</b>   | <b>\$8,131,172</b>   | <b>\$3,345,503</b>   | <b>1.37</b> | <b>1.70</b> | <b>13.00%</b>  |
| <b>2013</b>                                     |              |                      |                     |                               |                  |                          |                      |                      |                      |             |             |                |
| Heartwood Partners II, L.P.                     | 2013         | \$10,000,000         | \$614,933           | \$9,385,067                   | \$101,447        | \$5,890,392              | \$8,367,227          | \$14,257,619         | \$4,771,105          | 0.62        | 1.50        | 12.22%         |
| <b>Total 2013</b>                               |              | <b>\$10,000,000</b>  | <b>\$614,933</b>    | <b>\$9,385,067</b>            | <b>\$101,447</b> | <b>\$5,890,392</b>       | <b>\$8,367,227</b>   | <b>\$14,257,619</b>  | <b>\$4,771,105</b>   | <b>0.62</b> | <b>1.50</b> | <b>12.22%</b>  |
| <b>2014</b>                                     |              |                      |                     |                               |                  |                          |                      |                      |                      |             |             |                |
| KPS Special Situations Fund IV, L.P.            | 2014         | \$9,720,000          | \$1,114,767         | \$8,605,233                   | \$0              | \$2,006,994              | \$9,562,611          | \$11,569,605         | \$2,964,372          | 0.23        | 1.34        | 16.25%         |
| Shore Capital Partners Fund I, L.P.             | 2014         | \$6,000,000          | \$0                 | \$6,000,000                   | \$0              | \$6,092,923              | \$9,474,545          | \$15,567,468         | \$9,567,468          | 1.02        | 2.59        | 39.08%         |
| <b>Total 2014</b>                               |              | <b>\$15,720,000</b>  | <b>\$1,114,767</b>  | <b>\$14,605,233</b>           | <b>\$0</b>       | <b>\$8,099,917</b>       | <b>\$19,037,156</b>  | <b>\$27,137,073</b>  | <b>\$12,531,840</b>  | <b>0.55</b> | <b>1.86</b> | <b>29.69%</b>  |
| <b>2015</b>                                     |              |                      |                     |                               |                  |                          |                      |                      |                      |             |             |                |
| CP Parkway, LLC                                 | 2015         | \$1,760,099          | \$0                 | \$1,760,099                   | \$49,824         | \$821,868                | \$1,914,053          | \$2,735,921          | \$925,999            | 0.45        | 1.51        | 11.71%         |
| CP Premier, LLC                                 | 2015         | \$1,425,000          | \$0                 | \$1,425,000                   | \$11,047         | \$570,787                | \$2,195,115          | \$2,765,902          | \$1,329,856          | 0.40        | 1.93        | 13.91%         |
| OpenGate Capital Partners I, L.P.               | 2015         | \$7,500,000          | \$1,318,885         | \$6,181,115                   | -\$1,928         | \$262,663                | \$9,817,763          | \$10,080,426         | \$3,901,239          | 0.04        | 1.63        | 14.80%         |
| Pfingsten Partners Fund V, L.P.                 | 2015         | \$10,000,000         | \$4,253,965         | \$5,746,035                   | \$0              | \$0                      | \$6,901,409          | \$6,901,409          | \$1,155,374          | 0.00        | 1.20        | 6.54%          |
| Shoreline China Value III, L.P.                 | 2015         | \$4,500,000          | \$190,852           | \$4,309,148                   | -\$3,327         | \$3,447,746              | \$1,745,172          | \$5,192,918          | \$887,097            | 0.80        | 1.21        | 5.67%          |
| Shoreline III Co-Investment L.P.                | 2015         | \$4,500,000          | \$290,412           | \$4,209,588                   | \$0              | \$4,382,100              | \$798,955            | \$5,181,055          | \$971,467            | 1.04        | 1.23        | 9.15%          |
| <b>Total 2015</b>                               |              | <b>\$29,685,099</b>  | <b>\$6,054,114</b>  | <b>\$23,630,985</b>           | <b>\$55,615</b>  | <b>\$9,485,164</b>       | <b>\$23,372,467</b>  | <b>\$32,857,631</b>  | <b>\$9,171,032</b>   | <b>0.40</b> | <b>1.39</b> | <b>10.36%</b>  |



**MPERS**

# ANALYSIS BY VINTAGE YEAR

| Investments                                    |              | Commitments         |                     | Contributions & Distributions |                   |                          | Valuations          |                     |                     | Performance |             |               |
|--|--------------|---------------------|---------------------|-------------------------------|-------------------|--------------------------|---------------------|---------------------|---------------------|-------------|-------------|---------------|
| Investment Name                                | Vintage Year | Commitment          | Unfunded Commitment | Paid In Capital               | Additional Fees   | Cumulative Distributions | Valuation           | Total Value         | Net Benefit         | DPI         | TVPI        | IRR           |
| <b>2016</b>                                    |              |                     |                     |                               |                   |                          |                     |                     |                     |             |             |               |
| Aising Capital IV, L.P.                        | 2016         | \$10,000,000        | \$389,954           | \$9,610,046                   | -\$84,774         | \$2,085,350              | \$19,543,808        | \$21,629,158        | \$12,103,886        | 0.22        | 2.27        | 31.34%        |
| DC Capital Partners Fund II, L.P.              | 2016         | \$8,000,000         | \$1,408,321         | \$6,591,679                   | \$23,891          | \$2,932,655              | \$6,911,283         | \$9,843,938         | \$3,228,369         | 0.44        | 1.49        | 30.76%        |
| Long Ridge Equity Partners II, L.P.            | 2016         | \$10,000,000        | \$527,494           | \$9,472,506                   | \$0               | \$4,085,332              | \$13,137,988        | \$17,223,320        | \$7,750,814         | 0.43        | 1.82        | 39.74%        |
| NewQuest Asia Fund III, L.P.                   | 2016         | \$7,500,000         | \$992,095           | \$6,507,905                   | \$0               | \$0                      | \$9,873,834         | \$9,873,834         | \$3,365,929         | 0.00        | 1.52        | 18.11%        |
| <b>Total 2016</b>                              |              | <b>\$35,500,000</b> | <b>\$3,317,865</b>  | <b>\$32,182,135</b>           | <b>-\$60,883</b>  | <b>\$9,103,337</b>       | <b>\$49,466,913</b> | <b>\$58,570,250</b> | <b>\$26,448,998</b> | <b>0.28</b> | <b>1.82</b> | <b>30.45%</b> |
| <b>2017</b>                                    |              |                     |                     |                               |                   |                          |                     |                     |                     |             |             |               |
| Arrowroot Capital III, L.P.                    | 2017         | \$10,000,000        | \$0                 | \$10,000,000                  | -\$128,940        | \$0                      | \$12,550,200        | \$12,550,200        | \$2,679,140         | 0.00        | 1.27        | 8.37%         |
| CP CMI, LLC                                    | 2017         | \$843,437           | \$0                 | \$843,437                     | \$8,897           | \$246,738                | \$1,010,049         | \$1,256,787         | \$404,452           | 0.29        | 1.47        | 14.74%        |
| Evergage, Inc.                                 | 2017         | \$1,000,000         | \$0                 | \$1,000,000                   | \$0               | \$0                      | \$1,870,000         | \$1,870,000         | \$870,000           | 0.00        | 1.87        | 19.78%        |
| Heartwood Partners III, L.P.                   | 2017         | \$10,000,000        | \$4,180,734         | \$5,819,266                   | \$0               | \$622,367                | \$5,880,103         | \$6,502,470         | \$683,204           | 0.11        | 1.12        | 8.86%         |
| Long Ridge Parallel Broadway Holdings, LLC     | 2017         | \$1,500,000         | \$0                 | \$1,500,000                   | \$0               | \$5,314,150              | \$535,439           | \$5,849,589         | \$4,349,589         | 3.54        | 3.90        | 58.56%        |
| Monomoy Capital Partners III, L.P.             | 2017         | \$10,000,000        | \$3,444,000         | \$6,556,000                   | \$0               | \$1,622,725              | \$7,947,525         | \$9,570,250         | \$3,014,250         | 0.25        | 1.46        | 30.04%        |
| <b>Total 2017</b>                              |              | <b>\$33,343,437</b> | <b>\$7,624,734</b>  | <b>\$25,718,703</b>           | <b>-\$120,043</b> | <b>\$7,805,979</b>       | <b>\$29,793,316</b> | <b>\$37,599,295</b> | <b>\$12,000,635</b> | <b>0.30</b> | <b>1.47</b> | <b>18.94%</b> |
| <b>2018</b>                                    |              |                     |                     |                               |                   |                          |                     |                     |                     |             |             |               |
| Arrowroot Capital IV, L.P.                     | 2018         | \$10,000,000        | \$0                 | \$10,000,000                  | \$3,074           | \$0                      | \$15,710,721        | \$15,710,721        | \$5,707,647         | 0.00        | 1.57        | 37.51%        |
| Blackstone Capital Partners Asia, L.P.         | 2018         | \$15,000,000        | \$8,236,154         | \$6,763,846                   | \$600,938         | \$454,726                | \$10,782,554        | \$11,237,280        | \$3,872,496         | 0.06        | 1.53        | 34.87%        |
| CP ChromaScape, LLC                            | 2018         | \$750,000           | \$0                 | \$750,000                     | \$13,479          | \$137,976                | \$720,442           | \$858,418           | \$94,939            | 0.18        | 1.12        | 5.28%         |
| CP M&Q, LLC                                    | 2018         | \$1,000,000         | \$0                 | \$1,000,000                   | \$31,576          | \$54,334                 | \$932,618           | \$986,952           | -\$44,624           | 0.05        | 0.96        | -1.79%        |
| CP Sur-Seal, LLC                               | 2018         | \$1,000,000         | \$0                 | \$1,000,000                   | \$19,014          | \$167,677                | \$868,366           | \$1,036,043         | \$17,029            | 0.16        | 1.02        | 0.78%         |
| CP Thor, LLC                                   | 2018         | \$1,000,000         | \$0                 | \$1,000,000                   | \$18,993          | \$144,630                | \$968,644           | \$1,113,274         | \$94,281            | 0.14        | 1.09        | 4.62%         |
| Dyal IV US Investors, L.P.                     | 2018         | \$20,000,000        | \$14,781,423        | \$5,218,577                   | \$26,470          | \$0                      | \$8,204,512         | \$8,204,512         | \$2,959,465         | 0.00        | 1.56        | 76.77%        |
| Long Ridge Parallel Processunity Holdings, LLC | 2018         | \$850,000           | \$0                 | \$850,000                     | \$0               | \$6,622                  | \$2,413,739         | \$2,420,361         | \$1,570,361         | 0.01        | 2.85        | 57.04%        |
| Mersive Investment Holdings, LLC               | 2018         | \$1,000,000         | \$0                 | \$1,000,000                   | \$23,405          | \$0                      | \$2,000,000         | \$2,000,000         | \$976,595           | 0.00        | 1.95        | 31.22%        |
| Nexus Special Situations II, L.P.              | 2018         | \$10,000,000        | \$4,175,655         | \$5,824,345                   | \$0               | \$499,043                | \$11,990,774        | \$12,489,817        | \$6,665,472         | 0.09        | 2.14        | 69.15%        |
| OpenGate Capital Partners II, L.P.             | 2018         | \$10,000,000        | \$5,678,597         | \$4,321,403                   | -\$13,779         | \$0                      | \$5,795,208         | \$5,795,208         | \$1,487,584         | 0.00        | 1.35        | 28.39%        |
| SVP Holdings, LLC                              | 2018         | \$2,269,781         | \$0                 | \$2,269,781                   | \$0               | \$0                      | \$2,269,781         | \$2,269,781         | \$0                 | 0.00        | 1.00        | 0.00%         |
| <b>Total 2018</b>                              |              | <b>\$72,869,781</b> | <b>\$32,871,830</b> | <b>\$39,997,951</b>           | <b>\$723,170</b>  | <b>\$1,465,009</b>       | <b>\$62,657,359</b> | <b>\$64,122,368</b> | <b>\$23,401,246</b> | <b>0.04</b> | <b>1.57</b> | <b>34.59%</b> |
| <b>2019</b>                                    |              |                     |                     |                               |                   |                          |                     |                     |                     |             |             |               |
| Drive Capital Fund III, L.P.                   | 2019         | \$10,000,000        | \$7,906,667         | \$2,093,333                   | \$0               | \$0                      | \$2,020,047         | \$2,020,047         | -\$73,286           | 0.00        | 0.96        | -10.07%       |
| Drive Capital Overdrive Fund I, L.P.           | 2019         | \$10,000,000        | \$4,537,569         | \$5,462,431                   | \$0               | \$0                      | \$8,856,698         | \$8,856,698         | \$3,394,267         | 0.00        | 1.62        | 51.59%        |
| KPS Special Situations Mid-Cap Fund, L.P.      | 2019         | \$12,000,000        | \$9,792,020         | \$2,207,980                   | \$0               | \$0                      | \$2,262,109         | \$2,262,109         | \$54,129            | 0.00        | 1.02        | 2.59%         |
| Leadspace, Inc.                                | 2019         | \$1,750,000         | \$0                 | \$1,750,000                   | \$0               | \$0                      | \$2,222,500         | \$2,222,500         | \$472,500           | 0.00        | 1.27        | 14.63%        |
| <b>Total 2019</b>                              |              | <b>\$33,750,000</b> | <b>\$22,236,256</b> | <b>\$11,513,744</b>           | <b>\$0</b>        | <b>\$0</b>               | <b>\$15,361,354</b> | <b>\$15,361,354</b> | <b>\$3,847,610</b>  | <b>0.00</b> | <b>1.33</b> | <b>30.49%</b> |



## MPERS

# ANALYSIS BY VINTAGE YEAR

| Investments                                    |              | Commitments          |                      | Contributions & Distributions |                  |                          | Valuations           |                        |                      | Performance |             |               |
|--|--------------|----------------------|----------------------|-------------------------------|------------------|--------------------------|----------------------|------------------------|----------------------|-------------|-------------|---------------|
| Investment Name                                | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation            | Total Value            | Net Benefit          | DPI         | TVPI        | IRR           |
| <b>2020</b>                                    |              |                      |                      |                               |                  |                          |                      |                        |                      |             |             |               |
| KPS Special Situations Fund V, L.P.            | 2020         | \$15,000,000         | \$12,160,197         | \$2,839,804                   | \$0              | \$0                      | \$2,823,304          | \$2,823,304            | -\$16,500            | 0.00        | 0.99        | -0.76%        |
| Nexus Special Situations Fund III, L.P.        | 2020         | \$15,000,000         | \$15,000,000         | \$0                           | \$0              | \$0                      | \$0                  | \$0                    | \$0                  |             |             |               |
| PBK Holdco, LLC                                | 2020         | \$2,000,000          | \$0                  | \$2,000,000                   | \$0              | \$117,333                | \$1,882,667          | \$2,000,000            | \$0                  | 0.06        | 1.00        | 0.00%         |
| <b>Total 2020</b>                              |              | <b>\$32,000,000</b>  | <b>\$27,160,197</b>  | <b>\$4,839,804</b>            | <b>\$0</b>       | <b>\$117,333</b>         | <b>\$4,705,971</b>   | <b>\$4,823,304</b>     | <b>-\$16,500</b>     | <b>0.02</b> | <b>1.00</b> | <b>-0.41%</b> |
| <b>2021</b>                                    |              |                      |                      |                               |                  |                          |                      |                        |                      |             |             |               |
| Blackstone Capital Partners Asia Fund II, L.P. | 2021         | \$20,000,000         | \$20,000,000         | \$0                           | \$0              | \$0                      | \$0                  | \$0                    | \$0                  |             |             |               |
| <b>Total 2021</b>                              |              | <b>\$20,000,000</b>  | <b>\$20,000,000</b>  | <b>\$0</b>                    | <b>\$0</b>       | <b>\$0</b>               | <b>\$0</b>           | <b>\$0</b>             | <b>\$0</b>           |             |             |               |
| <b>Total</b>                                   |              | <b>\$734,243,317</b> | <b>\$127,184,761</b> | <b>\$607,058,556</b>          | <b>\$734,979</b> | <b>\$604,114,205</b>     | <b>\$467,401,933</b> | <b>\$1,071,516,137</b> | <b>\$463,722,602</b> | <b>0.99</b> | <b>1.76</b> | <b>10.86%</b> |



**MPERS**

# ANALYSIS BY INVESTMENT STRATEGY

| Investments                                    |              | Commitments          |                     | Contributions & Distributions |                  |                          | Valuations          |                      |                     | Performance |             |               |
|--|--------------|----------------------|---------------------|-------------------------------|------------------|--------------------------|---------------------|----------------------|---------------------|-------------|-------------|---------------|
| Investment Name                                | Vintage Year | Commitment           | Unfunded Commitment | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation           | Total Value          | Net Benefit         | DPI         | TVPI        | IRR           |
| <b>Buyout</b>                                  |              |                      |                     |                               |                  |                          |                     |                      |                     |             |             |               |
| ABRY Partners VI, L.P.                         | 2008         | \$10,000,000         | \$1,119,386         | \$8,880,614                   | \$0              | \$18,404,747             | \$179,427           | \$18,584,173         | \$9,703,559         | 2.07        | 2.09        | 19.84%        |
| ABRY Partners VII, L.P.                        | 2011         | \$5,000,000          | \$214,332           | \$4,785,668                   | \$0              | \$6,557,940              | \$1,573,231         | \$8,131,172          | \$3,345,503         | 1.37        | 1.70        | 13.00%        |
| Blackstone Capital Partners Asia Fund II, L.P. | 2021         | \$20,000,000         | \$20,000,000        | \$0                           | \$0              | \$0                      | \$0                 | \$0                  | \$0                 |             |             |               |
| Blackstone Capital Partners Asia, L.P.         | 2018         | \$15,000,000         | \$8,236,154         | \$6,763,846                   | \$600,938        | \$454,726                | \$10,782,554        | \$11,237,280         | \$3,872,496         | 0.06        | 1.53        | 34.87%        |
| CP ChromaScape, LLC                            | 2018         | \$750,000            | \$0                 | \$750,000                     | \$13,479         | \$137,976                | \$720,442           | \$858,418            | \$94,939            | 0.18        | 1.12        | 5.28%         |
| CP CMI, LLC                                    | 2017         | \$843,437            | \$0                 | \$843,437                     | \$8,897          | \$246,738                | \$1,010,049         | \$1,256,787          | \$404,452           | 0.29        | 1.47        | 14.74%        |
| CP M&Q, LLC                                    | 2018         | \$1,000,000          | \$0                 | \$1,000,000                   | \$31,576         | \$54,334                 | \$932,618           | \$986,952            | -\$44,624           | 0.05        | 0.96        | -1.79%        |
| CP Parkway, LLC                                | 2015         | \$1,760,099          | \$0                 | \$1,760,099                   | \$49,824         | \$821,868                | \$1,914,053         | \$2,735,921          | \$925,999           | 0.45        | 1.51        | 11.71%        |
| CP Premier, LLC                                | 2015         | \$1,425,000          | \$0                 | \$1,425,000                   | \$11,047         | \$570,787                | \$2,195,115         | \$2,765,902          | \$1,329,856         | 0.40        | 1.93        | 13.91%        |
| CP Sur-Seal, LLC                               | 2018         | \$1,000,000          | \$0                 | \$1,000,000                   | \$19,014         | \$167,677                | \$868,366           | \$1,036,043          | \$17,029            | 0.16        | 1.02        | 0.78%         |
| CP Thor, LLC                                   | 2018         | \$1,000,000          | \$0                 | \$1,000,000                   | \$18,993         | \$144,630                | \$968,644           | \$1,113,274          | \$94,281            | 0.14        | 1.09        | 4.62%         |
| CVI Specialized Ventures Fund A, L.P.          | 2007         | \$6,375,000          | \$0                 | \$6,375,000                   | \$27,121         | \$2,727,083              | \$0                 | \$2,727,083          | -\$3,675,038        | 0.43        | 0.43        | -17.61%       |
| DC Capital Partners Fund II, L.P.              | 2016         | \$8,000,000          | \$1,408,321         | \$6,591,679                   | \$23,891         | \$2,932,655              | \$6,911,283         | \$9,843,938          | \$3,228,369         | 0.44        | 1.49        | 30.76%        |
| Heartwood Partners II, L.P.                    | 2013         | \$10,000,000         | \$614,933           | \$9,385,067                   | \$101,447        | \$5,890,392              | \$8,367,227         | \$14,257,619         | \$4,771,105         | 0.62        | 1.50        | 12.22%        |
| Heartwood Partners III, L.P.                   | 2017         | \$10,000,000         | \$4,180,734         | \$5,819,266                   | \$0              | \$622,367                | \$5,880,103         | \$6,502,470          | \$683,204           | 0.11        | 1.12        | 8.86%         |
| Mersive Investment Holdings, LLC               | 2018         | \$1,000,000          | \$0                 | \$1,000,000                   | \$23,405         | \$0                      | \$2,000,000         | \$2,000,000          | \$976,595           | 0.00        | 1.95        | 31.22%        |
| OpenGate Capital Partners I, L.P.              | 2015         | \$7,500,000          | \$1,318,885         | \$6,181,115                   | -\$1,928         | \$262,663                | \$9,817,763         | \$10,080,426         | \$3,901,239         | 0.04        | 1.63        | 14.80%        |
| OpenGate Capital Partners II, L.P.             | 2018         | \$10,000,000         | \$5,678,597         | \$4,321,403                   | -\$13,779        | \$0                      | \$5,795,208         | \$5,795,208          | \$1,487,584         | 0.00        | 1.35        | 28.39%        |
| PBK Holdco, LLC                                | 2020         | \$2,000,000          | \$0                 | \$2,000,000                   | \$0              | \$117,333                | \$1,882,667         | \$2,000,000          | \$0                 | 0.06        | 1.00        | 0.00%         |
| Pfingsten Partners Fund V, L.P.                | 2015         | \$10,000,000         | \$4,253,965         | \$5,746,035                   | \$0              | \$0                      | \$6,901,409         | \$6,901,409          | \$1,155,374         | 0.00        | 1.20        | 6.54%         |
| Shore Capital Partners Fund I, L.P.            | 2014         | \$6,000,000          | \$0                 | \$6,000,000                   | \$0              | \$6,092,923              | \$9,474,545         | \$15,567,468         | \$9,567,468         | 1.02        | 2.59        | 39.08%        |
| SVP Holdings, LLC                              | 2018         | \$2,269,781          | \$0                 | \$2,269,781                   | \$0              | \$0                      | \$2,269,781         | \$2,269,781          | \$0                 | 0.00        | 1.00        | 0.00%         |
| <b>Total Buyout</b>                            |              | <b>\$130,923,317</b> | <b>\$47,025,307</b> | <b>\$83,898,010</b>           | <b>\$913,923</b> | <b>\$46,206,840</b>      | <b>\$80,444,485</b> | <b>\$126,651,324</b> | <b>\$41,839,391</b> | <b>0.54</b> | <b>1.49</b> | <b>12.22%</b> |
| <b>Direct Investments</b>                      |              |                      |                     |                               |                  |                          |                     |                      |                     |             |             |               |
| Evergage, Inc.                                 | 2017         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0              | \$0                      | \$1,870,000         | \$1,870,000          | \$870,000           | 0.00        | 1.87        | 19.78%        |
| Leadspace, Inc.                                | 2019         | \$1,750,000          | \$0                 | \$1,750,000                   | \$0              | \$0                      | \$2,222,500         | \$2,222,500          | \$472,500           | 0.00        | 1.27        | 14.63%        |
| <b>Total Direct Investments</b>                |              | <b>\$2,750,000</b>   | <b>\$0</b>          | <b>\$2,750,000</b>            | <b>\$0</b>       | <b>\$0</b>               | <b>\$4,092,500</b>  | <b>\$4,092,500</b>   | <b>\$1,342,500</b>  | <b>0.00</b> | <b>1.49</b> | <b>17.76%</b> |
| <b>Distressed</b>                              |              |                      |                     |                               |                  |                          |                     |                      |                     |             |             |               |
| Shoreline China Value III, L.P.                | 2015         | \$4,500,000          | \$190,852           | \$4,309,148                   | -\$3,327         | \$3,447,746              | \$1,745,172         | \$5,192,918          | \$887,097           | 0.80        | 1.21        | 5.67%         |
| <b>Total Distressed</b>                        |              | <b>\$4,500,000</b>   | <b>\$190,852</b>    | <b>\$4,309,148</b>            | <b>-\$3,327</b>  | <b>\$3,447,746</b>       | <b>\$1,745,172</b>  | <b>\$5,192,918</b>   | <b>\$887,097</b>    | <b>0.80</b> | <b>1.21</b> | <b>5.67%</b>  |





MPERS

# ANALYSIS BY INVESTMENT STRATEGY

| Investments                                     |              | Commitments          |                      | Contributions & Distributions |                   |                          | Valuations           |                        |                      | Performance |             |               |
|---|--------------|----------------------|----------------------|-------------------------------|-------------------|--------------------------|----------------------|------------------------|----------------------|-------------|-------------|---------------|
| Investment Name                                 | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees   | Cumulative Distributions | Valuation            | Total Value            | Net Benefit          | DPI         | TVPI        | IRR           |
| <b>Fund of Funds</b>                            |              |                      |                      |                               |                   |                          |                      |                        |                      |             |             |               |
| MP Ventures II, L.P.                            | 2008         | \$200,000,000        | \$4,558,543          | \$195,441,457                 | \$0               | \$217,987,163            | \$167,522,825        | \$385,509,988          | \$190,068,531        | 1.12        | 1.97        | 13.97%        |
| MP Ventures, L.P.                               | 2005         | \$200,000,000        | \$222,805            | \$199,777,195                 | \$0               | \$277,198,900            | \$76,775,849         | \$353,974,749          | \$154,197,554        | 1.39        | 1.77        | 8.30%         |
| Vectis Healthcare & Life Sciences Fund II, L.P. | 2009         | \$15,000,000         | \$75,000             | \$14,925,000                  | -\$3,906          | \$21,587,183             | \$8,588,838          | \$30,176,021           | \$15,254,927         | 1.45        | 2.02        | 15.48%        |
| <b>Total Fund of Funds</b>                      |              | <b>\$415,000,000</b> | <b>\$4,856,348</b>   | <b>\$410,143,652</b>          | <b>-\$3,906</b>   | <b>\$516,773,246</b>     | <b>\$252,887,512</b> | <b>\$769,660,758</b>   | <b>\$359,521,013</b> | <b>1.26</b> | <b>1.88</b> | <b>10.42%</b> |
| <b>Growth Equity</b>                            |              |                      |                      |                               |                   |                          |                      |                        |                      |             |             |               |
| Aisling Capital IV, L.P.                        | 2016         | \$10,000,000         | \$389,954            | \$9,610,046                   | -\$84,774         | \$2,085,350              | \$19,543,808         | \$21,629,158           | \$12,103,886         | 0.22        | 2.27        | 31.34%        |
| Arrowroot Capital III, L.P.                     | 2017         | \$10,000,000         | \$0                  | \$10,000,000                  | -\$128,940        | \$0                      | \$12,550,200         | \$12,550,200           | \$2,679,140          | 0.00        | 1.27        | 8.37%         |
| Arrowroot Capital IV, L.P.                      | 2018         | \$10,000,000         | \$0                  | \$10,000,000                  | \$3,074           | \$0                      | \$15,710,721         | \$15,710,721           | \$5,707,647          | 0.00        | 1.57        | 37.51%        |
| Dyal IV US Investors, L.P.                      | 2018         | \$20,000,000         | \$14,781,423         | \$5,218,577                   | \$26,470          | \$0                      | \$8,204,512          | \$8,204,512            | \$2,959,465          | 0.00        | 1.56        | 76.77%        |
| Long Ridge Equity Partners II, L.P.             | 2016         | \$10,000,000         | \$527,494            | \$9,472,506                   | \$0               | \$4,085,332              | \$13,137,988         | \$17,223,320           | \$7,750,814          | 0.43        | 1.82        | 39.74%        |
| Long Ridge Parallel Broadway Holdings, LLC      | 2017         | \$1,500,000          | \$0                  | \$1,500,000                   | \$0               | \$5,314,150              | \$535,439            | \$5,849,589            | \$4,349,589          | 3.54        | 3.90        | 58.56%        |
| Long Ridge Parallel Processunity Holdings, LLC  | 2018         | \$850,000            | \$0                  | \$850,000                     | \$0               | \$6,622                  | \$2,413,739          | \$2,420,361            | \$1,570,361          | 0.01        | 2.85        | 57.04%        |
| <b>Total Growth Equity</b>                      |              | <b>\$62,350,000</b>  | <b>\$15,698,871</b>  | <b>\$46,651,129</b>           | <b>-\$184,170</b> | <b>\$11,491,454</b>      | <b>\$72,096,407</b>  | <b>\$83,587,861</b>    | <b>\$37,120,903</b>  | <b>0.25</b> | <b>1.80</b> | <b>30.63%</b> |
| <b>Secondaries</b>                              |              |                      |                      |                               |                   |                          |                      |                        |                      |             |             |               |
| NewQuest Asia Fund III, L.P.                    | 2016         | \$7,500,000          | \$992,095            | \$6,507,905                   | \$0               | \$0                      | \$9,873,834          | \$9,873,834            | \$3,365,929          | 0.00        | 1.52        | 18.11%        |
| <b>Total Secondaries</b>                        |              | <b>\$7,500,000</b>   | <b>\$992,095</b>     | <b>\$6,507,905</b>            | <b>\$0</b>        | <b>\$0</b>               | <b>\$9,873,834</b>   | <b>\$9,873,834</b>     | <b>\$3,365,929</b>   | <b>0.00</b> | <b>1.52</b> | <b>18.11%</b> |
| <b>Special Situations</b>                       |              |                      |                      |                               |                   |                          |                      |                        |                      |             |             |               |
| KPS Special Situations Fund IV, L.P.            | 2014         | \$9,720,000          | \$1,114,767          | \$8,605,233                   | \$0               | \$2,006,994              | \$9,562,611          | \$11,569,605           | \$2,964,372          | 0.23        | 1.34        | 16.25%        |
| KPS Special Situations Fund V, L.P.             | 2020         | \$15,000,000         | \$12,160,197         | \$2,839,804                   | \$0               | \$0                      | \$2,823,304          | \$2,823,304            | -\$16,500            | 0.00        | 0.99        | -0.76%        |
| KPS Special Situations Mid-Cap Fund, L.P.       | 2019         | \$12,000,000         | \$9,792,020          | \$2,207,980                   | \$0               | \$0                      | \$2,262,109          | \$2,262,109            | \$54,129             | 0.00        | 1.02        | 2.59%         |
| Monomoy Capital Partners III, L.P.              | 2017         | \$10,000,000         | \$3,444,000          | \$6,556,000                   | \$0               | \$1,622,725              | \$7,947,525          | \$9,570,250            | \$3,014,250          | 0.25        | 1.46        | 30.04%        |
| Nexus Special Situations Fund III, L.P.         | 2020         | \$15,000,000         | \$15,000,000         | \$0                           | \$0               | \$0                      | \$0                  | \$0                    | \$0                  |             |             |               |
| Nexus Special Situations II, L.P.               | 2018         | \$10,000,000         | \$4,175,655          | \$5,824,345                   | \$0               | \$499,043                | \$11,990,774         | \$12,489,817           | \$6,665,472          | 0.09        | 2.14        | 69.15%        |
| Ospraie Special Opportunities (Offshore), Ltd.  | 2008         | \$15,000,000         | \$0                  | \$15,000,000                  | \$12,459          | \$17,684,056             | \$0                  | \$17,684,056           | \$2,671,597          | 1.18        | 1.18        | 3.07%         |
| Shoreline III Co-Investment L.P.                | 2015         | \$4,500,000          | \$290,412            | \$4,209,588                   | \$0               | \$4,382,100              | \$798,955            | \$5,181,055            | \$971,467            | 1.04        | 1.23        | 9.15%         |
| <b>Total Special Situations</b>                 |              | <b>\$91,220,000</b>  | <b>\$45,977,051</b>  | <b>\$45,242,949</b>           | <b>\$12,459</b>   | <b>\$26,194,918</b>      | <b>\$35,385,278</b>  | <b>\$61,580,196</b>    | <b>\$16,324,788</b>  | <b>0.58</b> | <b>1.36</b> | <b>8.40%</b>  |
| <b>Venture Capital</b>                          |              |                      |                      |                               |                   |                          |                      |                        |                      |             |             |               |
| Drive Capital Fund III, L.P.                    | 2019         | \$10,000,000         | \$7,906,667          | \$2,093,333                   | \$0               | \$0                      | \$2,020,047          | \$2,020,047            | -\$73,286            | 0.00        | 0.96        | -10.07%       |
| Drive Capital Overdrive Fund I, L.P.            | 2019         | \$10,000,000         | \$4,537,569          | \$5,462,431                   | \$0               | \$0                      | \$8,856,698          | \$8,856,698            | \$3,394,267          | 0.00        | 1.62        | 51.59%        |
| <b>Total Venture Capital</b>                    |              | <b>\$20,000,000</b>  | <b>\$12,444,236</b>  | <b>\$7,555,764</b>            | <b>\$0</b>        | <b>\$0</b>               | <b>\$10,876,745</b>  | <b>\$10,876,745</b>    | <b>\$3,320,981</b>   | <b>0.00</b> | <b>1.44</b> | <b>46.03%</b> |
| <b>Total</b>                                    |              | <b>\$734,243,317</b> | <b>\$127,184,761</b> | <b>\$607,058,556</b>          | <b>\$734,979</b>  | <b>\$604,114,205</b>     | <b>\$467,401,933</b> | <b>\$1,071,516,137</b> | <b>\$463,722,602</b> | <b>0.99</b> | <b>1.76</b> | <b>10.86%</b> |



**MPERS**

# QUARTERLY TRANSACTION SUMMARY

| Fund Name  | Month Ended | Capital Call   | Additional Fee | Temp Return of Capital | Distribution    | Net Cash Flow   |
|--|-------------|----------------|----------------|------------------------|-----------------|-----------------|
| ABRY Partners VII, L.P.                              | 12/31/2020  | 40,373         |                |                        | -110            | 40,263          |
| <b>Total: ABRY Partners VII, L.P.</b>                |             | <b>40,373</b>  |                |                        | <b>-110</b>     | <b>40,263</b>   |
| Aisling Capital IV, L.P.                             | 10/31/2020  | 416,820        |                |                        |                 | 416,820         |
|  | 11/30/2020  | 27,316         |                |                        |                 | 27,316          |
| <b>Total: Aisling Capital IV, L.P.</b>               |             | <b>444,136</b> |                |                        |                 | <b>444,136</b>  |
| Blackstone Capital Partners Asia, L.P.               | 10/31/2020  |                | 56,250         | -252,696               | -316,501        | -512,948        |
| <b>Total: Blackstone Capital Partners Asia, L.P.</b> |             |                | <b>56,250</b>  | <b>-252,696</b>        | <b>-316,501</b> | <b>-512,948</b> |
| CP ChromaScape, LLC                                  | 10/31/2020  |                |                |                        | -20,410         | -20,410         |
| <b>Total: CP ChromaScape, LLC</b>                    |             |                |                |                        | <b>-20,410</b>  | <b>-20,410</b>  |
| CP CMI, LLC  | 11/30/2020  |                |                |                        | -87,056         | -87,056         |
| <b>Total: CP CMI, LLC</b>                            |             |                |                |                        | <b>-87,056</b>  | <b>-87,056</b>  |
| CP M&Q, LLC  | 11/30/2020  |                | 17,041         |                        | -17,041         | 0               |
|  | 12/31/2020  |                | 14,535         |                        | -37,293         | -22,758         |
| <b>Total: CP M&amp;Q, LLC</b>                        |             |                | <b>31,576</b>  |                        | <b>-54,334</b>  | <b>-22,758</b>  |
| CP Parkway, LLC                                      | 11/30/2020  |                |                |                        | -52,282         | -52,282         |
| <b>Total: CP Parkway, LLC</b>                        |             |                |                |                        | <b>-52,282</b>  | <b>-52,282</b>  |
| CP Premier, LLC                                      | 11/30/2020  |                |                |                        | -23,904         | -23,904         |
| <b>Total: CP Premier, LLC</b>                        |             |                |                |                        | <b>-23,904</b>  | <b>-23,904</b>  |
| CP Sur-Seal, LLC                                     | 11/30/2020  |                |                |                        | -49,529         | -49,529         |
| <b>Total: CP Sur-Seal, LLC</b>                       |             |                |                |                        | <b>-49,529</b>  | <b>-49,529</b>  |
| CP Thor, LLC   | 11/30/2020  |                |                |                        | -24,944         | -24,944         |
| <b>Total: CP Thor, LLC</b>                           |             |                |                |                        | <b>-24,944</b>  | <b>-24,944</b>  |



## MPERS

# QUARTERLY TRANSACTION SUMMARY

| Fund Name   | Month Ended | Capital Call     | Additional Fee | Temp Return of Capital | Distribution    | Net Cash Flow    |
|---|-------------|------------------|----------------|------------------------|-----------------|------------------|
| DC Capital Partners Fund II, L.P.                       | 10/31/2020  | 666,667          |                |                        |                 | 666,667          |
|   | 12/31/2020  | 315,168          |                | -182,123               |                 | 133,046          |
| <b>Total: DC Capital Partners Fund II, L.P.</b>         |             | <b>981,835</b>   |                | <b>-182,123</b>        |                 | <b>799,713</b>   |
| Drive Capital Fund III, L.P.                            | 10/31/2020  | 293,869          |                |                        |                 | 293,869          |
|   | 12/31/2020  | 984,848          |                |                        |                 | 984,848          |
| <b>Total: Drive Capital Fund III, L.P.</b>              |             | <b>1,278,717</b> |                |                        |                 | <b>1,278,717</b> |
| Drive Capital Overdrive Fund I, L.P.                    | 10/31/2020  | 75,273           |                |                        |                 | 75,273           |
| <b>Total: Drive Capital Overdrive Fund I, L.P.</b>      |             | <b>75,273</b>    |                |                        |                 | <b>75,273</b>    |
| Dyal IV US Investors, L.P.                              | 10/31/2020  | 1,094,247        |                | -159,996               |                 | 934,250          |
|   | 12/31/2020  | 1,141,097        |                |                        |                 | 1,141,097        |
| <b>Total: Dyal IV US Investors, L.P.</b>                |             | <b>2,235,344</b> |                | <b>-159,996</b>        |                 | <b>2,075,348</b> |
| Heartwood Partners II, L.P.                             | 11/30/2020  | 2,778            |                |                        | -170,846        | -168,068         |
|   | 12/31/2020  |                  |                |                        | -68,455         | -68,455          |
| <b>Total: Heartwood Partners II, L.P.</b>               |             | <b>2,778</b>     |                |                        | <b>-239,302</b> | <b>-236,524</b>  |
| Heartwood Partners III, L.P.                            | 11/30/2020  | 4,982            |                |                        | -180,417        | -175,436         |
|   | 12/31/2020  | 753,788          |                |                        | -30,991         | 722,797          |
| <b>Total: Heartwood Partners III, L.P.</b>              |             | <b>758,770</b>   |                |                        | <b>-211,408</b> | <b>547,362</b>   |
| KPS Special Situations Fund IV, L.P.                    | 10/31/2020  | 63,599           |                |                        | -6,321          | 57,278           |
| <b>Total: KPS Special Situations Fund IV, L.P.</b>      |             | <b>63,599</b>    |                |                        | <b>-6,321</b>   | <b>57,278</b>    |
| KPS Special Situations Mid-Cap Fund, L.P.               | 10/31/2020  | 37,500           |                |                        |                 | 37,500           |
| <b>Total: KPS Special Situations Mid-Cap Fund, L.P.</b> |             | <b>37,500</b>    |                |                        |                 | <b>37,500</b>    |
| Long Ridge Equity Partners II, L.P.                     | 10/31/2020  | 1,265,860        |                |                        | -76,971         | 1,188,889        |
| <b>Total: Long Ridge Equity Partners II, L.P.</b>       |             | <b>1,265,860</b> |                |                        | <b>-76,971</b>  | <b>1,188,889</b> |



**MPERS**

# QUARTERLY TRANSACTION SUMMARY

| Fund Name  | Month Ended | Capital Call     | Additional Fee | Temp Return of Capital | Distribution      | Net Cash Flow     |
|--|-------------|------------------|----------------|------------------------|-------------------|-------------------|
| Monomoy Capital Partners III, L.P.               | 12/31/2020  | 773,216          |                | -410,510               | -114,231          | 248,475           |
| <b>Total: Monomoy Capital Partners III, L.P.</b> |             | <b>773,216</b>   |                | <b>-410,510</b>        | <b>-114,231</b>   | <b>248,475</b>    |
| MP Ventures II, L.P.                             | 10/31/2020  | 625,487          |                |                        | -513,149          | 112,338           |
|  | 11/30/2020  |                  |                | -2,446,238             | -3,330,456        | -5,776,694        |
|  | 12/31/2020  | 110,280          |                |                        | -300,660          | -190,380          |
| <b>Total: MP Ventures II, L.P.</b>               |             | <b>735,767</b>   |                | <b>-2,446,238</b>      | <b>-4,144,265</b> | <b>-5,854,735</b> |
| MP Ventures, L.P.                                | 10/31/2020  | 42,598           |                |                        | -1,202,373        | -1,159,775        |
|  | 11/30/2020  | 137,580          |                |                        |                   | 137,580           |
|  | 12/31/2020  | 71,590           |                |                        | -6,523,252        | -6,451,662        |
| <b>Total: MP Ventures, L.P.</b>                  |             | <b>251,768</b>   |                |                        | <b>-7,725,624</b> | <b>-7,473,856</b> |
| NewQuest Asia Fund III, L.P.                     | 10/31/2020  |                  |                | -182,789               |                   | -182,789          |
|  | 12/31/2020  |                  |                | -281,396               |                   | -281,396          |
| <b>Total: NewQuest Asia Fund III, L.P.</b>       |             |                  |                | <b>-464,186</b>        |                   | <b>-464,186</b>   |
| Nexus Special Situations II, L.P.                | 11/30/2020  | 760,744          |                |                        |                   | 760,744           |
|  | 12/31/2020  | 961,538          |                | -359,566               | -68,233           | 533,739           |
| <b>Total: Nexus Special Situations II, L.P.</b>  |             | <b>1,722,283</b> |                | <b>-359,566</b>        | <b>-68,233</b>    | <b>1,294,484</b>  |
| OpenGate Capital Partners I, L.P.                | 11/30/2020  | 31,584           |                |                        |                   | 31,584            |
|  | 12/31/2020  |                  |                | -15,216                |                   | -15,216           |
| <b>Total: OpenGate Capital Partners I, L.P.</b>  |             | <b>31,584</b>    |                | <b>-15,216</b>         |                   | <b>16,368</b>     |
| OpenGate Capital Partners II, L.P.               | 11/30/2020  | 64,501           |                |                        |                   | 64,501            |
| <b>Total: OpenGate Capital Partners II, L.P.</b> |             | <b>64,501</b>    |                |                        |                   | <b>64,501</b>     |
| PBK Holdco, LLC                                  | 12/31/2020  |                  |                |                        | -61,333           | -61,333           |
| <b>Total: PBK Holdco, LLC</b>                    |             |                  |                |                        | <b>-61,333</b>    | <b>-61,333</b>    |



**MPERS**

# QUARTERLY TRANSACTION SUMMARY

| Fund Name                                      | Month Ended | Capital Call      | Additional Fee | Temp Return of Capital | Distribution       | Net Cash Flow     |
|--|-------------|-------------------|----------------|------------------------|--------------------|-------------------|
| Pfingsten Partners Fund V, L.P.                | 12/31/2020  | 36,376            |                |                        |                    | 36,376            |
| <b>Total: Pfingsten Partners Fund V, L.P.</b>  |             | <b>36,376</b>     |                |                        |                    | <b>36,376</b>     |
| Shoreline China Value III, L.P.                | 12/31/2020  | 13,074            |                |                        | -283,284           | -270,210          |
| <b>Total: Shoreline China Value III, L.P.</b>  |             | <b>13,074</b>     |                |                        | <b>-283,284</b>    | <b>-270,210</b>   |
| Shoreline III Co-Investment L.P.               | 12/31/2020  | 4,915             |                |                        | -85,684            | -80,769           |
| <b>Total: Shoreline III Co-Investment L.P.</b> |             | <b>4,915</b>      |                |                        | <b>-85,684</b>     | <b>-80,769</b>    |
| <b>Grand Total</b>                             |             | <b>10,817,669</b> | <b>87,826</b>  | <b>-4,290,530</b>      | <b>-13,645,727</b> | <b>-7,030,762</b> |



# MPERS

## PME Analysis

### Public Markets Equivalent (PME)

| Investments                                    |              |              | PME Valuation (ICM) |                     |                     | PME Multiples (Kaplan Schoar) |               |                         | PME Returns (Direct Alpha) |                  |                       |
|--|--------------|--------------|---------------------|---------------------|---------------------|-------------------------------|---------------|-------------------------|----------------------------|------------------|-----------------------|
| Investment Name                                | Vintage Year | Benchmark    | Valuation           | Valuation ICM       | Valuation Spread    | TVPI                          | Kaplan Schoar | Market Related Multiple | SI IRR                     | Direct Alpha PME | Market Related Return |
| <b>Buyout</b>                                  |              |              |                     |                     |                     |                               |               |                         |                            |                  |                       |
| ABRY Partners VI, L.P.                         | 2008         | S&P 500      | \$179,427           | -\$7,918,064        | \$8,097,490         | 2.09                          | 1.15          | 1.83                    | 19.84%                     | 5.12%            | 14.72%                |
| ABRY Partners VII, L.P.                        | 2011         | S&P 500      | \$1,573,231         | \$2,466,654         | -\$893,422          | 1.70                          | 0.95          | 1.79                    | 13.00%                     | -1.50%           | 14.50%                |
| Blackstone Capital Partners Asia Fund II, L.P. | 2021         | S&P 500      | \$0                 |                     |                     |                               |               |                         |                            |                  |                       |
| Blackstone Capital Partners Asia, L.P.         | 2018         | S&P 500      | \$10,782,554        | \$9,097,289         | \$1,685,265         | 1.53                          | 1.17          | 1.31                    | 34.87%                     | 12.26%           | 22.61%                |
| CP ChromaScape, LLC                            | 2018         | S&P 500      | \$720,442           | \$932,807           | -\$212,365          | 1.12                          | 0.81          | 1.39                    | 5.28%                      | -9.01%           | 14.30%                |
| CP CMI, LLC                                    | 2017         | S&P 500      | \$1,010,049         | \$1,001,988         | \$8,061             | 1.47                          | 1.01          | 1.47                    | 14.74%                     | 0.22%            | 14.52%                |
| CP M&Q, LLC                                    | 2018         | S&P 500      | \$932,618           | \$1,410,949         | -\$478,331          | 0.96                          | 0.67          | 1.42                    | -1.79%                     | -14.81%          | 13.03%                |
| CP Parkway, LLC                                | 2015         | S&P 500      | \$1,914,053         | \$2,255,470         | -\$341,417          | 1.51                          | 0.90          | 1.68                    | 11.71%                     | -2.78%           | 14.49%                |
| CP Premier, LLC                                | 2015         | S&P 500      | \$2,195,115         | \$2,027,191         | \$167,924           | 1.93                          | 1.06          | 1.82                    | 13.91%                     | 1.17%            | 12.75%                |
| CP Sur-Seal, LLC                               | 2018         | S&P 500      | \$868,366           | \$1,186,717         | -\$318,351          | 1.02                          | 0.77          | 1.32                    | 0.78%                      | -11.54%          | 12.32%                |
| CP Thor, LLC                                   | 2018         | S&P 500      | \$968,644           | \$1,271,169         | -\$302,525          | 1.09                          | 0.79          | 1.38                    | 4.62%                      | -11.34%          | 15.97%                |
| CVI Specialized Ventures Fund A, L.P.          | 2007         | S&P 500      | \$0                 | \$6,026,359         | -\$6,026,359        | 0.43                          | 0.43          | 0.98                    | -17.61%                    | -18.82%          | 1.21%                 |
| DC Capital Partners Fund II, L.P.              | 2016         | S&P 500      | \$6,911,283         | \$5,243,412         | \$1,667,871         | 1.49                          | 1.16          | 1.28                    | 30.76%                     | 11.75%           | 19.01%                |
| Heartwood Partners II, L.P.                    | 2013         | S&P 500      | \$8,367,227         | \$9,292,297         | -\$925,070          | 1.50                          | 0.97          | 1.56                    | 12.22%                     | -1.46%           | 13.68%                |
| Heartwood Partners III, L.P.                   | 2017         | S&P 500      | \$5,880,103         | \$6,657,121         | -\$777,018          | 1.12                          | 0.90          | 1.25                    | 8.86%                      | -8.04%           | 16.90%                |
| Mersive Investment Holdings, LLC               | 2018         | S&P 500      | \$2,000,000         | \$1,439,015         | \$560,985           | 1.95                          | 1.39          | 1.41                    | 31.22%                     | 14.28%           | 16.94%                |
| OpenGate Capital Partners I, L.P.              | 2015         | S&P 500      | \$9,817,763         | \$10,327,574        | -\$509,811          | 1.63                          | 0.96          | 1.70                    | 14.80%                     | -1.36%           | 16.16%                |
| OpenGate Capital Partners II, L.P.             | 2018         | S&P 500      | \$5,795,208         | \$5,504,529         | \$290,679           | 1.35                          | 1.05          | 1.28                    | 28.39%                     | 4.44%            | 23.95%                |
| PBK Holdco, LLC                                | 2020         | S&P 500      | \$1,882,667         | \$2,306,827         | -\$424,160          | 1.00                          | 0.83          | 1.21                    | 0.00%                      | -17.69%          | 17.69%                |
| Pfingsten Partners Fund V, L.P.                | 2015         | S&P 500      | \$6,901,409         | \$9,091,108         | -\$2,189,699        | 1.20                          | 0.78          | 1.54                    | 6.54%                      | -8.94%           | 15.48%                |
| Shore Capital Partners Fund I, L.P.            | 2014         | S&P 500      | \$9,474,545         | \$1,457,252         | \$8,017,293         | 2.59                          | 1.77          | 1.46                    | 39.08%                     | 22.57%           | 16.51%                |
| SVP Holdings, LLC                              | 2018         | S&P 500      | \$2,269,781         | \$3,359,231         | -\$1,089,450        | 1.00                          | 0.68          | 1.48                    | 0.00%                      | -13.73%          | 13.73%                |
| <b>Total Buyout</b>                            |              |              | <b>\$80,444,485</b> | <b>\$74,436,894</b> | <b>\$6,007,590</b>  | <b>1.49</b>                   | <b>1.03</b>   | <b>1.45</b>             | <b>12.22%</b>              | <b>1.13%</b>     | <b>11.09%</b>         |
| <b>Direct Investments</b>                      |              |              |                     |                     |                     |                               |               |                         |                            |                  |                       |
| Evergage, Inc.                                 | 2017         | Russell 2000 | \$1,870,000         | \$1,449,012         | \$420,988           | 1.87                          | 1.29          | 1.45                    | 19.78%                     | 7.63%            | 12.15%                |
| Leadspace, Inc.                                | 2019         | Russell 2000 | \$2,222,500         | \$2,344,802         | -\$122,302          | 1.27                          | 0.95          | 1.34                    | 14.63%                     | -3.01%           | 17.64%                |
| <b>Total Direct Investments</b>                |              |              | <b>\$4,092,500</b>  | <b>\$3,793,814</b>  | <b>\$298,686</b>    | <b>1.49</b>                   | <b>1.08</b>   | <b>1.38</b>             | <b>17.76%</b>              | <b>3.18%</b>     | <b>14.58%</b>         |
| <b>Distressed</b>                              |              |              |                     |                     |                     |                               |               |                         |                            |                  |                       |
| Shoreline China Value III, L.P.                | 2015         | S&P 500      | \$1,745,172         | \$3,300,761         | -\$1,555,589        | 1.21                          | 0.83          | 1.46                    | 5.67%                      | -6.15%           | 11.82%                |
| <b>Total Distressed</b>                        |              |              | <b>\$1,745,172</b>  | <b>\$3,300,761</b>  | <b>-\$1,555,589</b> | <b>1.21</b>                   | <b>0.83</b>   | <b>1.46</b>             | <b>5.67%</b>               | <b>-6.15%</b>    | <b>11.82%</b>         |



# MPERS

## PME Analysis

| Investments                                     |              |              | PME Valuation (ICM)  |                      |                      | PME Multiples (Kaplan Schoar) |               |                         | PME Returns (Direct Alpha) |                  |                       |
|---|--------------|--------------|----------------------|----------------------|----------------------|-------------------------------|---------------|-------------------------|----------------------------|------------------|-----------------------|
| Investment Name                                 | Vintage Year | Benchmark    | Valuation            | Valuation ICM        | Valuation Spread     | TVPI                          | Kaplan Schoar | Market Related Multiple | SI IRR                     | Direct Alpha PME | Market Related Return |
| <b>Fund of Funds</b>                            |              |              |                      |                      |                      |                               |               |                         |                            |                  |                       |
| MP Ventures II, L.P.                            | 2008         | S&P 500      | \$167,522,825        | \$162,606,399        | \$4,916,426          | 1.97                          | 1.01          | 1.96                    | 13.97%                     | 0.18%            | 13.79%                |
| MP Ventures, L.P.                               | 2005         | S&P 500      | \$76,775,849         | \$169,574,623        | -\$92,798,774        | 1.77                          | 0.89          | 2.00                    | 8.30%                      | -2.05%           | 10.35%                |
| Vectis Healthcare & Life Sciences Fund II, L.P. | 2009         | S&P 500      | \$8,588,838          | \$7,722,070          | \$866,768            | 2.02                          | 1.02          | 1.99                    | 15.48%                     | 0.37%            | 15.11%                |
| <b>Total Fund of Funds</b>                      |              |              | <b>\$252,887,512</b> | <b>\$339,903,092</b> | <b>-\$87,015,580</b> | <b>1.88</b>                   | <b>0.94</b>   | <b>2.00</b>             | <b>10.42%</b>              | <b>-1.15%</b>    | <b>11.56%</b>         |
| <b>Growth Equity</b>                            |              |              |                      |                      |                      |                               |               |                         |                            |                  |                       |
| Aisling Capital IV, L.P.                        | 2016         | Russell 2000 | \$19,543,808         | \$11,303,228         | \$8,240,580          | 2.27                          | 1.36          | 1.67                    | 31.34%                     | 16.43%           | 14.91%                |
| Arrowroot Capital III, L.P.                     | 2017         | Russell 2000 | \$12,550,200         | \$13,948,540         | -\$1,398,340         | 1.27                          | 0.92          | 1.38                    | 8.37%                      | -3.45%           | 11.82%                |
| Arrowroot Capital IV, L.P.                      | 2018         | Russell 2000 | \$15,710,721         | \$13,112,957         | \$2,597,764          | 1.57                          | 1.20          | 1.31                    | 37.51%                     | 13.59%           | 23.92%                |
| Dyal IV US Investors, L.P.                      | 2018         | Russell 2000 | \$8,204,512          | \$6,568,187          | \$1,636,325          | 1.56                          | 1.20          | 1.30                    | 76.77%                     | 35.60%           | 41.17%                |
| Long Ridge Equity Partners II, L.P.             | 2016         | Russell 2000 | \$13,137,988         | \$7,050,759          | \$6,087,229          | 1.82                          | 1.48          | 1.22                    | 39.74%                     | 25.53%           | 14.21%                |
| Long Ridge Parallel Broadway Holdings, LLC      | 2017         | Russell 2000 | \$535,439            |                      |                      | 3.90                          | 3.39          | 1.15                    | 58.56%                     | 51.53%           | 7.03%                 |
| Long Ridge Parallel Processunity Holdings, LLC  | 2018         | Russell 2000 | \$2,413,739          | \$992,367            | \$1,421,372          | 2.85                          | 2.42          | 1.18                    | 57.04%                     | 46.44%           | 10.60%                |
| <b>Total Growth Equity</b>                      |              |              | <b>\$72,096,407</b>  | <b>\$48,063,933</b>  | <b>\$24,032,474</b>  | <b>1.80</b>                   | <b>1.31</b>   | <b>1.38</b>             | <b>30.63%</b>              | <b>15.82%</b>    | <b>14.81%</b>         |
| <b>Secondaries</b>                              |              |              |                      |                      |                      |                               |               |                         |                            |                  |                       |
| NewQuest Asia Fund III, L.P.                    | 2016         | S&P 500      | \$9,873,834          | \$9,652,062          | \$221,772            | 1.52                          | 1.02          | 1.49                    | 18.11%                     | 0.91%            | 17.20%                |
| <b>Total Secondaries</b>                        |              |              | <b>\$9,873,834</b>   | <b>\$9,652,062</b>   | <b>\$221,772</b>     | <b>1.52</b>                   | <b>1.02</b>   | <b>1.49</b>             | <b>18.11%</b>              | <b>0.91%</b>     | <b>17.20%</b>         |
| <b>Special Situations</b>                       |              |              |                      |                      |                      |                               |               |                         |                            |                  |                       |
| KPS Special Situations Fund IV, L.P.            | 2014         | S&P 500      | \$9,562,611          | \$9,631,506          | -\$68,895            | 1.34                          | 1.00          | 1.35                    | 16.25%                     | -0.28%           | 16.53%                |
| KPS Special Situations Fund V, L.P.             | 2020         | S&P 500      | \$2,823,304          | \$3,273,437          | -\$450,133           | 0.99                          | 0.86          | 1.15                    | -0.76%                     | -17.51%          | 16.76%                |
| KPS Special Situations Mid-Cap Fund, L.P.       | 2019         | S&P 500      | \$2,262,109          | \$2,809,560          | -\$547,451           | 1.02                          | 0.81          | 1.27                    | 2.59%                      | -20.69%          | 23.28%                |
| Monomoy Capital Partners III, L.P.              | 2017         | S&P 500      | \$7,947,525          | \$6,928,476          | \$1,019,049          | 1.46                          | 1.10          | 1.32                    | 30.04%                     | 8.02%            | 22.03%                |
| Nexus Special Situations Fund III, L.P.         | 2020         | S&P 500      | \$0                  |                      |                      |                               |               |                         |                            |                  |                       |
| Nexus Special Situations II, L.P.               | 2018         | S&P 500      | \$11,990,774         | \$6,914,600          | \$5,076,174          | 2.14                          | 1.56          | 1.37                    | 69.15%                     | 41.93%           | 27.22%                |
| Ospraie Special Opportunities (Offshore), Ltd.  | 2008         | S&P 500      | \$0                  | \$4,054,318          | -\$4,054,318         | 1.18                          | 0.88          | 1.35                    | 3.07%                      | -2.56%           | 5.63%                 |
| Shoreline III Co-Investment L.P.                | 2015         | S&P 500      | \$798,955            | \$1,807,877          | -\$1,008,922         | 1.23                          | 0.93          | 1.32                    | 9.15%                      | -5.50%           | 14.65%                |
| <b>Total Special Situations</b>                 |              |              | <b>\$35,385,278</b>  | <b>\$35,419,774</b>  | <b>-\$34,496</b>     | <b>1.36</b>                   | <b>1.00</b>   | <b>1.36</b>             | <b>8.40%</b>               | <b>-0.01%</b>    | <b>8.41%</b>          |
| <b>Venture Capital</b>                          |              |              |                      |                      |                      |                               |               |                         |                            |                  |                       |
| Drive Capital Fund III, L.P.                    | 2019         | Russell 2000 | \$2,020,047          | \$2,600,375          | -\$580,328           | 0.96                          | 0.78          | 1.24                    | -10.07%                    | -50.23%          | 40.16%                |
| Drive Capital Overdrive Fund I, L.P.            | 2019         | Russell 2000 | \$8,856,698          | \$7,637,575          | \$1,219,123          | 1.62                          | 1.16          | 1.40                    | 51.59%                     | 14.15%           | 37.44%                |
| <b>Total Venture Capital</b>                    |              |              | <b>\$10,876,745</b>  | <b>\$10,237,949</b>  | <b>\$638,796</b>     | <b>1.44</b>                   | <b>1.06</b>   | <b>1.36</b>             | <b>46.03%</b>              | <b>6.67%</b>     | <b>39.36%</b>         |
| <b>Total</b>                                    |              |              | <b>\$467,401,933</b> | <b>\$524,808,280</b> | <b>-\$57,406,348</b> | <b>1.76</b>                   | <b>0.97</b>   | <b>1.82</b>             | <b>10.86%</b>              | <b>-0.65%</b>    | <b>11.52%</b>         |



# GLOSSARY OF TERMS

- **Commitment**– The amount an investor has committed to invest with the General Partner
- **Paid In Capital** – The amount an investor has contributed for investments and management fees, minus recallable distributions
- **Unfunded Commitment**– The remaining amount an investor is contractually obligated to contribute for investment
- **Additional Fees** – Fees that are paid outside the capital commitment, also includes interest paid/received due from subsequent closings of the fund
- **Cumulative Distributions** – The amount an investor has received from realized and partially realized investments
- **Valuation** – Sum of the fair market value of all investments plus cash
- **Call Ratio** – Calculated by dividing Paid in Capital by Commitment
- **Market Exposure** – Calculated by adding Reported Value to Unfunded Commitment
- **Total Value** – Calculated by adding Cumulative Distributions and Valuation. Represents the total amount an investor should expect to receive from their investments
- **Net Benefit** – Calculated by subtracting (Paid In Capital + Additional Fees) from Total Value.
- **Distributions to Paid In Capital (DPI) Ratio\*\*** - Calculated by dividing Cumulative Distributions by (Paid In Capital + Additional Fees)
- **Total Value to Paid In Capital (TVPI) Ratio\*\*** – Calculated by dividing Total Value by (Paid in Capital + Additional Fees). Represents the multiple of the overall cash invested that an investor is expected to receive
- **IRR** - The calculation of the IRR (Internal Rate of Return) takes into consideration the timing of cash contributions and distributions to and from the partnerships, the length of time the investments have been held and the sum of the Valuation. It is the discount rate at which the net present value of all cash flows and the valuation is equal to zero.
- **Direct Alpha PME** - The calculation is deduced from the Kaplan Schoar PME calculation by computing an IRR of the discounted cash flows and taking the natural logarithm of the resulting IRR.
- **Market Related Multiple** - Calculated by dividing the TVPI by the Kaplan Schoar PME.
- **Market Related Return** - Calculated by subtracting the Direct Alpha PME from the since inception IRR.
- **Valuation ICM** – The valuation equivalent that ICM calculates for the public market is called valuation ICM
- **KS PME** – The Kaplan Schoar Public Markets Equivalent is a ratio of the future value of all distributions divided by the future value of all contributions using the index return as the discount rate. The ending valuation is treated as a distribution in this method
- **\*\*Note that NEPC uses a method where recallable distributions are subtracted from Paid In Capital rather than added to Cumulative Distributions, which may affect the calculation of the DPI/TVPI multiples**



# QUARTERLY PERFORMANCE REPORT

## MPERS Real Assets Report

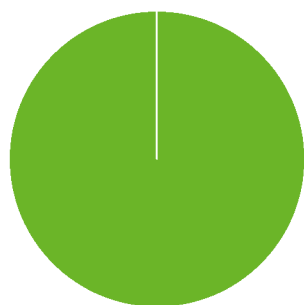
December 31, 2020



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

# EXECUTIVE SUMMARY

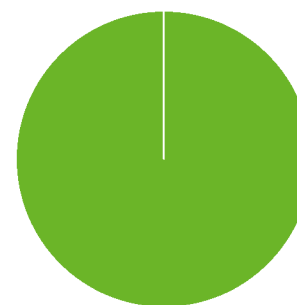
## Valuation by Asset Class



100.0%

Real Assets

## Fund Exposure by Asset Class



100.0%

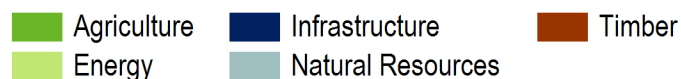
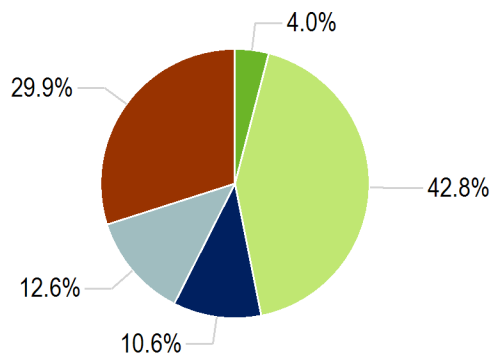
Real Assets

| Asset Class              | Investments \$ |                          |                     |               | Trailing Period Performance (IRR) |        |        |         |         |          |        | Multiples |      |
|--------------------------|----------------|--------------------------|---------------------|---------------|-----------------------------------|--------|--------|---------|---------|----------|--------|-----------|------|
|                          | Commitment     | Cumulative Contributions | Unfunded Commitment | Valuation     | (QTR)                             | (YTD)  | (1 YR) | (3 YRS) | (5 YRS) | (10 YRS) | SI IRR | DPI       | TVPI |
| <b>Total Real Assets</b> | \$599,780,191  | \$477,408,466            | \$122,371,726       | \$328,704,249 | 4.96%                             | -2.89% | -2.89% | 1.74%   | 4.03%   | 4.04%    | 4.76%  | 0.49      | 1.18 |
| <b>Total</b>             | \$599,780,191  | \$477,408,466            | \$122,371,726       | \$328,704,249 | 4.96%                             | -2.89% | -2.89% | 1.74%   | 4.03%   | 4.04%    | 4.76%  | 0.49      | 1.18 |

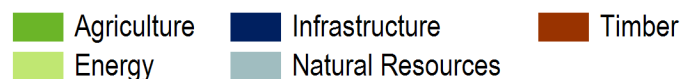
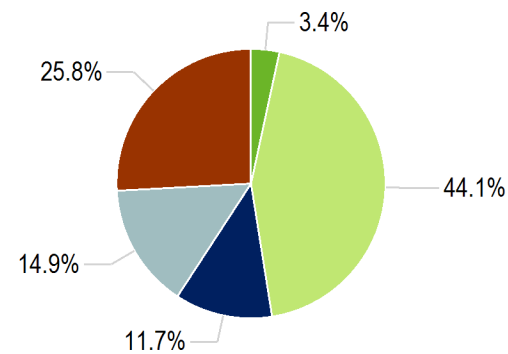


# ANALYSIS BY STRATEGY

### Real Assets Valuation by Strategy



### Real Assets Fund Exposure by Strategy

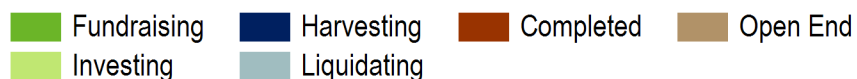
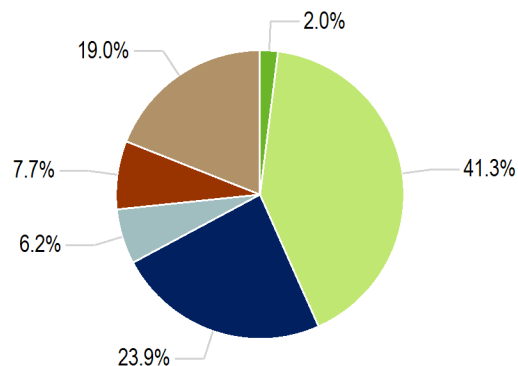


| Investment Strategy     | Commitments          |                      |             | Contributions & Distributions |                  |                          | Valuations           |                      |                     |                      | Performance |             |              |
|-------------------------|----------------------|----------------------|-------------|-------------------------------|------------------|--------------------------|----------------------|----------------------|---------------------|----------------------|-------------|-------------|--------------|
|                         | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions      | Additional Fees  | Cumulative Distributions | Valuation            | Total Value          | Net Benefit         | Fund Exposure        | DPI         | TVPI        | IRR          |
| Total Agriculture       | \$11,000,000         | \$2,035,628          | 0.81        | \$8,964,372                   | -\$76,849        | \$40,651                 | \$13,303,283         | \$13,343,934         | \$4,456,411         | \$15,338,911         | 0.00        | 1.50        | 11.55%       |
| Total Energy            | \$255,139,393        | \$58,141,757         | 0.77        | \$196,997,636                 | -\$279,959       | \$78,933,714             | \$140,750,726        | \$219,684,440        | \$22,966,763        | \$198,892,483        | 0.40        | 1.12        | 3.63%        |
| Total Infrastructure    | \$95,766,875         | \$18,015,498         | 0.81        | \$77,751,377                  | \$390,472        | \$59,897,504             | \$34,847,915         | \$94,745,419         | \$16,603,570        | \$52,863,413         | 0.77        | 1.21        | 5.21%        |
| Total Natural Resources | \$69,000,000         | \$25,932,319         | 0.62        | \$43,067,681                  | -\$69,400        | \$14,549,771             | \$41,451,209         | \$56,000,980         | \$13,002,699        | \$67,383,528         | 0.34        | 1.30        | 13.02%       |
| Total Timber            | \$168,873,923        | \$18,246,524         | 0.89        | \$150,627,400                 | \$2,680          | \$79,171,363             | \$98,351,116         | \$177,522,479        | \$26,892,400        | \$116,597,640        | 0.53        | 1.18        | 4.26%        |
| <b>Total</b>            | <b>\$599,780,191</b> | <b>\$122,371,726</b> | <b>0.80</b> | <b>\$477,408,466</b>          | <b>-\$33,057</b> | <b>\$232,593,003</b>     | <b>\$328,704,249</b> | <b>\$561,297,252</b> | <b>\$83,921,843</b> | <b>\$451,075,975</b> | <b>0.49</b> | <b>1.18</b> | <b>4.76%</b> |

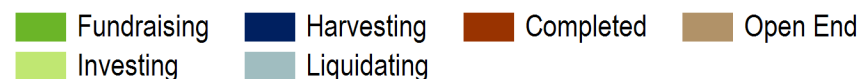
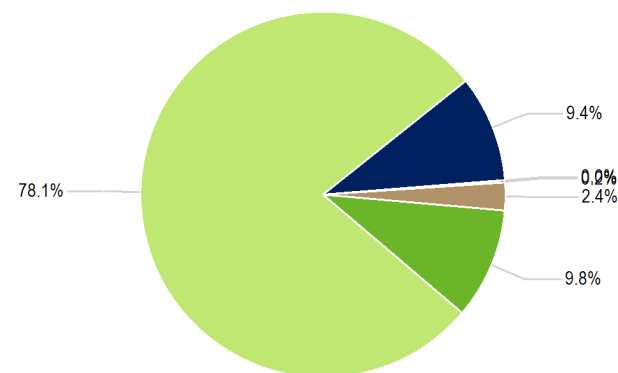


# ANALYSIS BY LIFECYCLE

### Commitment by Lifecycle



### Unfunded Commitment by Lifecycle



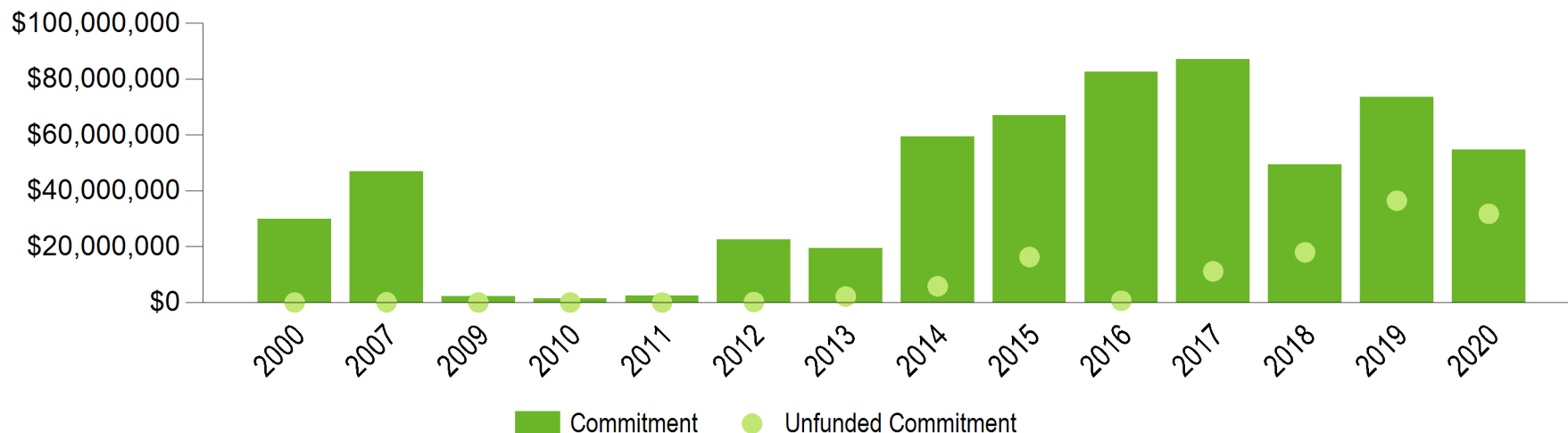
| Investments       | Commitments          |                      |             | Contributions & Distributions |                  |                          | Valuations           |                      |                     | Performance |             |              |
|-------------------|----------------------|----------------------|-------------|-------------------------------|------------------|--------------------------|----------------------|----------------------|---------------------|-------------|-------------|--------------|
|                   | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions      | Additional Fees  | Cumulative Distributions | Valuation            | Total Value          | Net Benefit         | DPI         | TVPI        | IRR          |
| Total Fundraising | \$12,000,000         | \$12,000,000         |             | \$0                           | \$0              | \$0                      | \$0                  | \$0                  | \$0                 |             |             |              |
| Total Investing   | \$247,916,429        | \$95,588,297         | 0.61        | \$152,328,132                 | -\$3,047         | \$9,388,921              | \$165,158,389        | \$174,547,310        | \$22,222,225        | 0.06        | 1.15        | 6.80%        |
| Total Harvesting  | \$143,072,964        | \$11,523,113         | 0.92        | \$131,549,851                 | -\$37,167        | \$74,598,338             | \$70,477,853         | \$145,076,191        | \$13,563,506        | 0.57        | 1.10        | 2.44%        |
| Total Liquidating | \$37,000,000         | \$50,189             | 1.00        | \$36,949,811                  | \$3              | \$53,047,324             | \$4,377,480          | \$57,424,804         | \$20,474,990        | 1.44        | 1.55        | 9.60%        |
| Total Completed   | \$45,916,875         | \$220,000            | 1.00        | \$45,696,875                  | \$4,475          | \$63,282,398             | \$0                  | \$63,282,398         | \$17,581,049        | 1.38        | 1.38        | 4.66%        |
| Total Open End    | \$113,873,923        | \$2,990,127          | 0.97        | \$110,883,797                 | \$2,680          | \$32,276,022             | \$88,690,527         | \$120,966,549        | \$10,080,073        | 0.29        | 1.09        | 3.20%        |
| <b>Total</b>      | <b>\$599,780,191</b> | <b>\$122,371,726</b> | <b>0.80</b> | <b>\$477,408,466</b>          | <b>-\$33,057</b> | <b>\$232,593,003</b>     | <b>\$328,704,249</b> | <b>\$561,297,252</b> | <b>\$83,921,843</b> | <b>0.49</b> | <b>1.18</b> | <b>4.76%</b> |



# MPERS

## ANALYSIS BY VINTAGE YEAR

### Commitments By Vintage Year



| Vintage Year | Commitments          |                      |             | Contributions & Distributions |                  |                          | Valuations           |                      |                     | Performance |             |              |
|--------------|----------------------|----------------------|-------------|-------------------------------|------------------|--------------------------|----------------------|----------------------|---------------------|-------------|-------------|--------------|
|              | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions      | Additional Fees  | Cumulative Distributions | Valuation            | Total Value          | Net Benefit         | DPI         | TVPI        | IRR          |
| Total 2000   | \$30,000,000         | \$0                  | 1.00        | \$30,000,000                  | \$0              | \$46,895,341             | \$0                  | \$46,895,341         | \$16,895,341        | 1.56        | 1.56        | 4.86%        |
| Total 2007   | \$47,000,000         | \$50,189             | 1.00        | \$46,949,811                  | \$3              | \$63,439,911             | \$6,728,683          | \$70,168,594         | \$23,218,780        | 1.35        | 1.49        | 8.05%        |
| Total 2009   | \$2,250,000          | \$0                  | 1.00        | \$2,250,000                   | \$0              | \$2,576,335              | \$0                  | \$2,576,335          | \$326,335           | 1.15        | 1.15        | 4.22%        |
| Total 2010   | \$1,500,000          | \$0                  | 1.00        | \$1,500,000                   | \$0              | \$530,691                | \$2,024,981          | \$2,555,672          | \$1,055,672         | 0.35        | 1.70        | 6.19%        |
| Total 2011   | \$2,500,000          | \$0                  | 1.00        | \$2,500,000                   | \$0              | \$5,287,749              | \$634,361            | \$5,922,110          | \$3,422,110         | 2.12        | 2.37        | 24.00%       |
| Total 2012   | \$22,500,000         | \$165,732            | 0.99        | \$22,334,268                  | \$79,730         | \$18,742,460             | \$12,015,294         | \$30,757,754         | \$8,343,756         | 0.84        | 1.37        | 7.21%        |
| Total 2013   | \$19,500,000         | \$2,109,379          | 0.89        | \$17,390,621                  | \$6,824          | \$8,881,722              | \$9,151,112          | \$18,032,834         | \$635,389           | 0.51        | 1.04        | 0.91%        |
| Total 2014   | \$59,559,224         | \$5,818,774          | 0.90        | \$53,740,450                  | -\$116,640       | \$15,729,080             | \$28,467,956         | \$44,197,036         | -\$9,426,775        | 0.29        | 0.82        | -4.43%       |
| Total 2015   | \$67,116,875         | \$16,283,976         | 0.76        | \$50,832,899                  | -\$450,150       | \$28,368,166             | \$40,980,451         | \$69,348,617         | \$18,965,868        | 0.56        | 1.38        | 11.22%       |
| Total 2016   | \$82,651,313         | \$594,182            | 0.99        | \$82,057,131                  | -\$569           | \$18,309,314             | \$70,453,232         | \$88,762,546         | \$6,705,984         | 0.22        | 1.08        | 2.42%        |
| Total 2017   | \$87,223,292         | \$11,151,715         | 0.87        | \$76,071,577                  | \$5,612          | \$23,205,323             | \$63,416,275         | \$86,621,598         | \$10,544,410        | 0.31        | 1.14        | 5.33%        |
| Total 2018   | \$49,500,558         | \$17,978,400         | 0.64        | \$31,522,158                  | \$471,101        | \$42,529                 | \$33,713,518         | \$33,756,047         | \$1,762,788         | 0.00        | 1.06        | 3.86%        |
| Total 2019   | \$73,666,429         | \$36,463,749         | 0.51        | \$37,202,680                  | -\$31,855        | \$90,633                 | \$38,770,348         | \$38,860,981         | \$1,690,156         | 0.00        | 1.05        | 3.66%        |
| Total 2020   | \$54,812,500         | \$31,755,629         | 0.42        | \$23,056,871                  | \$2,887          | \$493,750                | \$22,348,038         | \$22,841,788         | -\$217,970          | 0.02        | 0.99        | -1.87%       |
| <b>Total</b> | <b>\$599,780,191</b> | <b>\$122,371,726</b> | <b>0.80</b> | <b>\$477,408,466</b>          | <b>-\$33,057</b> | <b>\$232,593,003</b>     | <b>\$328,704,249</b> | <b>\$561,297,252</b> | <b>\$83,921,843</b> | <b>0.49</b> | <b>1.18</b> | <b>4.76%</b> |



# APPENDIX

## MPERS

December 31, 2020



# MPERS

## RETURN SUMMARY

| Investments                                  |              |              | Trailing Period Returns (IRR) % |         |         |         |         |          |         |
|--|--------------|--------------|---------------------------------|---------|---------|---------|---------|----------|---------|
| Investment Name                              | Vintage Year | Commitment   | (Qtr)                           | (YTD)   | (1 Yr)  | (3 Yrs) | (5 Yrs) | (10 Yrs) | SI IRR  |
| <b>Real Assets</b>                           |              |              |                                 |         |         |         |         |          |         |
| AIM Ag Infra, L.P.                           | 2015         | \$916,875    |                                 |         |         |         |         |          |         |
| AIM Bridge, LLC                              | 2010         | \$1,500,000  | -0.17%                          | -3.94%  | -3.94%  | 10.19%  | 6.78%   | 6.33%    | 6.19%   |
| AIM Cemetery Infrastructure, L.P.            | 2014         | \$1,000,000  | 173.19%                         | 79.78%  | 79.78%  | -24.88% | -32.52% |          | -23.32% |
| AIM Dividend Growth Fund, L.P.               | 2016         | \$1,500,000  |                                 |         |         | 28.94%  |         |          | 16.99%  |
| AIM Education, L.P.                          | 2016         | \$750,000    | 0.85%                           | 6.56%   | 6.56%   | 6.80%   |         |          | 12.51%  |
| AIM Fuel 2, L.P.                             | 2014         | \$1,500,000  | -28.79%                         | -21.68% | -21.68% | -2.89%  | 3.94%   |          | 0.61%   |
| AIM Fuel, LLC                                | 2011         | \$1,000,000  | 8.06%                           | 5.54%   | 5.54%   | 0.72%   | 3.51%   |          | 12.52%  |
| AIM Inspire America Fund, L.P.               | 2015         | \$1,000,000  |                                 |         |         | 103.53% | -1.69%  |          | 14.77%  |
| AIM Landfill, L.P.                           | 2014         | \$1,250,000  | -7.89%                          | 171.57% | 171.57% | 22.33%  | 19.25%  |          | 21.48%  |
| AIM Marinas, L.P.                            | 2015         | \$2,700,000  | 2.44%                           | 31.81%  | 31.81%  | 51.90%  | 37.00%  |          | 35.83%  |
| AIM Midstream, LLC                           | 2009         | \$2,250,000  |                                 |         |         |         |         |          | 4.22%   |
| AIM Storage, LLC                             | 2011         | \$1,500,000  |                                 |         |         |         |         |          | 32.41%  |
| AIM Upstream, LLC                            | 2012         | \$1,000,000  |                                 |         |         |         |         |          | -0.97%  |
| AIM Water, LLC                               | 2012         | \$1,500,000  |                                 |         |         |         |         |          | -75.44% |
| American Infrastructure MLP Fund II, L.P.    | 2013         | \$7,500,000  | 2.62%                           | 21.45%  | 21.45%  | 14.03%  | 5.28%   |          | 4.44%   |
| American Infrastructure MLP Fund, L.P.       | 2007         | \$15,000,000 | 3.43%                           | 3.39%   | 3.39%   | 2.40%   | 5.31%   | 0.03%    | 6.28%   |
| Ares Energy Opportunities Fund A, L.P.       | 2019         | \$15,000,000 | 2.06%                           | -53.68% | -53.68% |         |         |          | -35.18% |
| Ares EPIC Co-Invest, L.P.                    | 2019         | \$1,500,000  | -1.60%                          | -22.15% | -22.15% |         |         |          | 0.90%   |
| Ares SCM Co-Invest, L.P.                     | 2018         | \$1,000,000  | -65.25%                         |         |         |         |         |          |         |
| Blue Road Capital, L.P.                      | 2015         | \$7,500,000  | 5.47%                           | 12.37%  | 12.37%  | 10.41%  | 8.92%   |          | 9.03%   |
| Blue Road Co-Inv - BR Superfoods, LLC        | 2019         | \$1,000,000  | 6.69%                           | 10.16%  | 10.16%  |         |         |          | 17.07%  |
| BRC National Pecan Co-Invest, L.P.           | 2015         | \$2,500,000  | 4.92%                           | 24.20%  | 24.20%  | 15.68%  | 14.65%  |          | 16.00%  |
| CIM Infrastructure Fund II, L.P.             | 2018         | \$12,500,000 | 10.52%                          | 17.42%  | 17.42%  |         |         |          | 9.35%   |
| Columbia Spectrum Partners IV, L.P.          | 2020         | \$15,000,000 |                                 |         |         |         |         |          | -1.33%  |
| Corrum Capital Aviation Investors 2018, L.P. | 2018         | \$5,000,000  | 0.36%                           | -15.71% | -15.71% |         |         |          | -0.43%  |
| Corrum Capital Aviation Partners II, L.P.    | 2019         | \$1,400,000  | -6.95%                          | -15.83% | -15.83% |         |         |          | 1.60%   |
| Corrum Capital Aviation Partners, L.P.       | 2017         | \$10,000,000 | -6.92%                          | -15.62% | -15.62% | -0.54%  |         |          | 0.99%   |
| Cowpens Land and Timber, LLC                 | 2016         | \$16,121,780 | 0.40%                           | -2.66%  | -2.66%  | -2.06%  |         |          | -1.91%  |
| Dawsonville Bluffs, LLC                      | 2017         | \$10,539,200 | 0.04%                           | 18.04%  | 18.04%  | 37.33%  |         |          | 27.19%  |
| EIF United States Power Fund III, L.P.       | 2007         | \$10,000,000 | 15.79%                          | 3.72%   | 3.72%   | -7.39%  | -3.05%  | 5.08%    | 3.64%   |
| EMG AE Permian Co-Investment, L.P.           | 2014         | \$2,000,000  |                                 |         |         |         |         |          |         |
| EMG AENO Co-Investment, L.P.                 | 2014         | \$1,809,224  | -0.13%                          | -22.64% | -22.64% | -10.92% | -0.24%  |          | -0.35%  |
| EMG Ascent 2016 Equity, L.P.                 | 2016         | \$2,987,944  | -3.07%                          | -3.08%  | -3.08%  | -5.75%  |         |          | 3.77%   |



**MPERS**

# RETURN SUMMARY

| Investments                                 |              |              | Trailing Period Returns (IRR) % |         |         |         |         |          |         |
|---|--------------|--------------|---------------------------------|---------|---------|---------|---------|----------|---------|
| Investment Name                             | Vintage Year | Commitment   | (Qtr)                           | (YTD)   | (1 Yr)  | (3 Yrs) | (5 Yrs) | (10 Yrs) | SI IRR  |
| EMG Ascent Secondary Fund, L.P.             | 2017         | \$116,920    | -3.11%                          | -3.74%  | -3.74%  | -1.69%  |         |          | 12.93%  |
| EMG Fund II Ascent Co-Investment, L.P.      | 2015         | \$600,000    |                                 |         |         |         |         |          | 0.00%   |
| EMG Fund III Ascent Co-Investment, L.P.     | 2015         | \$2,400,000  |                                 |         |         |         |         |          | -2.47%  |
| EMG Fund Spur Co-Investment, L.P.           | 2019         | \$1,000,000  | 22.07%                          | 19.99%  | 19.99%  |         |         |          | 20.96%  |
| EMG Iron Ore Co-Investment, L.P.            | 2019         | \$2,766,429  | 41.11%                          | 52.36%  | 52.36%  |         |         |          | 33.61%  |
| EMG PRES Equity, L.P.                       | 2017         | \$3,208,318  |                                 | -99.97% | -99.97% |         |         |          |         |
| EMG Traverse Co-Investment, L.P.            | 2016         | \$2,000,000  | 2.57%                           | 1.83%   | 1.83%   | -8.22%  |         |          | -5.69%  |
| EMG V Accordion, L.P.                       | 2019         | \$3,000,000  | 27.80%                          | 32.95%  | 32.95%  |         |         |          | 34.05%  |
| EMG V, L.P.                                 | 2019         | \$9,000,000  | 25.90%                          | 31.27%  | 31.27%  |         |         |          | 29.22%  |
| Energy & Minerals Group Fund II, L.P.       | 2012         | \$10,000,000 | 18.42%                          | 17.85%  | 17.85%  | 6.61%   | 10.75%  |          | 14.56%  |
| Energy & Minerals Group Fund III, L.P.      | 2014         | \$10,000,000 | -0.64%                          | -24.36% | -24.36% | -16.71% | -8.97%  |          | -10.41% |
| Energy & Minerals Group Fund IV, L.P.       | 2015         | \$20,000,000 | 6.43%                           | -5.86%  | -5.86%  | 3.03%   | 9.33%   |          | 9.13%   |
| Golden Sciens Marine Investments, Ltd.      | 2014         | \$10,000,000 | 1.86%                           | -27.66% | -27.66% | -14.88% | -6.01%  |          | -17.08% |
| Grey Rock Energy Fund II, L.P.              | 2016         | \$10,000,000 | 6.27%                           | -12.70% | -12.70% | 2.46%   |         |          | 2.10%   |
| Grey Rock Energy Fund III-A, L.P.           | 2018         | \$15,000,000 | 2.51%                           | 14.84%  | 14.84%  |         |         |          | 5.87%   |
| Lake Murray, LLC                            | 2016         | \$1,217,230  | 0.92%                           | -4.57%  | -4.57%  | -2.35%  |         |          | -1.96%  |
| Mission Sawmill Fund, LLC                   | 2020         | \$5,000,000  |                                 |         |         |         |         |          | -13.60% |
| MKH Montana                                 | 2020         | \$15,000,000 | -1.38%                          |         |         |         |         |          | -0.18%  |
| MKH Montana North                           | 2020         | \$5,000,000  | 0.00%                           |         |         |         |         |          | 0.00%   |
| MP Timber, LLC                              | 2016         | \$46,074,359 | 1.88%                           | 0.98%   | 0.98%   | 4.64%   |         |          | 4.12%   |
| Muddy Waters Land and Timber, LLC           | 2017         | \$7,772,554  | 8.71%                           | 0.87%   | 0.87%   | -2.86%  |         |          | -2.45%  |
| Natural Gas Partners IX, L.P.               | 2007         | \$12,000,000 | 62.33%                          | 35.84%  | 35.84%  | 36.02%  | 8.38%   | 11.42%   | 10.92%  |
| NGP Boaz Energy II Co-Invest, LLC           | 2016         | \$1,000,000  | -66.16%                         | -83.69% | -83.69% | -50.65% |         |          | -25.80% |
| NGP Camino Follow-On, LLC                   | 2018         | \$1,000,558  | 0.17%                           | -27.86% | -27.86% |         |         |          | -14.04% |
| NGP Midstream & Resources, L.P.             | 2007         | \$10,000,000 | 42.87%                          | 5.81%   | 5.81%   | -5.62%  | -2.51%  | 11.14%   | 13.48%  |
| NGP Natural Resources X, L.P.               | 2012         | \$10,000,000 | -8.63%                          | -37.69% | -37.69% | -23.95% | -3.13%  |          | -1.91%  |
| NGP Natural Resources XI, L.P.              | 2014         | \$12,000,000 | 2.75%                           | -22.10% | -22.10% | -9.67%  | -0.38%  |          | -0.67%  |
| NGP XI Luxe Coinvest, LLC                   | 2017         | \$1,500,000  | -1.34%                          | -44.15% | -44.15% | -17.29% |         |          | -17.04% |
| NGP XI Midstream Coinvest, LLC              | 2016         | \$1,000,000  | -3.73%                          | -31.60% | -31.60% | -6.53%  |         |          | -2.09%  |
| Orion Co-Investments II, L.P.               | 2015         | \$1,500,000  | -0.18%                          | -18.55% | -18.55% | -6.96%  | 13.42%  |          | 14.16%  |
| Orion Co-Investments IV, L.P.               | 2015         | \$1,000,000  | -5.91%                          | -16.78% | -16.78% | -14.20% | -3.40%  |          | -3.67%  |
| Orion Mine Finance (Delaware) Fund II, L.P. | 2017         | \$10,000,000 | -2.40%                          | 22.59%  | 22.59%  | 16.52%  |         |          | 14.22%  |
| Orion Mine Finance (Master) Fund I-A, L.P.  | 2014         | \$10,000,000 | 5.64%                           | -0.18%  | -0.18%  | -3.79%  | 12.23%  |          | 9.53%   |
| Orion Mine Finance (Onshore) Fund III, L.P. | 2019         | \$12,000,000 | 9.44%                           | 38.33%  | 38.33%  |         |         |          | 29.23%  |





# MPERS

## RETURN SUMMARY

| Investments   |              |                      | Trailing Period Returns (IRR) % |               |               |              |              |              |              |
|---|--------------|----------------------|---------------------------------|---------------|---------------|--------------|--------------|--------------|--------------|
| Investment Name   | Vintage Year | Commitment           | (Qtr)                           | (YTD)         | (1 Yr)        | (3 Yrs)      | (5 Yrs)      | (10 Yrs)     | SI IRR       |
| Orion Mine Finance Co-Fund II, L.P.                             | 2017         | \$7,500,000          | -0.92%                          | 23.31%        | 23.31%        | 23.47%       |              |              | 23.33%       |
| Orion Mine Finance Co-Fund III, L.P.                            | 2019         | \$12,000,000         |                                 |               |               |              |              |              |              |
| Orion Mineral Royalty Fund, L.P.                                | 2018         | \$15,000,000         | 12.72%                          | 19.23%        | 19.23%        |              |              |              | 12.10%       |
| Quantum Energy Partners VII Co-Investment Fund, L.P.            | 2017         | \$2,250,000          | 138.28%                         | 103.40%       | 103.40%       | 21.45%       |              |              | 21.01%       |
| Quantum Energy Partners VII, L.P.                               | 2017         | \$15,000,000         | 49.89%                          | 31.85%        | 31.85%        | 10.82%       |              |              | 11.19%       |
| REOG Fund II Coinvest, L.P.                                     | 2013         | \$2,000,000          | 1.09%                           | -14.76%       | -14.76%       | 2.44%        | 11.78%       |              | 9.36%        |
| Ridgewood Energy Oil & Gas Fund II, L.P.                        | 2013         | \$10,000,000         | 1.48%                           | -24.45%       | -24.45%       | -4.04%       | 0.24%        |              | -3.49%       |
| Ridgewood Energy Oil & Gas Fund III, L.P.                       | 2015         | \$12,000,000         | -2.38%                          | -5.43%        | -5.43%        | -0.55%       | 4.15%        |              | 3.97%        |
| Ridgewood Energy Oil & Gas Fund IV, L.P.                        | 2019         | \$15,000,000         |                                 |               |               |              |              |              | 0.00%        |
| RMK Select Timberland Investment Fund I, LLC                    | 2000         | \$30,000,000         |                                 |               |               |              |              |              | 4.86%        |
| Rocky Top Timber, LLC   | 2017         | \$8,674,834          | 6.48%                           | 7.45%         | 7.45%         | 2.21%        |              |              | 1.79%        |
| Rocky Top Uplands   | 2020         | \$14,812,500         | -2.96%                          | -1.42%        | -1.42%        |              |              |              | -1.43%       |
| Russellville Land and Timber, LLC                               | 2017         | \$1,145,337          | 0.00%                           | 0.58%         | 0.58%         | 37.32%       |              |              | 32.70%       |
| Sandy River, LLC  | 2017         | \$6,097,796          | 1.57%                           | -8.38%        | -8.38%        | -6.47%       |              |              | -5.36%       |
| Sciens Aviation Special Opportunities Investment Fund III, L.P. | 2015         | \$15,000,000         | -14.27%                         | -24.37%       | -24.37%       | 21.11%       | 15.67%       |              | 12.43%       |
| Smallwood Homes, LLC  | 2017         | \$1,418,333          | -2.07%                          | 0.15%         | 0.15%         | -0.54%       |              |              | -0.82%       |
| TCP Brigade CIV, L.P.   | 2017         | \$1,000,000          | -11.30%                         | -52.56%       | -52.56%       | -15.14%      |              |              | -11.05%      |
| TCP Probe CIV, L.P.   | 2017         | \$1,000,000          | -0.28%                          | -9.67%        | -9.67%        | -8.94%       |              |              | -1.14%       |
| Turnbridge Capital Partners I, L.P.                             | 2014         | \$10,000,000         | -3.37%                          | -38.74%       | -38.74%       | -6.95%       | -6.46%       |              | -7.84%       |
| <b>Total Real Assets</b>  |              | <b>\$599,780,191</b> | <b>4.96%</b>                    | <b>-2.89%</b> | <b>-2.89%</b> | <b>1.74%</b> | <b>4.03%</b> | <b>4.04%</b> | <b>4.76%</b> |
| <b>Total</b>  |              | <b>\$599,780,191</b> | <b>4.96%</b>                    | <b>-2.89%</b> | <b>-2.89%</b> | <b>1.74%</b> | <b>4.03%</b> | <b>4.04%</b> | <b>4.76%</b> |



# MPERS

## ANALYSIS BY FUND

| Investments                                  |              | Commitments  |                     | Contributions & Distributions |                 |                          | Valuations   |              |              | Performance |      |         |
|--|--------------|--------------|---------------------|-------------------------------|-----------------|--------------------------|--------------|--------------|--------------|-------------|------|---------|
| Investment Name                              | Vintage Year | Commitment   | Unfunded Commitment | Paid In Capital               | Additional Fees | Cumulative Distributions | Valuation    | Total Value  | Net Benefit  | DPI         | TVPI | IRR     |
| AIM Ag Infra, L.P.                           | 2015         | \$916,875    | \$0                 | \$916,875                     | \$0             | \$0                      | \$0          | \$0          | -\$916,875   | 0.00        | 0.00 |         |
| AIM Bridge, LLC                              | 2010         | \$1,500,000  | \$0                 | \$1,500,000                   | \$0             | \$530,691                | \$2,024,981  | \$2,555,672  | \$1,055,672  | 0.35        | 1.70 | 6.19%   |
| AIM Cemetery Infrastructure, L.P.            | 2014         | \$1,000,000  | \$190,000           | \$810,000                     | \$0             | \$153,794                | \$137,744    | \$291,538    | -\$518,462   | 0.19        | 0.36 | -23.32% |
| AIM Dividend Growth Fund, L.P.               | 2016         | \$1,500,000  | \$0                 | \$1,500,000                   | \$4,475         | \$2,227,517              | \$0          | \$2,227,517  | \$723,043    | 1.48        | 1.48 | 16.99%  |
| AIM Education, L.P.                          | 2016         | \$750,000    | \$0                 | \$750,000                     | \$1,170         | \$694,719                | \$444,113    | \$1,138,832  | \$387,662    | 0.92        | 1.52 | 12.51%  |
| AIM Fuel 2, L.P.                             | 2014         | \$1,500,000  | \$0                 | \$1,500,000                   | \$0             | \$940,211                | \$603,255    | \$1,543,466  | \$43,466     | 0.63        | 1.03 | 0.61%   |
| AIM Fuel, LLC                                | 2011         | \$1,000,000  | \$0                 | \$1,000,000                   | \$0             | \$1,443,806              | \$634,361    | \$2,078,167  | \$1,078,167  | 1.44        | 2.08 | 12.52%  |
| AIM Inspire America Fund, L.P.               | 2015         | \$1,000,000  | \$220,000           | \$780,000                     | \$0             | \$940,307                | \$0          | \$940,307    | \$160,307    | 1.21        | 1.21 | 14.77%  |
| AIM Landfill, L.P.                           | 2014         | \$1,250,000  | \$0                 | \$1,250,000                   | \$0             | \$2,637,632              | \$0          | \$2,637,632  | \$1,387,632  | 2.11        | 2.11 | 21.48%  |
| AIM Marinas, L.P.                            | 2015         | \$2,700,000  | \$0                 | \$2,700,000                   | \$10,680        | \$7,373,980              | \$298,517    | \$7,672,497  | \$4,961,817  | 2.72        | 2.83 | 35.83%  |
| AIM Midstream, LLC                           | 2009         | \$2,250,000  | \$0                 | \$2,250,000                   | \$0             | \$2,576,335              | \$0          | \$2,576,335  | \$326,335    | 1.15        | 1.15 | 4.22%   |
| AIM Storage, LLC                             | 2011         | \$1,500,000  | \$0                 | \$1,500,000                   | \$0             | \$3,843,943              | \$0          | \$3,843,943  | \$2,343,943  | 2.56        | 2.56 | 32.41%  |
| AIM Upstream, LLC                            | 2012         | \$1,000,000  | \$0                 | \$1,000,000                   | \$0             | \$979,744                | \$0          | \$979,744    | -\$20,256    | 0.98        | 0.98 | -0.97%  |
| AIM Water, LLC                               | 2012         | \$1,500,000  | \$0                 | \$1,500,000                   | \$0             | \$190,239                | \$0          | \$190,239    | -\$1,309,761 | 0.13        | 0.13 | -75.44% |
| American Infrastructure MLP Fund II, L.P.    | 2013         | \$7,500,000  | \$1,166,250         | \$6,333,750                   | \$6,824         | \$5,226,960              | \$2,281,399  | \$7,508,359  | \$1,167,785  | 0.82        | 1.18 | 4.44%   |
| American Infrastructure MLP Fund, L.P.       | 2007         | \$15,000,000 | \$0                 | \$15,000,000                  | \$0             | \$18,151,365             | \$3,307,427  | \$21,458,792 | \$6,458,792  | 1.21        | 1.43 | 6.28%   |
| Ares Energy Opportunities Fund A, L.P.       | 2019         | \$15,000,000 | \$1,507,143         | \$13,492,857                  | \$0             | \$6,184                  | \$7,736,282  | \$7,742,466  | -\$5,750,391 | 0.00        | 0.57 | -35.18% |
| Ares EPIC Co-Invest, L.P.                    | 2019         | \$1,500,000  | \$16,155            | \$1,483,845                   | \$5,193         | \$0                      | \$1,511,309  | \$1,511,309  | \$22,271     | 0.00        | 1.01 | 0.90%   |
| Ares SCM Co-Invest, L.P.                     | 2018         | \$1,000,000  | \$0                 | \$1,000,000                   | \$5,858         | \$0                      | \$106        | \$106        | -\$1,005,752 | 0.00        | 0.00 |         |
| Blue Road Capital, L.P.                      | 2015         | \$7,500,000  | \$1,574,764         | \$5,925,236                   | -\$123,459      | \$19,829                 | \$7,994,347  | \$8,014,176  | \$2,212,399  | 0.00        | 1.38 | 9.03%   |
| Blue Road Co-Inv - BR Superfoods, LLC        | 2019         | \$1,000,000  | \$0                 | \$1,000,000                   | \$0             | \$0                      | \$1,266,970  | \$1,266,970  | \$266,970    | 0.00        | 1.27 | 17.07%  |
| BRC National Pecan Co-Invest, L.P.           | 2015         | \$2,500,000  | \$460,864           | \$2,039,136                   | \$46,610        | \$20,822                 | \$4,041,966  | \$4,062,788  | \$1,977,042  | 0.01        | 1.95 | 16.00%  |
| CIM Infrastructure Fund II, L.P.             | 2018         | \$12,500,000 | \$5,375,567         | \$7,124,433                   | \$700,675       | \$42,529                 | \$9,032,673  | \$9,075,202  | \$1,250,095  | 0.01        | 1.16 | 9.35%   |
| Columbia Spectrum Partners IV, L.P.          | 2020         | \$15,000,000 | \$13,358,940        | \$1,641,060                   | \$2,887         | \$0                      | \$1,616,479  | \$1,616,479  | -\$27,467    | 0.00        | 0.98 | -1.33%  |
| Corrum Capital Aviation Investors 2018, L.P. | 2018         | \$5,000,000  | \$1,975,595         | \$3,024,405                   | -\$163,803      | \$0                      | \$2,837,770  | \$2,837,770  | -\$22,832    | 0.00        | 0.99 | -0.43%  |
| Corrum Capital Aviation Partners II, L.P.    | 2019         | \$1,400,000  | \$258,871           | \$1,141,129                   | \$0             | \$37,800                 | \$1,129,953  | \$1,167,753  | \$26,624     | 0.03        | 1.02 | 1.60%   |
| Corrum Capital Aviation Partners, L.P.       | 2017         | \$10,000,000 | \$1,712,538         | \$8,287,462                   | \$0             | \$376,811                | \$8,114,172  | \$8,490,983  | \$203,521    | 0.05        | 1.02 | 0.99%   |
| Cowpens Land and Timber, LLC                 | 2016         | \$16,121,780 | \$0                 | \$16,121,780                  | \$0             | \$0                      | \$15,144,720 | \$15,144,720 | -\$977,060   | 0.00        | 0.94 | -1.91%  |
| Dawsonville Bluffs, LLC                      | 2017         | \$10,539,200 | \$0                 | \$10,539,200                  | \$0             | \$14,052,251             | \$1,509,975  | \$15,562,226 | \$5,023,026  | 1.33        | 1.48 | 27.19%  |
| EIF United States Power Fund III, L.P.       | 2007         | \$10,000,000 | \$0                 | \$10,000,000                  | \$0             | \$10,392,587             | \$2,351,203  | \$12,743,790 | \$2,743,790  | 1.04        | 1.27 | 3.64%   |
| EMG AE Permian Co-Investment, L.P.           | 2014         | \$2,000,000  | \$0                 | \$2,000,000                   | \$0             | \$0                      | \$0          | \$0          | -\$2,000,000 | 0.00        | 0.00 |         |
| EMG AENO Co-Investment, L.P.                 | 2014         | \$1,809,224  | \$0                 | \$1,809,224                   | \$0             | \$10,744                 | \$1,759,991  | \$1,770,735  | -\$38,489    | 0.01        | 0.98 | -0.35%  |
| EMG Ascent 2016 Equity, L.P.                 | 2016         | \$2,987,944  | \$0                 | \$2,987,944                   | \$0             | \$0                      | \$3,577,394  | \$3,577,394  | \$589,450    | 0.00        | 1.20 | 3.77%   |

\*EMG AENO shows an adjusted commitment due to the GP retiring a portion of the unfunded commitment early. The original commitment is \$2,500,000.



**MPERS**

# ANALYSIS BY FUND

| Investments                                 |              | Commitments  |                     | Contributions & Distributions |                 |                          | Valuations   |              |              | Performance |      |         |
|---|--------------|--------------|---------------------|-------------------------------|-----------------|--------------------------|--------------|--------------|--------------|-------------|------|---------|
| Investment Name                             | Vintage Year | Commitment   | Unfunded Commitment | Paid In Capital               | Additional Fees | Cumulative Distributions | Valuation    | Total Value  | Net Benefit  | DPI         | TVPI | IRR     |
| EMG Ascent Secondary Fund, L.P.             | 2017         | \$116,920    | \$0                 | \$116,920                     | \$0             | \$0                      | \$170,013    | \$170,013    | \$53,093     | 0.00        | 1.45 | 12.93%  |
| EMG Fund II Ascent Co-Investment, L.P.      | 2015         | \$600,000    | \$0                 | \$600,000                     | \$0             | \$600,000                | \$0          | \$600,000    | \$0          | 1.00        | 1.00 | 0.00%   |
| EMG Fund III Ascent Co-Investment, L.P.     | 2015         | \$2,400,000  | \$0                 | \$2,400,000                   | \$0             | \$2,391,340              | \$0          | \$2,391,340  | -\$8,660     | 1.00        | 1.00 | -2.47%  |
| EMG Fund Spur Co-Investment, L.P.           | 2019         | \$1,000,000  | \$0                 | \$1,000,000                   | \$0             | \$46,649                 | \$1,198,847  | \$1,245,496  | \$245,496    | 0.05        | 1.25 | 20.96%  |
| EMG Iron Ore Co-Investment, L.P.            | 2019         | \$2,766,429  | \$0                 | \$2,766,429                   | \$0             | \$0                      | \$4,439,941  | \$4,439,941  | \$1,673,512  | 0.00        | 1.60 | 33.61%  |
| EMG PRES Equity, L.P.                       | 2017         | \$3,208,318  | \$0                 | \$3,208,318                   | \$0             | \$0                      | \$735        | \$735        | -\$3,207,583 | 0.00        | 0.00 |         |
| EMG Traverse Co-Investment, L.P.            | 2016         | \$2,000,000  | \$0                 | \$2,000,000                   | \$0             | \$91,118                 | \$1,504,865  | \$1,595,983  | -\$404,017   | 0.05        | 0.80 | -5.69%  |
| EMG V Accordion, L.P.                       | 2019         | \$3,000,000  | \$703,758           | \$2,296,242                   | -\$17,419       | \$0                      | \$3,509,360  | \$3,509,360  | \$1,230,537  | 0.00        | 1.54 | 34.05%  |
| EMG V, L.P.                                 | 2019         | \$9,000,000  | \$2,821,029         | \$6,178,971                   | -\$4,110        | \$0                      | \$9,012,990  | \$9,012,990  | \$2,838,129  | 0.00        | 1.46 | 29.22%  |
| Energy & Minerals Group Fund II, L.P.       | 2012         | \$10,000,000 | \$17,037            | \$9,982,963                   | \$72,877        | \$9,719,936              | \$10,597,369 | \$20,317,305 | \$10,261,465 | 0.97        | 2.02 | 14.56%  |
| Energy & Minerals Group Fund III, L.P.      | 2014         | \$10,000,000 | \$64,222            | \$9,935,778                   | \$4,847         | \$994,351                | \$4,723,040  | \$5,717,391  | -\$4,223,234 | 0.10        | 0.58 | -10.41% |
| Energy & Minerals Group Fund IV, L.P.       | 2015         | \$20,000,000 | \$2,523,219         | \$17,476,781                  | -\$357,409      | \$3,594,042              | \$19,759,725 | \$23,353,767 | \$6,234,395  | 0.21        | 1.36 | 9.13%   |
| Golden Sciens Marine Investments, Ltd.      | 2014         | \$10,000,000 | \$1,913,762         | \$8,086,238                   | -\$142,976      | \$0                      | \$2,325,509  | \$2,325,509  | -\$5,617,753 | 0.00        | 0.29 | -17.08% |
| Grey Rock Energy Fund II, L.P.              | 2016         | \$10,000,000 | \$431,050           | \$9,568,950                   | -\$14,211       | \$886,932                | \$9,375,108  | \$10,262,040 | \$707,301    | 0.09        | 1.07 | 2.10%   |
| Grey Rock Energy Fund III-A, L.P.           | 2018         | \$15,000,000 | \$3,277,432         | \$11,722,568                  | \$0             | \$0                      | \$12,685,587 | \$12,685,587 | \$963,019    | 0.00        | 1.08 | 5.87%   |
| Lake Murray, LLC                            | 2016         | \$1,217,230  | \$0                 | \$1,217,230                   | \$0             | \$144,401                | \$982,915    | \$1,127,316  | -\$89,914    | 0.12        | 0.93 | -1.96%  |
| Mission Sawmill Fund, LLC                   | 2020         | \$5,000,000  | \$4,488,947         | \$511,053                     | \$0             | \$0                      | \$441,551    | \$441,551    | -\$69,502    | 0.00        | 0.86 | -13.60% |
| MKH Montana                                 | 2020         | \$15,000,000 | \$7,567,450         | \$7,432,550                   | \$0             | \$0                      | \$7,419,038  | \$7,419,038  | -\$13,512    | 0.00        | 1.00 | -0.18%  |
| MKH Montana North                           | 2020         | \$5,000,000  | \$3,200,000         | \$1,800,000                   | \$0             | \$0                      | \$1,800,000  | \$1,800,000  | \$0          | 0.00        | 1.00 | 0.00%   |
| MP Timber, LLC                              | 2016         | \$46,074,359 | \$0                 | \$46,074,359                  | \$0             | \$13,894,200             | \$38,553,590 | \$52,447,790 | \$6,373,431  | 0.30        | 1.14 | 4.12%   |
| Muddy Waters Land and Timber, LLC           | 2017         | \$7,772,554  | \$0                 | \$7,772,554                   | \$0             | \$336,535                | \$6,807,620  | \$7,144,155  | -\$628,399   | 0.04        | 0.92 | -2.45%  |
| Natural Gas Partners IX, L.P.               | 2007         | \$12,000,000 | \$48,403            | \$11,951,597                  | \$0             | \$17,305,870             | \$343,045    | \$17,648,915 | \$5,697,318  | 1.45        | 1.48 | 10.92%  |
| NGP Boaz Energy II Co-Invest, LLC           | 2016         | \$1,000,000  | \$0                 | \$1,000,000                   | \$0             | \$361,893                | \$86,876     | \$448,769    | -\$551,231   | 0.36        | 0.45 | -25.80% |
| NGP Camino Follow-On, LLC                   | 2018         | \$1,000,558  | \$0                 | \$1,000,558                   | \$2,804         | \$0                      | \$750,002    | \$750,002    | -\$253,360   | 0.00        | 0.75 | -14.04% |
| NGP Midstream & Resources, L.P.             | 2007         | \$10,000,000 | \$1,786             | \$9,998,214                   | \$3             | \$17,590,088             | \$727,008    | \$18,317,096 | \$8,318,879  | 1.76        | 1.83 | 13.48%  |
| NGP Natural Resources X, L.P.               | 2012         | \$10,000,000 | \$148,695           | \$9,851,305                   | \$6,853         | \$7,852,541              | \$1,417,925  | \$9,270,466  | -\$587,692   | 0.80        | 0.94 | -1.91%  |
| NGP Natural Resources XI, L.P.              | 2014         | \$12,000,000 | \$612,072           | \$11,387,928                  | \$0             | \$3,235,938              | \$7,925,919  | \$11,161,857 | -\$226,071   | 0.28        | 0.98 | -0.67%  |
| NGP XI Luxe Coinvest, LLC                   | 2017         | \$1,500,000  | \$70,754            | \$1,429,246                   | \$0             | \$27,739                 | \$908,750    | \$936,489    | -\$492,757   | 0.02        | 0.66 | -17.04% |
| NGP XI Midstream Coinvest, LLC              | 2016         | \$1,000,000  | \$163,132           | \$836,868                     | \$7,997         | \$8,533                  | \$783,651    | \$792,184    | -\$52,681    | 0.01        | 0.94 | -2.09%  |
| Orion Co-Investments II, L.P.               | 2015         | \$1,500,000  | \$555,556           | \$944,444                     | \$0             | \$1,416,024              | \$8,713      | \$1,424,737  | \$480,292    | 1.50        | 1.51 | 14.16%  |
| Orion Co-Investments IV, L.P.               | 2015         | \$1,000,000  | \$99,138            | \$900,862                     | \$0             | \$323,288                | \$496,581    | \$819,869    | -\$80,992    | 0.36        | 0.91 | -3.67%  |
| Orion Mine Finance (Delaware) Fund II, L.P. | 2017         | \$10,000,000 | \$905,188           | \$9,094,812                   | -\$21,064       | \$2,016,896              | \$10,890,190 | \$12,907,086 | \$3,833,337  | 0.22        | 1.42 | 14.22%  |
| Orion Mine Finance (Master) Fund I-A, L.P.  | 2014         | \$10,000,000 | \$1                 | \$9,999,999                   | \$21,489        | \$7,756,409              | \$6,141,420  | \$13,897,829 | \$3,876,341  | 0.77        | 1.39 | 9.53%   |
| Orion Mine Finance (Onshore) Fund III, L.P. | 2019         | \$12,000,000 | \$4,286,921         | \$7,713,079                   | -\$15,519       | \$0                      | \$8,834,568  | \$8,834,568  | \$1,137,008  | 0.00        | 1.15 | 29.23%  |
| Orion Mine Finance Co-Fund II, L.P.         | 2017         | \$7,500,000  | \$735,710           | \$6,764,290                   | \$20,125        | \$3,037,154              | \$6,672,357  | \$9,709,511  | \$2,925,096  | 0.45        | 1.43 | 23.33%  |



# MPERS

## ANALYSIS BY FUND

| Investments   |              | Commitments          |                      | Contributions & Distributions |                  |                          | Valuations           |                      |                     | Performance |             |              |
|---|--------------|----------------------|----------------------|-------------------------------|------------------|--------------------------|----------------------|----------------------|---------------------|-------------|-------------|--------------|
| Investment Name   | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation            | Total Value          | Net Benefit         | DPI         | TVPI        | IRR          |
| Orion Mine Finance Co-Fund III, L.P.                            | 2019         | \$12,000,000         | \$12,000,000         | \$0                           | \$0              | \$0                      | \$0                  | \$0                  | \$0                 |             |             |              |
| Orion Mineral Royalty Fund, L.P.                                | 2018         | \$15,000,000         | \$7,349,804          | \$7,650,196                   | -\$74,432        | \$0                      | \$8,407,380          | \$8,407,380          | \$831,617           | 0.00        | 1.11        | 12.10%       |
| Quantum Energy Partners VII Co-Investment Fund, L.P.            | 2017         | \$2,250,000          | \$1,356,665          | \$893,335                     | \$232            | \$0                      | \$1,353,322          | \$1,353,322          | \$459,754           | 0.00        | 1.51        | 21.01%       |
| Quantum Energy Partners VII, L.P.                               | 2017         | \$15,000,000         | \$6,521,025          | \$8,478,975                   | \$3,639          | \$3,053                  | \$10,699,002         | \$10,702,055         | \$2,219,442         | 0.00        | 1.26        | 11.19%       |
| REOG Fund II Coinvest, L.P.                                     | 2013         | \$2,000,000          | \$403,465            | \$1,596,535                   | \$0              | \$696,945                | \$1,595,436          | \$2,292,381          | \$695,846           | 0.44        | 1.44        | 9.36%        |
| Ridgewood Energy Oil & Gas Fund II, L.P.                        | 2013         | \$10,000,000         | \$539,664            | \$9,460,336                   | \$0              | \$2,957,817              | \$5,274,277          | \$8,232,094          | -\$1,228,242        | 0.31        | 0.87        | -3.49%       |
| Ridgewood Energy Oil & Gas Fund III, L.P.                       | 2015         | \$12,000,000         | \$5,647,522          | \$6,352,478                   | \$0              | \$159,413                | \$6,704,561          | \$6,863,974          | \$511,496           | 0.03        | 1.08        | 3.97%        |
| Ridgewood Energy Oil & Gas Fund IV, L.P.                        | 2019         | \$15,000,000         | \$14,869,872         | \$130,128                     | \$0              | \$0                      | \$130,128            | \$130,128            | \$0                 | 0.00        | 1.00        | 0.00%        |
| RMK Select Timberland Investment Fund I, LLC                    | 2000         | \$30,000,000         | \$0                  | \$30,000,000                  | \$0              | \$46,895,341             | \$0                  | \$46,895,341         | \$16,895,341        | 1.56        | 1.56        | 4.86%        |
| Rocky Top Timber, LLC   | 2017         | \$8,674,834          | \$0                  | \$8,674,834                   | \$0              | \$1,915,965              | \$7,307,032          | \$9,222,997          | \$548,163           | 0.22        | 1.06        | 1.79%        |
| Rocky Top Uplands   | 2020         | \$14,812,500         | \$3,140,291          | \$11,672,209                  | \$0              | \$493,750                | \$11,070,970         | \$11,564,720         | -\$107,489          | 0.04        | 0.99        | -1.43%       |
| Russellville Land and Timber, LLC                               | 2017         | \$1,145,337          | \$0                  | \$1,145,337                   | \$2,680          | \$1,238,920              | \$888,705            | \$2,127,625          | \$979,608           | 1.08        | 1.85        | 32.70%       |
| Sandy River, LLC  | 2017         | \$6,097,796          | \$0                  | \$6,097,796                   | \$0              | \$0                      | \$5,099,516          | \$5,099,516          | -\$998,280          | 0.00        | 0.84        | -5.36%       |
| Sciens Aviation Special Opportunities Investment Fund III, L.P. | 2015         | \$15,000,000         | \$5,202,913          | \$9,797,087                   | -\$26,572        | \$11,529,120             | \$1,676,041          | \$13,205,161         | \$3,434,646         | 1.18        | 1.35        | 12.43%       |
| Smallwood Homes, LLC  | 2017         | \$1,418,333          | -\$150,165           | \$1,568,497                   | \$0              | \$200,000                | \$1,325,484          | \$1,525,484          | -\$43,013           | 0.13        | 0.97        | -0.82%       |
| TCP Brigade CIV, L.P.   | 2017         | \$1,000,000          | \$0                  | \$1,000,000                   | \$0              | \$0                      | \$704,117            | \$704,117            | -\$295,883          | 0.00        | 0.70        | -11.05%      |
| TCP Probe CIV, L.P.   | 2017         | \$1,000,000          | \$0                  | \$1,000,000                   | \$0              | \$0                      | \$965,285            | \$965,285            | -\$34,715           | 0.00        | 0.97        | -1.14%       |
| Turnbridge Capital Partners I, L.P.                             | 2014         | \$10,000,000         | \$3,038,716          | \$6,961,284                   | \$0              | \$0                      | \$4,851,078          | \$4,851,078          | -\$2,110,206        | 0.00        | 0.70        | -7.84%       |
| <b>Total</b>  |              | <b>\$599,780,191</b> | <b>\$122,371,726</b> | <b>\$477,408,466</b>          | <b>-\$33,057</b> | <b>\$232,593,003</b>     | <b>\$328,704,249</b> | <b>\$561,297,252</b> | <b>\$83,921,843</b> | <b>0.49</b> | <b>1.18</b> | <b>4.76%</b> |



# MPERS

## ANALYSIS BY LIFECYCLE

| Investments  |              | Commitments          |                     | Contributions & Distributions |                 |                          | Valuations           |                      |                     | Performance |             |              |
|--|--------------|----------------------|---------------------|-------------------------------|-----------------|--------------------------|----------------------|----------------------|---------------------|-------------|-------------|--------------|
| Investment Name                                      | Vintage Year | Commitment           | Unfunded Commitment | Paid In Capital               | Additional Fees | Cumulative Distributions | Valuation            | Total Value          | Net Benefit         | DPI         | TVPI        | IRR          |
| <b>Fundraising</b>                                   |              |                      |                     |                               |                 |                          |                      |                      |                     |             |             |              |
| Orion Mine Finance Co-Fund III, L.P.                 | 2019         | \$12,000,000         | \$12,000,000        | \$0                           | \$0             | \$0                      | \$0                  | \$0                  | \$0                 |             |             |              |
| <b>Total Fundraising</b>                             |              | <b>\$12,000,000</b>  | <b>\$12,000,000</b> | <b>\$0</b>                    | <b>\$0</b>      | <b>\$0</b>               | <b>\$0</b>           | <b>\$0</b>           | <b>\$0</b>          |             |             |              |
| <b>Investing</b>                                     |              |                      |                     |                               |                 |                          |                      |                      |                     |             |             |              |
| Ares Energy Opportunities Fund A, L.P.               | 2019         | \$15,000,000         | \$1,507,143         | \$13,492,857                  | \$0             | \$6,184                  | \$7,736,282          | \$7,742,466          | -\$5,750,391        | 0.00        | 0.57        | -35.18%      |
| Blue Road Capital, L.P.                              | 2015         | \$7,500,000          | \$1,574,764         | \$5,925,236                   | -\$123,459      | \$19,829                 | \$7,994,347          | \$8,014,176          | \$2,212,399         | 0.00        | 1.38        | 9.03%        |
| Blue Road Co-Inv - BR Superfoods, LLC                | 2019         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0             | \$0                      | \$1,266,970          | \$1,266,970          | \$266,970           | 0.00        | 1.27        | 17.07%       |
| BRC National Pecan Co-Invest, L.P.                   | 2015         | \$2,500,000          | \$460,864           | \$2,039,136                   | \$46,610        | \$20,822                 | \$4,041,966          | \$4,062,788          | \$1,977,042         | 0.01        | 1.95        | 16.00%       |
| CIM Infrastructure Fund II, L.P.                     | 2018         | \$12,500,000         | \$5,375,567         | \$7,124,433                   | \$700,675       | \$42,529                 | \$9,032,673          | \$9,075,202          | \$1,250,095         | 0.01        | 1.16        | 9.35%        |
| Columbia Spectrum Partners IV, L.P.                  | 2020         | \$15,000,000         | \$13,358,940        | \$1,641,060                   | \$2,887         | \$0                      | \$1,616,479          | \$1,616,479          | -\$27,467           | 0.00        | 0.98        | -1.33%       |
| Corrum Capital Aviation Investors 2018, L.P.         | 2018         | \$5,000,000          | \$1,975,595         | \$3,024,405                   | -\$163,803      | \$0                      | \$2,837,770          | \$2,837,770          | -\$22,832           | 0.00        | 0.99        | -0.43%       |
| Corrum Capital Aviation Partners II, L.P.            | 2019         | \$1,400,000          | \$258,871           | \$1,141,129                   | \$0             | \$37,800                 | \$1,129,953          | \$1,167,753          | \$26,624            | 0.03        | 1.02        | 1.60%        |
| Corrum Capital Aviation Partners, L.P.               | 2017         | \$10,000,000         | \$1,712,538         | \$8,287,462                   | \$0             | \$376,811                | \$8,114,172          | \$8,490,983          | \$203,521           | 0.05        | 1.02        | 0.99%        |
| EMG Fund Spur Co-Investment, L.P.                    | 2019         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0             | \$46,649                 | \$1,198,847          | \$1,245,496          | \$245,496           | 0.05        | 1.25        | 20.96%       |
| EMG Iron Ore Co-Investment, L.P.                     | 2019         | \$2,766,429          | \$0                 | \$2,766,429                   | \$0             | \$0                      | \$4,439,941          | \$4,439,941          | \$1,673,512         | 0.00        | 1.60        | 33.61%       |
| EMG V Accordion, L.P.                                | 2019         | \$3,000,000          | \$703,758           | \$2,296,242                   | -\$17,419       | \$0                      | \$3,509,360          | \$3,509,360          | \$1,230,537         | 0.00        | 1.54        | 34.05%       |
| EMG V, L.P.  | 2019         | \$9,000,000          | \$2,821,029         | \$6,178,971                   | -\$4,110        | \$0                      | \$9,012,990          | \$9,012,990          | \$2,838,129         | 0.00        | 1.46        | 29.22%       |
| Energy & Minerals Group Fund IV, L.P.                | 2015         | \$20,000,000         | \$2,523,219         | \$17,476,781                  | -\$357,409      | \$3,594,042              | \$19,759,725         | \$23,353,767         | \$6,234,395         | 0.21        | 1.36        | 9.13%        |
| Grey Rock Energy Fund III-A, L.P.                    | 2018         | \$15,000,000         | \$3,277,432         | \$11,722,568                  | \$0             | \$0                      | \$12,685,587         | \$12,685,587         | \$963,019           | 0.00        | 1.08        | 5.87%        |
| Mission Sawmill Fund, LLC                            | 2020         | \$5,000,000          | \$4,488,947         | \$511,053                     | \$0             | \$0                      | \$441,551            | \$441,551            | -\$69,502           | 0.00        | 0.86        | -13.60%      |
| MKH Montana  | 2020         | \$15,000,000         | \$7,567,450         | \$7,432,550                   | \$0             | \$0                      | \$7,419,038          | \$7,419,038          | -\$13,512           | 0.00        | 1.00        | -0.18%       |
| MKH Montana North                                    | 2020         | \$5,000,000          | \$3,200,000         | \$1,800,000                   | \$0             | \$0                      | \$1,800,000          | \$1,800,000          | \$0                 | 0.00        | 1.00        | 0.00%        |
| NGP XI Luxe Coinvest, LLC                            | 2017         | \$1,500,000          | \$70,754            | \$1,429,246                   | \$0             | \$27,739                 | \$908,750            | \$936,489            | -\$492,757          | 0.02        | 0.66        | -17.04%      |
| Orion Mine Finance (Delaware) Fund II, L.P.          | 2017         | \$10,000,000         | \$905,188           | \$9,094,812                   | -\$21,064       | \$2,016,896              | \$10,890,190         | \$12,907,086         | \$3,833,337         | 0.22        | 1.42        | 14.22%       |
| Orion Mine Finance (Onshore) Fund III, L.P.          | 2019         | \$12,000,000         | \$4,286,921         | \$7,713,079                   | -\$15,519       | \$0                      | \$8,834,568          | \$8,834,568          | \$1,137,008         | 0.00        | 1.15        | 29.23%       |
| Orion Mine Finance Co-Fund II, L.P.                  | 2017         | \$7,500,000          | \$735,710           | \$6,764,290                   | \$20,125        | \$3,037,154              | \$6,672,357          | \$9,709,511          | \$2,925,096         | 0.45        | 1.43        | 23.33%       |
| Orion Mineral Royalty Fund, L.P.                     | 2018         | \$15,000,000         | \$7,349,804         | \$7,650,196                   | -\$74,432       | \$0                      | \$8,407,380          | \$8,407,380          | \$831,617           | 0.00        | 1.11        | 12.10%       |
| Quantum Energy Partners VII Co-Investment Fund, L.P. | 2017         | \$2,250,000          | \$1,356,665         | \$893,335                     | \$232           | \$0                      | \$1,353,322          | \$1,353,322          | \$459,754           | 0.00        | 1.51        | 21.01%       |
| Quantum Energy Partners VII, L.P.                    | 2017         | \$15,000,000         | \$6,521,025         | \$8,478,975                   | \$3,639         | \$3,053                  | \$10,699,002         | \$10,702,055         | \$2,219,442         | 0.00        | 1.26        | 11.19%       |
| Ridgewood Energy Oil & Gas Fund III, L.P.            | 2015         | \$12,000,000         | \$5,647,522         | \$6,352,478                   | \$0             | \$159,413                | \$6,704,561          | \$6,863,974          | \$511,496           | 0.03        | 1.08        | 3.97%        |
| Ridgewood Energy Oil & Gas Fund IV, L.P.             | 2019         | \$15,000,000         | \$14,869,872        | \$130,128                     | \$0             | \$0                      | \$130,128            | \$130,128            | \$0                 | 0.00        | 1.00        | 0.00%        |
| TCP Brigade CIV, L.P.                                | 2017         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0             | \$0                      | \$704,117            | \$704,117            | -\$295,883          | 0.00        | 0.70        | -11.05%      |
| TCP Probe CIV, L.P.                                  | 2017         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0             | \$0                      | \$965,285            | \$965,285            | -\$34,715           | 0.00        | 0.97        | -1.14%       |
| Turnbridge Capital Partners I, L.P.                  | 2014         | \$10,000,000         | \$3,038,716         | \$6,961,284                   | \$0             | \$0                      | \$4,851,078          | \$4,851,078          | -\$2,110,206        | 0.00        | 0.70        | -7.84%       |
| <b>Total Investing</b>                               |              | <b>\$247,916,429</b> | <b>\$95,588,297</b> | <b>\$152,328,132</b>          | <b>-\$3,047</b> | <b>\$9,388,921</b>       | <b>\$165,158,389</b> | <b>\$174,547,310</b> | <b>\$22,222,225</b> | <b>0.06</b> | <b>1.15</b> | <b>6.80%</b> |



# MPERS

## ANALYSIS BY LIFECYCLE

| Investments   |              | Commitments          |                     | Contributions & Distributions |                  |                          | Valuations          |                      |                     | Performance |             |              |
|---|--------------|----------------------|---------------------|-------------------------------|------------------|--------------------------|---------------------|----------------------|---------------------|-------------|-------------|--------------|
| Investment Name   | Vintage Year | Commitment           | Unfunded Commitment | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation           | Total Value          | Net Benefit         | DPI         | TVPI        | IRR          |
| <b>Harvesting</b>   |              |                      |                     |                               |                  |                          |                     |                      |                     |             |             |              |
| AIM Bridge, LLC   | 2010         | \$1,500,000          | \$0                 | \$1,500,000                   | \$0              | \$530,691                | \$2,024,981         | \$2,555,672          | \$1,055,672         | 0.35        | 1.70        | 6.19%        |
| AIM Cemetery Infrastructure, L.P.                               | 2014         | \$1,000,000          | \$190,000           | \$810,000                     | \$0              | \$153,794                | \$137,744           | \$291,538            | -\$518,462          | 0.19        | 0.36        | -23.32%      |
| AIM Education, L.P.   | 2016         | \$750,000            | \$0                 | \$750,000                     | \$1,170          | \$694,719                | \$444,113           | \$1,138,832          | \$387,662           | 0.92        | 1.52        | 12.51%       |
| AIM Fuel 2, L.P.  | 2014         | \$1,500,000          | \$0                 | \$1,500,000                   | \$0              | \$940,211                | \$603,255           | \$1,543,466          | \$43,466            | 0.63        | 1.03        | 0.61%        |
| AIM Fuel, LLC   | 2011         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0              | \$1,443,806              | \$634,361           | \$2,078,167          | \$1,078,167         | 1.44        | 2.08        | 12.52%       |
| AIM Marinas, L.P.   | 2015         | \$2,700,000          | \$0                 | \$2,700,000                   | \$10,680         | \$7,373,980              | \$298,517           | \$7,672,497          | \$4,961,817         | 2.72        | 2.83        | 35.83%       |
| American Infrastructure MLP Fund II, L.P.                       | 2013         | \$7,500,000          | \$1,166,250         | \$6,333,750                   | \$6,824          | \$5,226,960              | \$2,281,399         | \$7,508,359          | \$1,167,785         | 0.82        | 1.18        | 4.44%        |
| Ares EPIC Co-Invest, L.P.                                       | 2019         | \$1,500,000          | \$16,155            | \$1,483,845                   | \$5,193          | \$0                      | \$1,511,309         | \$1,511,309          | \$22,271            | 0.00        | 1.01        | 0.90%        |
| Ares SCM Co-Invest, L.P.  | 2018         | \$1,000,000          | \$0                 | \$1,000,000                   | \$5,858          | \$0                      | \$106               | \$106                | -\$1,005,752        | 0.00        | 0.00        |              |
| EIF United States Power Fund III, L.P.                          | 2007         | \$10,000,000         | \$0                 | \$10,000,000                  | \$0              | \$10,392,587             | \$2,351,203         | \$12,743,790         | \$2,743,790         | 1.04        | 1.27        | 3.64%        |
| EMG AENO Co-Investment, L.P.                                    | 2014         | \$1,809,224          | \$0                 | \$1,809,224                   | \$0              | \$10,744                 | \$1,759,991         | \$1,770,735          | -\$38,489           | 0.01        | 0.98        | -0.35%       |
| EMG Ascent 2016 Equity, L.P.                                    | 2016         | \$2,987,944          | \$0                 | \$2,987,944                   | \$0              | \$0                      | \$3,577,394         | \$3,577,394          | \$589,450           | 0.00        | 1.20        | 3.77%        |
| EMG Ascent Secondary Fund, L.P.                                 | 2017         | \$116,920            | \$0                 | \$116,920                     | \$0              | \$0                      | \$170,013           | \$170,013            | \$53,093            | 0.00        | 1.45        | 12.93%       |
| EMG PRES Equity, L.P.   | 2017         | \$3,208,318          | \$0                 | \$3,208,318                   | \$0              | \$0                      | \$735               | \$735                | -\$3,207,583        | 0.00        | 0.00        |              |
| EMG Traverse Co-Investment, L.P.                                | 2016         | \$2,000,000          | \$0                 | \$2,000,000                   | \$0              | \$91,118                 | \$1,504,865         | \$1,595,983          | -\$404,017          | 0.05        | 0.80        | -5.69%       |
| Energy & Minerals Group Fund II, L.P.                           | 2012         | \$10,000,000         | \$17,037            | \$9,982,963                   | \$72,877         | \$9,719,936              | \$10,597,369        | \$20,317,305         | \$10,261,465        | 0.97        | 2.02        | 14.56%       |
| Energy & Minerals Group Fund III, L.P.                          | 2014         | \$10,000,000         | \$64,222            | \$9,935,778                   | \$4,847          | \$994,351                | \$4,723,040         | \$5,717,391          | -\$4,223,234        | 0.10        | 0.58        | -10.41%      |
| Golden Sciens Marine Investments, Ltd.                          | 2014         | \$10,000,000         | \$1,913,762         | \$8,086,238                   | -\$142,976       | \$0                      | \$2,325,509         | \$2,325,509          | -\$5,617,753        | 0.00        | 0.29        | -17.08%      |
| Grey Rock Energy Fund II, L.P.                                  | 2016         | \$10,000,000         | \$431,050           | \$9,568,950                   | -\$14,211        | \$886,932                | \$9,375,108         | \$10,262,040         | \$707,301           | 0.09        | 1.07        | 2.10%        |
| NGP Boaz Energy II Co-Invest, LLC                               | 2016         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0              | \$361,893                | \$86,876            | \$448,769            | -\$551,231          | 0.36        | 0.45        | -25.80%      |
| NGP Camino Follow-On, LLC                                       | 2018         | \$1,000,558          | \$0                 | \$1,000,558                   | \$2,804          | \$0                      | \$750,002           | \$750,002            | -\$253,360          | 0.00        | 0.75        | -14.04%      |
| NGP Natural Resources X, L.P.                                   | 2012         | \$10,000,000         | \$148,695           | \$9,851,305                   | \$6,853          | \$7,852,541              | \$1,417,925         | \$9,270,466          | -\$587,692          | 0.80        | 0.94        | -1.91%       |
| NGP Natural Resources XI, L.P.                                  | 2014         | \$12,000,000         | \$612,072           | \$11,387,928                  | \$0              | \$3,235,938              | \$7,925,919         | \$11,161,857         | -\$226,071          | 0.28        | 0.98        | -0.67%       |
| NGP XI Midstream Coinvest, LLC                                  | 2016         | \$1,000,000          | \$163,132           | \$836,868                     | \$7,997          | \$8,533                  | \$783,651           | \$792,184            | -\$52,681           | 0.01        | 0.94        | -2.09%       |
| Orion Co-Investments II, L.P.                                   | 2015         | \$1,500,000          | \$555,556           | \$944,444                     | \$0              | \$1,416,024              | \$8,713             | \$1,424,737          | \$480,292           | 1.50        | 1.51        | 14.16%       |
| Orion Co-Investments IV, L.P.                                   | 2015         | \$1,000,000          | \$99,138            | \$900,862                     | \$0              | \$323,288                | \$496,581           | \$819,869            | -\$80,992           | 0.36        | 0.91        | -3.67%       |
| Orion Mine Finance (Master) Fund I-A, L.P.                      | 2014         | \$10,000,000         | \$1                 | \$9,999,999                   | \$21,489         | \$7,756,409              | \$6,141,420         | \$13,897,829         | \$3,876,341         | 0.77        | 1.39        | 9.53%        |
| REOG Fund II Coinvest, L.P.                                     | 2013         | \$2,000,000          | \$403,465           | \$1,596,535                   | \$0              | \$696,945                | \$1,595,436         | \$2,292,381          | \$695,846           | 0.44        | 1.44        | 9.36%        |
| Ridgewood Energy Oil & Gas Fund II, L.P.                        | 2013         | \$10,000,000         | \$539,664           | \$9,460,336                   | \$0              | \$2,957,817              | \$5,274,277         | \$8,232,094          | -\$1,228,242        | 0.31        | 0.87        | -3.49%       |
| Sciens Aviation Special Opportunities Investment Fund III, L.P. | 2015         | \$15,000,000         | \$5,202,913         | \$9,797,087                   | -\$26,572        | \$11,529,120             | \$1,676,041         | \$13,205,161         | \$3,434,646         | 1.18        | 1.35        | 12.43%       |
| <b>Total Harvesting</b>   |              | <b>\$143,072,964</b> | <b>\$11,523,113</b> | <b>\$131,549,851</b>          | <b>-\$37,167</b> | <b>\$74,598,338</b>      | <b>\$70,477,853</b> | <b>\$145,076,191</b> | <b>\$13,563,506</b> | <b>0.57</b> | <b>1.10</b> | <b>2.44%</b> |



# MPERS

## ANALYSIS BY LIFECYCLE

| Investments                                  |              | Commitments          |                      | Contributions & Distributions |                  |                          | Valuations           |                      |                     | Performance |             |              |
|--|--------------|----------------------|----------------------|-------------------------------|------------------|--------------------------|----------------------|----------------------|---------------------|-------------|-------------|--------------|
| Investment Name                              | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation            | Total Value          | Net Benefit         | DPI         | TVPI        | IRR          |
| <b>Liquidating</b>                           |              |                      |                      |                               |                  |                          |                      |                      |                     |             |             |              |
| American Infrastructure MLP Fund, L.P.       | 2007         | \$15,000,000         | \$0                  | \$15,000,000                  | \$0              | \$18,151,365             | \$3,307,427          | \$21,458,792         | \$6,458,792         | 1.21        | 1.43        | 6.28%        |
| Natural Gas Partners IX, L.P.                | 2007         | \$12,000,000         | \$48,403             | \$11,951,597                  | \$0              | \$17,305,870             | \$343,045            | \$17,648,915         | \$5,697,318         | 1.45        | 1.48        | 10.92%       |
| NGP Midstream & Resources, L.P.              | 2007         | \$10,000,000         | \$1,786              | \$9,998,214                   | \$3              | \$17,590,088             | \$727,008            | \$18,317,096         | \$8,318,879         | 1.76        | 1.83        | 13.48%       |
| <b>Total Liquidating</b>                     |              | <b>\$37,000,000</b>  | <b>\$50,189</b>      | <b>\$36,949,811</b>           | <b>\$3</b>       | <b>\$53,047,324</b>      | <b>\$4,377,480</b>   | <b>\$57,424,804</b>  | <b>\$20,474,990</b> | <b>1.44</b> | <b>1.55</b> | <b>9.60%</b> |
| <b>Completed</b>                             |              |                      |                      |                               |                  |                          |                      |                      |                     |             |             |              |
| AIM Ag Infra, L.P.                           | 2015         | \$916,875            | \$0                  | \$916,875                     | \$0              | \$0                      | \$0                  | \$0                  | -\$916,875          | 0.00        | 0.00        |              |
| AIM Dividend Growth Fund, L.P.               | 2016         | \$1,500,000          | \$0                  | \$1,500,000                   | \$4,475          | \$2,227,517              | \$0                  | \$2,227,517          | \$723,043           | 1.48        | 1.48        | 16.99%       |
| AIM Inspire America Fund, L.P.               | 2015         | \$1,000,000          | \$220,000            | \$780,000                     | \$0              | \$940,307                | \$0                  | \$940,307            | \$160,307           | 1.21        | 1.21        | 14.77%       |
| AIM Landfill, L.P.                           | 2014         | \$1,250,000          | \$0                  | \$1,250,000                   | \$0              | \$2,637,632              | \$0                  | \$2,637,632          | \$1,387,632         | 2.11        | 2.11        | 21.48%       |
| AIM Midstream, LLC                           | 2009         | \$2,250,000          | \$0                  | \$2,250,000                   | \$0              | \$2,576,335              | \$0                  | \$2,576,335          | \$326,335           | 1.15        | 1.15        | 4.22%        |
| AIM Storage, LLC                             | 2011         | \$1,500,000          | \$0                  | \$1,500,000                   | \$0              | \$3,843,943              | \$0                  | \$3,843,943          | \$2,343,943         | 2.56        | 2.56        | 32.41%       |
| AIM Upstream, LLC                            | 2012         | \$1,000,000          | \$0                  | \$1,000,000                   | \$0              | \$979,744                | \$0                  | \$979,744            | -\$20,256           | 0.98        | 0.98        | -0.97%       |
| AIM Water, LLC                               | 2012         | \$1,500,000          | \$0                  | \$1,500,000                   | \$0              | \$190,239                | \$0                  | \$190,239            | -\$1,309,761        | 0.13        | 0.13        | -75.44%      |
| EMG AE Permian Co-Investment, L.P.           | 2014         | \$2,000,000          | \$0                  | \$2,000,000                   | \$0              | \$0                      | \$0                  | \$0                  | -\$2,000,000        | 0.00        | 0.00        |              |
| EMG Fund II Ascent Co-Investment, L.P.       | 2015         | \$600,000            | \$0                  | \$600,000                     | \$0              | \$600,000                | \$0                  | \$600,000            | \$0                 | 1.00        | 1.00        | 0.00%        |
| EMG Fund III Ascent Co-Investment, L.P.      | 2015         | \$2,400,000          | \$0                  | \$2,400,000                   | \$0              | \$2,391,340              | \$0                  | \$2,391,340          | -\$8,660            | 1.00        | 1.00        | -2.47%       |
| RMK Select Timberland Investment Fund I, LLC | 2000         | \$30,000,000         | \$0                  | \$30,000,000                  | \$0              | \$46,895,341             | \$0                  | \$46,895,341         | \$16,895,341        | 1.56        | 1.56        | 4.86%        |
| <b>Total Completed</b>                       |              | <b>\$45,916,875</b>  | <b>\$220,000</b>     | <b>\$45,696,875</b>           | <b>\$4,475</b>   | <b>\$63,282,398</b>      | <b>\$0</b>           | <b>\$63,282,398</b>  | <b>\$17,581,049</b> | <b>1.38</b> | <b>1.38</b> | <b>4.66%</b> |
| <b>Open End</b>                              |              |                      |                      |                               |                  |                          |                      |                      |                     |             |             |              |
| Cowpens Land and Timber, LLC                 | 2016         | \$16,121,780         | \$0                  | \$16,121,780                  | \$0              | \$0                      | \$15,144,720         | \$15,144,720         | -\$977,060          | 0.00        | 0.94        | -1.91%       |
| Dawsonville Bluffs, LLC                      | 2017         | \$10,539,200         | \$0                  | \$10,539,200                  | \$0              | \$14,052,251             | \$1,509,975          | \$15,562,226         | \$5,023,026         | 1.33        | 1.48        | 27.19%       |
| Lake Murray, LLC                             | 2016         | \$1,217,230          | \$0                  | \$1,217,230                   | \$0              | \$144,401                | \$982,915            | \$1,127,316          | -\$89,914           | 0.12        | 0.93        | -1.96%       |
| MP Timber, LLC                               | 2016         | \$46,074,359         | \$0                  | \$46,074,359                  | \$0              | \$13,894,200             | \$38,553,590         | \$52,447,790         | \$6,373,431         | 0.30        | 1.14        | 4.12%        |
| Muddy Waters Land and Timber, LLC            | 2017         | \$7,772,554          | \$0                  | \$7,772,554                   | \$0              | \$336,535                | \$6,807,620          | \$7,144,155          | -\$628,399          | 0.04        | 0.92        | -2.45%       |
| Rocky Top Timber, LLC                        | 2017         | \$8,674,834          | \$0                  | \$8,674,834                   | \$0              | \$1,915,965              | \$7,307,032          | \$9,222,997          | \$548,163           | 0.22        | 1.06        | 1.79%        |
| Rocky Top Uplands                            | 2020         | \$14,812,500         | \$3,140,291          | \$11,672,209                  | \$0              | \$493,750                | \$11,070,970         | \$11,564,720         | -\$107,489          | 0.04        | 0.99        | -1.43%       |
| Russellville Land and Timber, LLC            | 2017         | \$1,145,337          | \$0                  | \$1,145,337                   | \$2,680          | \$1,238,920              | \$888,705            | \$2,127,625          | \$979,608           | 1.08        | 1.85        | 32.70%       |
| Sandy River, LLC                             | 2017         | \$6,097,796          | \$0                  | \$6,097,796                   | \$0              | \$0                      | \$5,099,516          | \$5,099,516          | -\$998,280          | 0.00        | 0.84        | -5.36%       |
| Smallwood Homes, LLC                         | 2017         | \$1,418,333          | -\$150,165           | \$1,568,497                   | \$0              | \$200,000                | \$1,325,484          | \$1,525,484          | -\$43,013           | 0.13        | 0.97        | -0.82%       |
| <b>Total Open End</b>                        |              | <b>\$113,873,923</b> | <b>\$2,990,127</b>   | <b>\$110,883,797</b>          | <b>\$2,680</b>   | <b>\$32,276,022</b>      | <b>\$88,690,527</b>  | <b>\$120,966,549</b> | <b>\$10,080,073</b> | <b>0.29</b> | <b>1.09</b> | <b>3.20%</b> |
| <b>Total</b>                                 |              | <b>\$599,780,191</b> | <b>\$122,371,726</b> | <b>\$477,408,466</b>          | <b>-\$33,057</b> | <b>\$232,593,003</b>     | <b>\$328,704,249</b> | <b>\$561,297,252</b> | <b>\$83,921,843</b> | <b>0.49</b> | <b>1.18</b> | <b>4.76%</b> |



**MPERS**

# ANALYSIS BY VINTAGE YEAR

| Investments                                  |              | Commitments         |                     | Contributions & Distributions |                 |                          | Valuations          |                     |                     | Performance |             |               |
|--|--------------|---------------------|---------------------|-------------------------------|-----------------|--------------------------|---------------------|---------------------|---------------------|-------------|-------------|---------------|
| Investment Name                              | Vintage Year | Commitment          | Unfunded Commitment | Paid In Capital               | Additional Fees | Cumulative Distributions | Valuation           | Total Value         | Net Benefit         | DPI         | TVPI        | IRR           |
| <b>2000</b>                                  |              |                     |                     |                               |                 |                          |                     |                     |                     |             |             |               |
| RMK Select Timberland Investment Fund I, LLC | 2000         | \$30,000,000        | \$0                 | \$30,000,000                  | \$0             | \$46,895,341             | \$0                 | \$46,895,341        | \$16,895,341        | 1.56        | 1.56        | 4.86%         |
| <b>Total 2000</b>                            |              | <b>\$30,000,000</b> | <b>\$0</b>          | <b>\$30,000,000</b>           | <b>\$0</b>      | <b>\$46,895,341</b>      | <b>\$0</b>          | <b>\$46,895,341</b> | <b>\$16,895,341</b> | <b>1.56</b> | <b>1.56</b> | <b>4.86%</b>  |
| <b>2007</b>                                  |              |                     |                     |                               |                 |                          |                     |                     |                     |             |             |               |
| American Infrastructure MLP Fund, L.P.       | 2007         | \$15,000,000        | \$0                 | \$15,000,000                  | \$0             | \$18,151,365             | \$3,307,427         | \$21,458,792        | \$6,458,792         | 1.21        | 1.43        | 6.28%         |
| EIF United States Power Fund III, L.P.       | 2007         | \$10,000,000        | \$0                 | \$10,000,000                  | \$0             | \$10,392,587             | \$2,351,203         | \$12,743,790        | \$2,743,790         | 1.04        | 1.27        | 3.64%         |
| Natural Gas Partners IX, L.P.                | 2007         | \$12,000,000        | \$48,403            | \$11,951,597                  | \$0             | \$17,305,870             | \$343,045           | \$17,648,915        | \$5,697,318         | 1.45        | 1.48        | 10.92%        |
| NGP Midstream & Resources, L.P.              | 2007         | \$10,000,000        | \$1,786             | \$9,998,214                   | \$3             | \$17,590,088             | \$727,008           | \$18,317,096        | \$8,318,879         | 1.76        | 1.83        | 13.48%        |
| <b>Total 2007</b>                            |              | <b>\$47,000,000</b> | <b>\$50,189</b>     | <b>\$46,949,811</b>           | <b>\$3</b>      | <b>\$63,439,911</b>      | <b>\$6,728,683</b>  | <b>\$70,168,594</b> | <b>\$23,218,780</b> | <b>1.35</b> | <b>1.49</b> | <b>8.05%</b>  |
| <b>2009</b>                                  |              |                     |                     |                               |                 |                          |                     |                     |                     |             |             |               |
| AIM Midstream, LLC                           | 2009         | \$2,250,000         | \$0                 | \$2,250,000                   | \$0             | \$2,576,335              | \$0                 | \$2,576,335         | \$326,335           | 1.15        | 1.15        | 4.22%         |
| <b>Total 2009</b>                            |              | <b>\$2,250,000</b>  | <b>\$0</b>          | <b>\$2,250,000</b>            | <b>\$0</b>      | <b>\$2,576,335</b>       | <b>\$0</b>          | <b>\$2,576,335</b>  | <b>\$326,335</b>    | <b>1.15</b> | <b>1.15</b> | <b>4.22%</b>  |
| <b>2010</b>                                  |              |                     |                     |                               |                 |                          |                     |                     |                     |             |             |               |
| AIM Bridge, LLC                              | 2010         | \$1,500,000         | \$0                 | \$1,500,000                   | \$0             | \$530,691                | \$2,024,981         | \$2,555,672         | \$1,055,672         | 0.35        | 1.70        | 6.19%         |
| <b>Total 2010</b>                            |              | <b>\$1,500,000</b>  | <b>\$0</b>          | <b>\$1,500,000</b>            | <b>\$0</b>      | <b>\$530,691</b>         | <b>\$2,024,981</b>  | <b>\$2,555,672</b>  | <b>\$1,055,672</b>  | <b>0.35</b> | <b>1.70</b> | <b>6.19%</b>  |
| <b>2011</b>                                  |              |                     |                     |                               |                 |                          |                     |                     |                     |             |             |               |
| AIM Fuel, LLC                                | 2011         | \$1,000,000         | \$0                 | \$1,000,000                   | \$0             | \$1,443,806              | \$634,361           | \$2,078,167         | \$1,078,167         | 1.44        | 2.08        | 12.52%        |
| AIM Storage, LLC                             | 2011         | \$1,500,000         | \$0                 | \$1,500,000                   | \$0             | \$3,843,943              | \$0                 | \$3,843,943         | \$2,343,943         | 2.56        | 2.56        | 32.41%        |
| <b>Total 2011</b>                            |              | <b>\$2,500,000</b>  | <b>\$0</b>          | <b>\$2,500,000</b>            | <b>\$0</b>      | <b>\$5,287,749</b>       | <b>\$634,361</b>    | <b>\$5,922,110</b>  | <b>\$3,422,110</b>  | <b>2.12</b> | <b>2.37</b> | <b>24.00%</b> |
| <b>2012</b>                                  |              |                     |                     |                               |                 |                          |                     |                     |                     |             |             |               |
| AIM Upstream, LLC                            | 2012         | \$1,000,000         | \$0                 | \$1,000,000                   | \$0             | \$979,744                | \$0                 | \$979,744           | -\$20,256           | 0.98        | 0.98        | -0.97%        |
| AIM Water, LLC                               | 2012         | \$1,500,000         | \$0                 | \$1,500,000                   | \$0             | \$190,239                | \$0                 | \$190,239           | -\$1,309,761        | 0.13        | 0.13        | -75.44%       |
| Energy & Minerals Group Fund II, L.P.        | 2012         | \$10,000,000        | \$17,037            | \$9,982,963                   | \$72,877        | \$9,719,936              | \$10,597,369        | \$20,317,305        | \$10,261,465        | 0.97        | 2.02        | 14.56%        |
| NGP Natural Resources X, L.P.                | 2012         | \$10,000,000        | \$148,695           | \$9,851,305                   | \$6,853         | \$7,852,541              | \$1,417,925         | \$9,270,466         | -\$587,692          | 0.80        | 0.94        | -1.91%        |
| <b>Total 2012</b>                            |              | <b>\$22,500,000</b> | <b>\$165,732</b>    | <b>\$22,334,268</b>           | <b>\$79,730</b> | <b>\$18,742,460</b>      | <b>\$12,015,294</b> | <b>\$30,757,754</b> | <b>\$8,343,756</b>  | <b>0.84</b> | <b>1.37</b> | <b>7.21%</b>  |
| <b>2013</b>                                  |              |                     |                     |                               |                 |                          |                     |                     |                     |             |             |               |
| American Infrastructure MLP Fund II, L.P.    | 2013         | \$7,500,000         | \$1,166,250         | \$6,333,750                   | \$6,824         | \$5,226,960              | \$2,281,399         | \$7,508,359         | \$1,167,785         | 0.82        | 1.18        | 4.44%         |
| REOG Fund II Coinvest, L.P.                  | 2013         | \$2,000,000         | \$403,465           | \$1,596,535                   | \$0             | \$696,945                | \$1,595,436         | \$2,292,381         | \$695,846           | 0.44        | 1.44        | 9.36%         |
| Ridgewood Energy Oil & Gas Fund II, L.P.     | 2013         | \$10,000,000        | \$539,664           | \$9,460,336                   | \$0             | \$2,957,817              | \$5,274,277         | \$8,232,094         | -\$1,228,242        | 0.31        | 0.87        | -3.49%        |
| <b>Total 2013</b>                            |              | <b>\$19,500,000</b> | <b>\$2,109,379</b>  | <b>\$17,390,621</b>           | <b>\$6,824</b>  | <b>\$8,881,722</b>       | <b>\$9,151,112</b>  | <b>\$18,032,834</b> | <b>\$635,389</b>    | <b>0.51</b> | <b>1.04</b> | <b>0.91%</b>  |
| <b>2014</b>                                  |              |                     |                     |                               |                 |                          |                     |                     |                     |             |             |               |
| AIM Cemetery Infrastructure, L.P.            | 2014         | \$1,000,000         | \$190,000           | \$810,000                     | \$0             | \$153,794                | \$137,744           | \$291,538           | -\$518,462          | 0.19        | 0.36        | -23.32%       |
| AIM Fuel 2, L.P.                             | 2014         | \$1,500,000         | \$0                 | \$1,500,000                   | \$0             | \$940,211                | \$603,255           | \$1,543,466         | \$43,466            | 0.63        | 1.03        | 0.61%         |
| AIM Landfill, L.P.                           | 2014         | \$1,250,000         | \$0                 | \$1,250,000                   | \$0             | \$2,637,632              | \$0                 | \$2,637,632         | \$1,387,632         | 2.11        | 2.11        | 21.48%        |





**MPERS**

# ANALYSIS BY VINTAGE YEAR

| Investments   |              | Commitments         |                     | Contributions & Distributions |                   |                          | Valuations          |                     |                     | Performance |             |               |
|---|--------------|---------------------|---------------------|-------------------------------|-------------------|--------------------------|---------------------|---------------------|---------------------|-------------|-------------|---------------|
| Investment Name   | Vintage Year | Commitment          | Unfunded Commitment | Paid In Capital               | Additional Fees   | Cumulative Distributions | Valuation           | Total Value         | Net Benefit         | DPI         | TVPI        | IRR           |
| EMG AE Permian Co-Investment, L.P.                              | 2014         | \$2,000,000         | \$0                 | \$2,000,000                   | \$0               | \$0                      | \$0                 | \$0                 | -\$2,000,000        | 0.00        | 0.00        |               |
| EMG AENO Co-Investment, L.P.                                    | 2014         | \$1,809,224         | \$0                 | \$1,809,224                   | \$0               | \$10,744                 | \$1,759,991         | \$1,770,735         | -\$38,489           | 0.01        | 0.98        | -0.35%        |
| Energy & Minerals Group Fund III, L.P.                          | 2014         | \$10,000,000        | \$64,222            | \$9,935,778                   | \$4,847           | \$994,351                | \$4,723,040         | \$5,717,391         | -\$4,223,234        | 0.10        | 0.58        | -10.41%       |
| Golden Sciens Marine Investments, Ltd.                          | 2014         | \$10,000,000        | \$1,913,762         | \$8,086,238                   | -\$142,976        | \$0                      | \$2,325,509         | \$2,325,509         | -\$5,617,753        | 0.00        | 0.29        | -17.08%       |
| NGP Natural Resources XI, L.P.                                  | 2014         | \$12,000,000        | \$612,072           | \$11,387,928                  | \$0               | \$3,235,938              | \$7,925,919         | \$11,161,857        | -\$226,071          | 0.28        | 0.98        | -0.67%        |
| Orion Mine Finance (Master) Fund I-A, L.P.                      | 2014         | \$10,000,000        | \$1                 | \$9,999,999                   | \$21,489          | \$7,756,409              | \$6,141,420         | \$13,897,829        | \$3,876,341         | 0.77        | 1.39        | 9.53%         |
| Turnbridge Capital Partners I, L.P.                             | 2014         | \$10,000,000        | \$3,038,716         | \$6,961,284                   | \$0               | \$0                      | \$4,851,078         | \$4,851,078         | -\$2,110,206        | 0.00        | 0.70        | -7.84%        |
| <b>Total 2014</b>   |              | <b>\$59,559,224</b> | <b>\$5,818,774</b>  | <b>\$53,740,450</b>           | <b>-\$116,640</b> | <b>\$15,729,080</b>      | <b>\$28,467,956</b> | <b>\$44,197,036</b> | <b>-\$9,426,775</b> | <b>0.29</b> | <b>0.82</b> | <b>-4.43%</b> |
| <b>2015</b>   |              |                     |                     |                               |                   |                          |                     |                     |                     |             |             |               |
| AIM Ag Infra, L.P.  | 2015         | \$916,875           | \$0                 | \$916,875                     | \$0               | \$0                      | \$0                 | \$0                 | -\$916,875          | 0.00        | 0.00        |               |
| AIM Inspire America Fund, L.P.                                  | 2015         | \$1,000,000         | \$220,000           | \$780,000                     | \$0               | \$940,307                | \$0                 | \$940,307           | \$160,307           | 1.21        | 1.21        | 14.77%        |
| AIM Marinas, L.P.   | 2015         | \$2,700,000         | \$0                 | \$2,700,000                   | \$10,680          | \$7,373,980              | \$298,517           | \$7,672,497         | \$4,961,817         | 2.72        | 2.83        | 35.83%        |
| Blue Road Capital, L.P.   | 2015         | \$7,500,000         | \$1,574,764         | \$5,925,236                   | -\$123,459        | \$19,829                 | \$7,994,347         | \$8,014,176         | \$2,212,399         | 0.00        | 1.38        | 9.03%         |
| BRC National Pecan Co-Invest, L.P.                              | 2015         | \$2,500,000         | \$460,864           | \$2,039,136                   | \$46,610          | \$20,822                 | \$4,041,966         | \$4,062,788         | \$1,977,042         | 0.01        | 1.95        | 16.00%        |
| EMG Fund II Ascent Co-Investment, L.P.                          | 2015         | \$600,000           | \$0                 | \$600,000                     | \$0               | \$600,000                | \$0                 | \$600,000           | \$0                 | 1.00        | 1.00        | 0.00%         |
| EMG Fund III Ascent Co-Investment, L.P.                         | 2015         | \$2,400,000         | \$0                 | \$2,400,000                   | \$0               | \$2,391,340              | \$0                 | \$2,391,340         | -\$8,660            | 1.00        | 1.00        | -2.47%        |
| Energy & Minerals Group Fund IV, L.P.                           | 2015         | \$20,000,000        | \$2,523,219         | \$17,476,781                  | -\$357,409        | \$3,594,042              | \$19,759,725        | \$23,353,767        | \$6,234,395         | 0.21        | 1.36        | 9.13%         |
| Orion Co-Investments II, L.P.                                   | 2015         | \$1,500,000         | \$555,556           | \$944,444                     | \$0               | \$1,416,024              | \$8,713             | \$1,424,737         | \$480,292           | 1.50        | 1.51        | 14.16%        |
| Orion Co-Investments IV, L.P.                                   | 2015         | \$1,000,000         | \$99,138            | \$900,862                     | \$0               | \$323,288                | \$496,581           | \$819,869           | -\$80,992           | 0.36        | 0.91        | -3.67%        |
| Ridgewood Energy Oil & Gas Fund III, L.P.                       | 2015         | \$12,000,000        | \$5,647,522         | \$6,352,478                   | \$0               | \$159,413                | \$6,704,561         | \$6,863,974         | \$511,496           | 0.03        | 1.08        | 3.97%         |
| Sciens Aviation Special Opportunities Investment Fund III, L.P. | 2015         | \$15,000,000        | \$5,202,913         | \$9,797,087                   | -\$26,572         | \$11,529,120             | \$1,676,041         | \$13,205,161        | \$3,434,646         | 1.18        | 1.35        | 12.43%        |
| <b>Total 2015</b>   |              | <b>\$67,116,875</b> | <b>\$16,283,976</b> | <b>\$50,832,899</b>           | <b>-\$450,150</b> | <b>\$28,368,166</b>      | <b>\$40,980,451</b> | <b>\$69,348,617</b> | <b>\$18,965,868</b> | <b>0.56</b> | <b>1.38</b> | <b>11.22%</b> |
| <b>2016</b>   |              |                     |                     |                               |                   |                          |                     |                     |                     |             |             |               |
| AIM Dividend Growth Fund, L.P.                                  | 2016         | \$1,500,000         | \$0                 | \$1,500,000                   | \$4,475           | \$2,227,517              | \$0                 | \$2,227,517         | \$723,043           | 1.48        | 1.48        | 16.99%        |
| AIM Education, L.P.   | 2016         | \$750,000           | \$0                 | \$750,000                     | \$1,170           | \$694,719                | \$444,113           | \$1,138,832         | \$387,662           | 0.92        | 1.52        | 12.51%        |
| Cowpens Land and Timber, LLC                                    | 2016         | \$16,121,780        | \$0                 | \$16,121,780                  | \$0               | \$0                      | \$15,144,720        | \$15,144,720        | -\$977,060          | 0.00        | 0.94        | -1.91%        |
| EMG Ascent 2016 Equity, L.P.                                    | 2016         | \$2,987,944         | \$0                 | \$2,987,944                   | \$0               | \$0                      | \$3,577,394         | \$3,577,394         | \$589,450           | 0.00        | 1.20        | 3.77%         |
| EMG Traverse Co-Investment, L.P.                                | 2016         | \$2,000,000         | \$0                 | \$2,000,000                   | \$0               | \$91,118                 | \$1,504,865         | \$1,595,983         | -\$404,017          | 0.05        | 0.80        | -5.69%        |
| Grey Rock Energy Fund II, L.P.                                  | 2016         | \$10,000,000        | \$431,050           | \$9,568,950                   | -\$14,211         | \$886,932                | \$9,375,108         | \$10,262,040        | \$707,301           | 0.09        | 1.07        | 2.10%         |
| Lake Murray, LLC  | 2016         | \$1,217,230         | \$0                 | \$1,217,230                   | \$0               | \$144,401                | \$982,915           | \$1,127,316         | -\$89,914           | 0.12        | 0.93        | -1.96%        |
| MP Timber, LLC  | 2016         | \$46,074,359        | \$0                 | \$46,074,359                  | \$0               | \$13,894,200             | \$38,553,590        | \$52,447,790        | \$6,373,431         | 0.30        | 1.14        | 4.12%         |
| NGP Boaz Energy II Co-Invest, LLC                               | 2016         | \$1,000,000         | \$0                 | \$1,000,000                   | \$0               | \$361,893                | \$86,876            | \$448,769           | -\$551,231          | 0.36        | 0.45        | -25.80%       |
| NGP XI Midstream Coinvest, LLC                                  | 2016         | \$1,000,000         | \$163,132           | \$836,868                     | \$7,997           | \$8,533                  | \$783,651           | \$792,184           | -\$52,681           | 0.01        | 0.94        | -2.09%        |
| <b>Total 2016</b>   |              | <b>\$82,651,313</b> | <b>\$594,182</b>    | <b>\$82,057,131</b>           | <b>-\$569</b>     | <b>\$18,309,314</b>      | <b>\$70,453,232</b> | <b>\$88,762,546</b> | <b>\$6,705,984</b>  | <b>0.22</b> | <b>1.08</b> | <b>2.42%</b>  |



**MPERS**

# ANALYSIS BY VINTAGE YEAR

| Investments  |              | Commitments         |                     | Contributions & Distributions |                  |                          | Valuations          |                     |                     | Performance |             |              |
|--|--------------|---------------------|---------------------|-------------------------------|------------------|--------------------------|---------------------|---------------------|---------------------|-------------|-------------|--------------|
| Investment Name                                      | Vintage Year | Commitment          | Unfunded Commitment | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation           | Total Value         | Net Benefit         | DPI         | TVPI        | IRR          |
| <b>2017</b>  |              |                     |                     |                               |                  |                          |                     |                     |                     |             |             |              |
| Corrum Capital Aviation Partners, L.P.               | 2017         | \$10,000,000        | \$1,712,538         | \$8,287,462                   | \$0              | \$376,811                | \$8,114,172         | \$8,490,983         | \$203,521           | 0.05        | 1.02        | 0.99%        |
| Dawsonville Bluffs, LLC                              | 2017         | \$10,539,200        | \$0                 | \$10,539,200                  | \$0              | \$14,052,251             | \$1,509,975         | \$15,562,226        | \$5,023,026         | 1.33        | 1.48        | 27.19%       |
| EMG Ascent Secondary Fund, L.P.                      | 2017         | \$116,920           | \$0                 | \$116,920                     | \$0              | \$0                      | \$170,013           | \$170,013           | \$53,093            | 0.00        | 1.45        | 12.93%       |
| EMG PRES Equity, L.P.                                | 2017         | \$3,208,318         | \$0                 | \$3,208,318                   | \$0              | \$0                      | \$735               | \$735               | -\$3,207,583        | 0.00        | 0.00        |              |
| Muddy Waters Land and Timber, LLC                    | 2017         | \$7,772,554         | \$0                 | \$7,772,554                   | \$0              | \$336,535                | \$6,807,620         | \$7,144,155         | -\$628,399          | 0.04        | 0.92        | -2.45%       |
| NGP XI Luxe Coinvest, LLC                            | 2017         | \$1,500,000         | \$70,754            | \$1,429,246                   | \$0              | \$27,739                 | \$908,750           | \$936,489           | -\$492,757          | 0.02        | 0.66        | -17.04%      |
| Orion Mine Finance (Delaware) Fund II, L.P.          | 2017         | \$10,000,000        | \$905,188           | \$9,094,812                   | -\$21,064        | \$2,016,896              | \$10,890,190        | \$12,907,086        | \$3,833,337         | 0.22        | 1.42        | 14.22%       |
| Orion Mine Finance Co-Fund II, L.P.                  | 2017         | \$7,500,000         | \$735,710           | \$6,764,290                   | \$20,125         | \$3,037,154              | \$6,672,357         | \$9,709,511         | \$2,925,096         | 0.45        | 1.43        | 23.33%       |
| Quantum Energy Partners VII Co-Investment Fund, L.P. | 2017         | \$2,250,000         | \$1,356,665         | \$893,335                     | \$232            | \$0                      | \$1,353,322         | \$1,353,322         | \$459,754           | 0.00        | 1.51        | 21.01%       |
| Quantum Energy Partners VII, L.P.                    | 2017         | \$15,000,000        | \$6,521,025         | \$8,478,975                   | \$3,639          | \$3,053                  | \$10,699,002        | \$10,702,055        | \$2,219,442         | 0.00        | 1.26        | 11.19%       |
| Rocky Top Timber, LLC                                | 2017         | \$8,674,834         | \$0                 | \$8,674,834                   | \$0              | \$1,915,965              | \$7,307,032         | \$9,222,997         | \$548,163           | 0.22        | 1.06        | 1.79%        |
| Russellville Land and Timber, LLC                    | 2017         | \$1,145,337         | \$0                 | \$1,145,337                   | \$2,680          | \$1,238,920              | \$888,705           | \$2,127,625         | \$979,608           | 1.08        | 1.85        | 32.70%       |
| Sandy River, LLC                                     | 2017         | \$6,097,796         | \$0                 | \$6,097,796                   | \$0              | \$0                      | \$5,099,516         | \$5,099,516         | -\$998,280          | 0.00        | 0.84        | -5.36%       |
| Smallwood Homes, LLC                                 | 2017         | \$1,418,333         | -\$150,165          | \$1,568,497                   | \$0              | \$200,000                | \$1,325,484         | \$1,525,484         | -\$43,013           | 0.13        | 0.97        | -0.82%       |
| TCP Brigade CIV, L.P.                                | 2017         | \$1,000,000         | \$0                 | \$1,000,000                   | \$0              | \$0                      | \$704,117           | \$704,117           | -\$295,883          | 0.00        | 0.70        | -11.05%      |
| TCP Probe CIV, L.P.                                  | 2017         | \$1,000,000         | \$0                 | \$1,000,000                   | \$0              | \$0                      | \$965,285           | \$965,285           | -\$34,715           | 0.00        | 0.97        | -1.14%       |
| <b>Total 2017</b>                                    |              | <b>\$87,223,292</b> | <b>\$11,151,715</b> | <b>\$76,071,577</b>           | <b>\$5,612</b>   | <b>\$23,205,323</b>      | <b>\$63,416,275</b> | <b>\$86,621,598</b> | <b>\$10,544,410</b> | <b>0.31</b> | <b>1.14</b> | <b>5.33%</b> |
| <b>2018</b>  |              |                     |                     |                               |                  |                          |                     |                     |                     |             |             |              |
| Ares SCM Co-Invest, L.P.                             | 2018         | \$1,000,000         | \$0                 | \$1,000,000                   | \$5,858          | \$0                      | \$106               | \$106               | -\$1,005,752        | 0.00        | 0.00        |              |
| CIM Infrastructure Fund II, L.P.                     | 2018         | \$12,500,000        | \$5,375,567         | \$7,124,433                   | \$700,675        | \$42,529                 | \$9,032,673         | \$9,075,202         | \$1,250,095         | 0.01        | 1.16        | 9.35%        |
| Corrum Capital Aviation Investors 2018, L.P.         | 2018         | \$5,000,000         | \$1,975,595         | \$3,024,405                   | -\$163,803       | \$0                      | \$2,837,770         | \$2,837,770         | -\$22,832           | 0.00        | 0.99        | -0.43%       |
| Grey Rock Energy Fund III-A, L.P.                    | 2018         | \$15,000,000        | \$3,277,432         | \$11,722,568                  | \$0              | \$0                      | \$12,685,587        | \$12,685,587        | \$963,019           | 0.00        | 1.08        | 5.87%        |
| NGP Camino Follow-On, LLC                            | 2018         | \$1,000,558         | \$0                 | \$1,000,558                   | \$2,804          | \$0                      | \$750,002           | \$750,002           | -\$253,360          | 0.00        | 0.75        | -14.04%      |
| Orion Mineral Royalty Fund, L.P.                     | 2018         | \$15,000,000        | \$7,349,804         | \$7,650,196                   | -\$74,432        | \$0                      | \$8,407,380         | \$8,407,380         | \$831,617           | 0.00        | 1.11        | 12.10%       |
| <b>Total 2018</b>                                    |              | <b>\$49,500,558</b> | <b>\$17,978,400</b> | <b>\$31,522,158</b>           | <b>\$471,101</b> | <b>\$42,529</b>          | <b>\$33,713,518</b> | <b>\$33,756,047</b> | <b>\$1,762,788</b>  | <b>0.00</b> | <b>1.06</b> | <b>3.86%</b> |
| <b>2019</b>  |              |                     |                     |                               |                  |                          |                     |                     |                     |             |             |              |
| Ares Energy Opportunities Fund A, L.P.               | 2019         | \$15,000,000        | \$1,507,143         | \$13,492,857                  | \$0              | \$6,184                  | \$7,736,282         | \$7,742,466         | -\$5,750,391        | 0.00        | 0.57        | -35.18%      |
| Ares EPIC Co-Invest, L.P.                            | 2019         | \$1,500,000         | \$16,155            | \$1,483,845                   | \$5,193          | \$0                      | \$1,511,309         | \$1,511,309         | \$22,271            | 0.00        | 1.01        | 0.90%        |
| Blue Road Co-Inv - BR Superfoods, LLC                | 2019         | \$1,000,000         | \$0                 | \$1,000,000                   | \$0              | \$0                      | \$1,266,970         | \$1,266,970         | \$266,970           | 0.00        | 1.27        | 17.07%       |
| Corrum Capital Aviation Partners II, L.P.            | 2019         | \$1,400,000         | \$258,871           | \$1,141,129                   | \$0              | \$37,800                 | \$1,129,953         | \$1,167,753         | \$26,624            | 0.03        | 1.02        | 1.60%        |
| EMG Fund Spur Co-Investment, L.P.                    | 2019         | \$1,000,000         | \$0                 | \$1,000,000                   | \$0              | \$46,649                 | \$1,198,847         | \$1,245,496         | \$245,496           | 0.05        | 1.25        | 20.96%       |
| EMG Iron Ore Co-Investment, L.P.                     | 2019         | \$2,766,429         | \$0                 | \$2,766,429                   | \$0              | \$0                      | \$4,439,941         | \$4,439,941         | \$1,673,512         | 0.00        | 1.60        | 33.61%       |
| EMG V Accordion, L.P.                                | 2019         | \$3,000,000         | \$703,758           | \$2,296,242                   | -\$17,419        | \$0                      | \$3,509,360         | \$3,509,360         | \$1,230,537         | 0.00        | 1.54        | 34.05%       |



## MPERS

# ANALYSIS BY VINTAGE YEAR

| Investments                                 |              | Commitments          |                      | Contributions & Distributions |                  |                          | Valuations           |                      |                     | Performance |             |               |
|---|--------------|----------------------|----------------------|-------------------------------|------------------|--------------------------|----------------------|----------------------|---------------------|-------------|-------------|---------------|
| Investment Name                             | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation            | Total Value          | Net Benefit         | DPI         | TVPI        | IRR           |
| EMG V, L.P.                                 | 2019         | \$9,000,000          | \$2,821,029          | \$6,178,971                   | -\$4,110         | \$0                      | \$9,012,990          | \$9,012,990          | \$2,838,129         | 0.00        | 1.46        | 29.22%        |
| Orion Mine Finance (Onshore) Fund III, L.P. | 2019         | \$12,000,000         | \$4,286,921          | \$7,713,079                   | -\$15,519        | \$0                      | \$8,834,568          | \$8,834,568          | \$1,137,008         | 0.00        | 1.15        | 29.23%        |
| Orion Mine Finance Co-Fund III, L.P.        | 2019         | \$12,000,000         | \$12,000,000         | \$0                           | \$0              | \$0                      | \$0                  | \$0                  | \$0                 |             |             |               |
| Ridgewood Energy Oil & Gas Fund IV, L.P.    | 2019         | \$15,000,000         | \$14,869,872         | \$130,128                     | \$0              | \$0                      | \$130,128            | \$130,128            | \$0                 | 0.00        | 1.00        | 0.00%         |
| <b>Total 2019</b>                           |              | <b>\$73,666,429</b>  | <b>\$36,463,749</b>  | <b>\$37,202,680</b>           | <b>-\$31,855</b> | <b>\$90,633</b>          | <b>\$38,770,348</b>  | <b>\$38,860,981</b>  | <b>\$1,690,156</b>  | <b>0.00</b> | <b>1.05</b> | <b>3.66%</b>  |
| <b>2020</b>                                 |              |                      |                      |                               |                  |                          |                      |                      |                     |             |             |               |
| Columbia Spectrum Partners IV, L.P.         | 2020         | \$15,000,000         | \$13,358,940         | \$1,641,060                   | \$2,887          | \$0                      | \$1,616,479          | \$1,616,479          | -\$27,467           | 0.00        | 0.98        | -1.33%        |
| Mission Sawmill Fund, LLC                   | 2020         | \$5,000,000          | \$4,488,947          | \$511,053                     | \$0              | \$0                      | \$441,551            | \$441,551            | -\$69,502           | 0.00        | 0.86        | -13.60%       |
| MKH Montana                                 | 2020         | \$15,000,000         | \$7,567,450          | \$7,432,550                   | \$0              | \$0                      | \$7,419,038          | \$7,419,038          | -\$13,512           | 0.00        | 1.00        | -0.18%        |
| MKH Montana North                           | 2020         | \$5,000,000          | \$3,200,000          | \$1,800,000                   | \$0              | \$0                      | \$1,800,000          | \$1,800,000          | \$0                 | 0.00        | 1.00        | 0.00%         |
| Rocky Top Uplands                           | 2020         | \$14,812,500         | \$3,140,291          | \$11,672,209                  | \$0              | \$493,750                | \$11,070,970         | \$11,564,720         | -\$107,489          | 0.04        | 0.99        | -1.43%        |
| <b>Total 2020</b>                           |              | <b>\$54,812,500</b>  | <b>\$31,755,629</b>  | <b>\$23,056,871</b>           | <b>\$2,887</b>   | <b>\$493,750</b>         | <b>\$22,348,038</b>  | <b>\$22,841,788</b>  | <b>-\$217,970</b>   | <b>0.02</b> | <b>0.99</b> | <b>-1.87%</b> |
| <b>Total</b>                                |              | <b>\$599,780,191</b> | <b>\$122,371,726</b> | <b>\$477,408,466</b>          | <b>-\$33,057</b> | <b>\$232,593,003</b>     | <b>\$328,704,249</b> | <b>\$561,297,252</b> | <b>\$83,921,843</b> | <b>0.49</b> | <b>1.18</b> | <b>4.76%</b>  |



MPERS

# ANALYSIS BY INVESTMENT STRATEGY

| Investments                             |              | Commitments         |                     | Contributions & Distributions |                  |                          | Valuations          |                     |                    | Performance |             |               |
|---|--------------|---------------------|---------------------|-------------------------------|------------------|--------------------------|---------------------|---------------------|--------------------|-------------|-------------|---------------|
| Investment Name                         | Vintage Year | Commitment          | Unfunded Commitment | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation           | Total Value         | Net Benefit        | DPI         | TVPI        | IRR           |
| <b>Agriculture</b>                      |              |                     |                     |                               |                  |                          |                     |                     |                    |             |             |               |
| Blue Road Capital, L.P.                 | 2015         | \$7,500,000         | \$1,574,764         | \$5,925,236                   | -\$123,459       | \$19,829                 | \$7,994,347         | \$8,014,176         | \$2,212,399        | 0.00        | 1.38        | 9.03%         |
| Blue Road Co-Inv - BR Superfoods, LLC   | 2019         | \$1,000,000         | \$0                 | \$1,000,000                   | \$0              | \$0                      | \$1,266,970         | \$1,266,970         | \$266,970          | 0.00        | 1.27        | 17.07%        |
| BRC National Pecan Co-Invest, L.P.      | 2015         | \$2,500,000         | \$460,864           | \$2,039,136                   | \$46,610         | \$20,822                 | \$4,041,966         | \$4,062,788         | \$1,977,042        | 0.01        | 1.95        | 16.00%        |
| <b>Total Agriculture</b>                |              | <b>\$11,000,000</b> | <b>\$2,035,628</b>  | <b>\$8,964,372</b>            | <b>-\$76,849</b> | <b>\$40,651</b>          | <b>\$13,303,283</b> | <b>\$13,343,934</b> | <b>\$4,456,411</b> | <b>0.00</b> | <b>1.50</b> | <b>11.55%</b> |
| <b>Energy</b>                           |              |                     |                     |                               |                  |                          |                     |                     |                    |             |             |               |
| Ares Energy Opportunities Fund A, L.P.  | 2019         | \$15,000,000        | \$1,507,143         | \$13,492,857                  | \$0              | \$6,184                  | \$7,736,282         | \$7,742,466         | -\$5,750,391       | 0.00        | 0.57        | -35.18%       |
| Ares EPIC Co-Invest, L.P.               | 2019         | \$1,500,000         | \$16,155            | \$1,483,845                   | \$5,193          | \$0                      | \$1,511,309         | \$1,511,309         | \$22,271           | 0.00        | 1.01        | 0.90%         |
| Ares SCM Co-Invest, L.P.                | 2018         | \$1,000,000         | \$0                 | \$1,000,000                   | \$5,858          | \$0                      | \$106               | \$106               | -\$1,005,752       | 0.00        | 0.00        |               |
| Columbia Spectrum Partners IV, L.P.     | 2020         | \$15,000,000        | \$13,358,940        | \$1,641,060                   | \$2,887          | \$0                      | \$1,616,479         | \$1,616,479         | -\$27,467          | 0.00        | 0.98        | -1.33%        |
| EIF United States Power Fund III, L.P.  | 2007         | \$10,000,000        | \$0                 | \$10,000,000                  | \$0              | \$10,392,587             | \$2,351,203         | \$12,743,790        | \$2,743,790        | 1.04        | 1.27        | 3.64%         |
| EMG AE Permian Co-Investment, L.P.      | 2014         | \$2,000,000         | \$0                 | \$2,000,000                   | \$0              | \$0                      | \$0                 | \$0                 | -\$2,000,000       | 0.00        | 0.00        |               |
| EMG AENO Co-Investment, L.P.            | 2014         | \$1,809,224         | \$0                 | \$1,809,224                   | \$0              | \$10,744                 | \$1,759,991         | \$1,770,735         | -\$38,489          | 0.01        | 0.98        | -0.35%        |
| EMG Ascent 2016 Equity, L.P.            | 2016         | \$2,987,944         | \$0                 | \$2,987,944                   | \$0              | \$0                      | \$3,577,394         | \$3,577,394         | \$589,450          | 0.00        | 1.20        | 3.77%         |
| EMG Ascent Secondary Fund, L.P.         | 2017         | \$116,920           | \$0                 | \$116,920                     | \$0              | \$0                      | \$170,013           | \$170,013           | \$53,093           | 0.00        | 1.45        | 12.93%        |
| EMG Fund II Ascent Co-Investment, L.P.  | 2015         | \$600,000           | \$0                 | \$600,000                     | \$0              | \$600,000                | \$0                 | \$600,000           | \$0                | 1.00        | 1.00        | 0.00%         |
| EMG Fund III Ascent Co-Investment, L.P. | 2015         | \$2,400,000         | \$0                 | \$2,400,000                   | \$0              | \$2,391,340              | \$0                 | \$2,391,340         | -\$8,660           | 1.00        | 1.00        | -2.47%        |
| EMG Fund Spur Co-Investment, L.P.       | 2019         | \$1,000,000         | \$0                 | \$1,000,000                   | \$0              | \$46,649                 | \$1,198,847         | \$1,245,496         | \$245,496          | 0.05        | 1.25        | 20.96%        |
| EMG Iron Ore Co-Investment, L.P.        | 2019         | \$2,766,429         | \$0                 | \$2,766,429                   | \$0              | \$0                      | \$4,439,941         | \$4,439,941         | \$1,673,512        | 0.00        | 1.60        | 33.61%        |
| EMG PRES Equity, L.P.                   | 2017         | \$3,208,318         | \$0                 | \$3,208,318                   | \$0              | \$0                      | \$735               | \$735               | -\$3,207,583       | 0.00        | 0.00        |               |
| EMG Traverse Co-Investment, L.P.        | 2016         | \$2,000,000         | \$0                 | \$2,000,000                   | \$0              | \$91,118                 | \$1,504,865         | \$1,595,983         | -\$404,017         | 0.05        | 0.80        | -5.69%        |
| EMG V Accordion, L.P.                   | 2019         | \$3,000,000         | \$703,758           | \$2,296,242                   | -\$17,419        | \$0                      | \$3,509,360         | \$3,509,360         | \$1,230,537        | 0.00        | 1.54        | 34.05%        |
| EMG V, L.P.                             | 2019         | \$9,000,000         | \$2,821,029         | \$6,178,971                   | -\$4,110         | \$0                      | \$9,012,990         | \$9,012,990         | \$2,838,129        | 0.00        | 1.46        | 29.22%        |
| Energy & Minerals Group Fund II, L.P.   | 2012         | \$10,000,000        | \$17,037            | \$9,982,963                   | \$72,877         | \$9,719,936              | \$10,597,369        | \$20,317,305        | \$10,261,465       | 0.97        | 2.02        | 14.56%        |
| Energy & Minerals Group Fund III, L.P.  | 2014         | \$10,000,000        | \$64,222            | \$9,935,778                   | \$4,847          | \$994,351                | \$4,723,040         | \$5,717,391         | -\$4,223,234       | 0.10        | 0.58        | -10.41%       |
| Energy & Minerals Group Fund IV, L.P.   | 2015         | \$20,000,000        | \$2,523,219         | \$17,476,781                  | -\$357,409       | \$3,594,042              | \$19,759,725        | \$23,353,767        | \$6,234,395        | 0.21        | 1.36        | 9.13%         |
| Grey Rock Energy Fund II, L.P.          | 2016         | \$10,000,000        | \$431,050           | \$9,568,950                   | -\$14,211        | \$886,932                | \$9,375,108         | \$10,262,040        | \$707,301          | 0.09        | 1.07        | 2.10%         |
| Grey Rock Energy Fund III-A, L.P.       | 2018         | \$15,000,000        | \$3,277,432         | \$11,722,568                  | \$0              | \$0                      | \$12,685,587        | \$12,685,587        | \$963,019          | 0.00        | 1.08        | 5.87%         |
| Natural Gas Partners IX, L.P.           | 2007         | \$12,000,000        | \$48,403            | \$11,951,597                  | \$0              | \$17,305,870             | \$343,045           | \$17,648,915        | \$5,697,318        | 1.45        | 1.48        | 10.92%        |
| NGP Boaz Energy II Co-Invest, LLC       | 2016         | \$1,000,000         | \$0                 | \$1,000,000                   | \$0              | \$361,893                | \$86,876            | \$448,769           | -\$551,231         | 0.36        | 0.45        | -25.80%       |
| NGP Camino Follow-On, LLC               | 2018         | \$1,000,558         | \$0                 | \$1,000,558                   | \$2,804          | \$0                      | \$750,002           | \$750,002           | -\$253,360         | 0.00        | 0.75        | -14.04%       |
| NGP Midstream & Resources, L.P.         | 2007         | \$10,000,000        | \$1,786             | \$9,998,214                   | \$3              | \$17,590,088             | \$727,008           | \$18,317,096        | \$8,318,879        | 1.76        | 1.83        | 13.48%        |
| NGP Natural Resources X, L.P.           | 2012         | \$10,000,000        | \$148,695           | \$9,851,305                   | \$6,853          | \$7,852,541              | \$1,417,925         | \$9,270,466         | -\$587,692         | 0.80        | 0.94        | -1.91%        |
| NGP Natural Resources XI, L.P.          | 2014         | \$12,000,000        | \$612,072           | \$11,387,928                  | \$0              | \$3,235,938              | \$7,925,919         | \$11,161,857        | -\$226,071         | 0.28        | 0.98        | -0.67%        |
| NGP XI Luxe Coinvest, LLC               | 2017         | \$1,500,000         | \$70,754            | \$1,429,246                   | \$0              | \$27,739                 | \$908,750           | \$936,489           | -\$492,757         | 0.02        | 0.66        | -17.04%       |



**MPERS**

# ANALYSIS BY INVESTMENT STRATEGY

| Investments   |              | Commitments          |                     | Contributions & Distributions |                   |                          | Valuations           |                      |                     | Performance |             |              |
|---|--------------|----------------------|---------------------|-------------------------------|-------------------|--------------------------|----------------------|----------------------|---------------------|-------------|-------------|--------------|
| Investment Name   | Vintage Year | Commitment           | Unfunded Commitment | Paid In Capital               | Additional Fees   | Cumulative Distributions | Valuation            | Total Value          | Net Benefit         | DPI         | TVPI        | IRR          |
| NGP XI Midstream Coinvest, LLC                                  | 2016         | \$1,000,000          | \$163,132           | \$836,868                     | \$7,997           | \$8,533                  | \$783,651            | \$792,184            | -\$52,681           | 0.01        | 0.94        | -2.09%       |
| Quantum Energy Partners VII Co-Investment Fund, L.P.            | 2017         | \$2,250,000          | \$1,356,665         | \$893,335                     | \$232             | \$0                      | \$1,353,322          | \$1,353,322          | \$459,754           | 0.00        | 1.51        | 21.01%       |
| Quantum Energy Partners VII, L.P.                               | 2017         | \$15,000,000         | \$6,521,025         | \$8,478,975                   | \$3,639           | \$3,053                  | \$10,699,002         | \$10,702,055         | \$2,219,442         | 0.00        | 1.26        | 11.19%       |
| REOG Fund II Coinvest, L.P.                                     | 2013         | \$2,000,000          | \$403,465           | \$1,596,535                   | \$0               | \$696,945                | \$1,595,436          | \$2,292,381          | \$695,846           | 0.44        | 1.44        | 9.36%        |
| Ridgewood Energy Oil & Gas Fund II, L.P.                        | 2013         | \$10,000,000         | \$539,664           | \$9,460,336                   | \$0               | \$2,957,817              | \$5,274,277          | \$8,232,094          | -\$1,228,242        | 0.31        | 0.87        | -3.49%       |
| Ridgewood Energy Oil & Gas Fund III, L.P.                       | 2015         | \$12,000,000         | \$5,647,522         | \$6,352,478                   | \$0               | \$159,413                | \$6,704,561          | \$6,863,974          | \$511,496           | 0.03        | 1.08        | 3.97%        |
| Ridgewood Energy Oil & Gas Fund IV, L.P.                        | 2019         | \$15,000,000         | \$14,869,872        | \$130,128                     | \$0               | \$0                      | \$130,128            | \$130,128            | \$0                 | 0.00        | 1.00        | 0.00%        |
| TCP Brigade CIV, L.P.   | 2017         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0               | \$0                      | \$704,117            | \$704,117            | -\$295,883          | 0.00        | 0.70        | -11.05%      |
| TCP Probe CIV, L.P.   | 2017         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0               | \$0                      | \$965,285            | \$965,285            | -\$34,715           | 0.00        | 0.97        | -1.14%       |
| Turnbridge Capital Partners I, L.P.                             | 2014         | \$10,000,000         | \$3,038,716         | \$6,961,284                   | \$0               | \$0                      | \$4,851,078          | \$4,851,078          | -\$2,110,206        | 0.00        | 0.70        | -7.84%       |
| <b>Total Energy</b>   |              | <b>\$255,139,393</b> | <b>\$58,141,757</b> | <b>\$196,997,636</b>          | <b>-\$279,959</b> | <b>\$78,933,714</b>      | <b>\$140,750,726</b> | <b>\$219,684,440</b> | <b>\$22,966,763</b> | <b>0.40</b> | <b>1.12</b> | <b>3.63%</b> |
| <b>Infrastructure</b>   |              |                      |                     |                               |                   |                          |                      |                      |                     |             |             |              |
| AIM Ag Infra, L.P.  | 2015         | \$916,875            | \$0                 | \$916,875                     | \$0               | \$0                      | \$0                  | \$0                  | -\$916,875          | 0.00        | 0.00        |              |
| AIM Bridge, LLC   | 2010         | \$1,500,000          | \$0                 | \$1,500,000                   | \$0               | \$530,691                | \$2,024,981          | \$2,555,672          | \$1,055,672         | 0.35        | 1.70        | 6.19%        |
| AIM Cemetery Infrastructure, L.P.                               | 2014         | \$1,000,000          | \$190,000           | \$810,000                     | \$0               | \$153,794                | \$137,744            | \$291,538            | -\$518,462          | 0.19        | 0.36        | -23.32%      |
| AIM Dividend Growth Fund, L.P.                                  | 2016         | \$1,500,000          | \$0                 | \$1,500,000                   | \$4,475           | \$2,227,517              | \$0                  | \$2,227,517          | \$723,043           | 1.48        | 1.48        | 16.99%       |
| AIM Education, L.P.   | 2016         | \$750,000            | \$0                 | \$750,000                     | \$1,170           | \$694,719                | \$444,113            | \$1,138,832          | \$387,662           | 0.92        | 1.52        | 12.51%       |
| AIM Fuel 2, L.P.  | 2014         | \$1,500,000          | \$0                 | \$1,500,000                   | \$0               | \$940,211                | \$603,255            | \$1,543,466          | \$43,466            | 0.63        | 1.03        | 0.61%        |
| AIM Fuel, LLC   | 2011         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0               | \$1,443,806              | \$634,361            | \$2,078,167          | \$1,078,167         | 1.44        | 2.08        | 12.52%       |
| AIM Inspire America Fund, L.P.                                  | 2015         | \$1,000,000          | \$220,000           | \$780,000                     | \$0               | \$940,307                | \$0                  | \$940,307            | \$160,307           | 1.21        | 1.21        | 14.77%       |
| AIM Landfill, L.P.  | 2014         | \$1,250,000          | \$0                 | \$1,250,000                   | \$0               | \$2,637,632              | \$0                  | \$2,637,632          | \$1,387,632         | 2.11        | 2.11        | 21.48%       |
| AIM Marinas, L.P.   | 2015         | \$2,700,000          | \$0                 | \$2,700,000                   | \$10,680          | \$7,373,980              | \$298,517            | \$7,672,497          | \$4,961,817         | 2.72        | 2.83        | 35.83%       |
| AIM Midstream, LLC  | 2009         | \$2,250,000          | \$0                 | \$2,250,000                   | \$0               | \$2,576,335              | \$0                  | \$2,576,335          | \$326,335           | 1.15        | 1.15        | 4.22%        |
| AIM Storage, LLC  | 2011         | \$1,500,000          | \$0                 | \$1,500,000                   | \$0               | \$3,843,943              | \$0                  | \$3,843,943          | \$2,343,943         | 2.56        | 2.56        | 32.41%       |
| AIM Upstream, LLC   | 2012         | \$1,000,000          | \$0                 | \$1,000,000                   | \$0               | \$979,744                | \$0                  | \$979,744            | -\$20,256           | 0.98        | 0.98        | -0.97%       |
| AIM Water, LLC  | 2012         | \$1,500,000          | \$0                 | \$1,500,000                   | \$0               | \$190,239                | \$0                  | \$190,239            | -\$1,309,761        | 0.13        | 0.13        | -75.44%      |
| American Infrastructure MLP Fund II, L.P.                       | 2013         | \$7,500,000          | \$1,166,250         | \$6,333,750                   | \$6,824           | \$5,226,960              | \$2,281,399          | \$7,508,359          | \$1,167,785         | 0.82        | 1.18        | 4.44%        |
| American Infrastructure MLP Fund, L.P.                          | 2007         | \$15,000,000         | \$0                 | \$15,000,000                  | \$0               | \$18,151,365             | \$3,307,427          | \$21,458,792         | \$6,458,792         | 1.21        | 1.43        | 6.28%        |
| CIM Infrastructure Fund II, L.P.                                | 2018         | \$12,500,000         | \$5,375,567         | \$7,124,433                   | \$700,675         | \$42,529                 | \$9,032,673          | \$9,075,202          | \$1,250,095         | 0.01        | 1.16        | 9.35%        |
| Corrum Capital Aviation Investors 2018, L.P.                    | 2018         | \$5,000,000          | \$1,975,595         | \$3,024,405                   | -\$163,803        | \$0                      | \$2,837,770          | \$2,837,770          | -\$22,832           | 0.00        | 0.99        | -0.43%       |
| Corrum Capital Aviation Partners II, L.P.                       | 2019         | \$1,400,000          | \$258,871           | \$1,141,129                   | \$0               | \$37,800                 | \$1,129,953          | \$1,167,753          | \$26,624            | 0.03        | 1.02        | 1.60%        |
| Corrum Capital Aviation Partners, L.P.                          | 2017         | \$10,000,000         | \$1,712,538         | \$8,287,462                   | \$0               | \$376,811                | \$8,114,172          | \$8,490,983          | \$203,521           | 0.05        | 1.02        | 0.99%        |
| Golden Sciens Marine Investments, Ltd.                          | 2014         | \$10,000,000         | \$1,913,762         | \$8,086,238                   | -\$142,976        | \$0                      | \$2,325,509          | \$2,325,509          | -\$5,617,753        | 0.00        | 0.29        | -17.08%      |
| Sciens Aviation Special Opportunities Investment Fund III, L.P. | 2015         | \$15,000,000         | \$5,202,913         | \$9,797,087                   | -\$26,572         | \$11,529,120             | \$1,676,041          | \$13,205,161         | \$3,434,646         | 1.18        | 1.35        | 12.43%       |
| <b>Total Infrastructure</b>                                     |              | <b>\$95,766,875</b>  | <b>\$18,015,498</b> | <b>\$77,751,377</b>           | <b>\$390,472</b>  | <b>\$59,897,504</b>      | <b>\$34,847,915</b>  | <b>\$94,745,419</b>  | <b>\$16,603,570</b> | <b>0.77</b> | <b>1.21</b> | <b>5.21%</b> |



**MPERS**

# ANALYSIS BY INVESTMENT STRATEGY

| Investments                                  |              | Commitments          |                      | Contributions & Distributions |                  |                          | Valuations           |                      |                     | Performance |             |               |
|--|--------------|----------------------|----------------------|-------------------------------|------------------|--------------------------|----------------------|----------------------|---------------------|-------------|-------------|---------------|
| Investment Name                              | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees  | Cumulative Distributions | Valuation            | Total Value          | Net Benefit         | DPI         | TVPI        | IRR           |
| <b>Natural Resources</b>                     |              |                      |                      |                               |                  |                          |                      |                      |                     |             |             |               |
| Orion Co-Investments II, L.P.                | 2015         | \$1,500,000          | \$555,556            | \$944,444                     | \$0              | \$1,416,024              | \$8,713              | \$1,424,737          | \$480,292           | 1.50        | 1.51        | 14.16%        |
| Orion Co-Investments IV, L.P.                | 2015         | \$1,000,000          | \$99,138             | \$900,862                     | \$0              | \$323,288                | \$496,581            | \$819,869            | -\$80,992           | 0.36        | 0.91        | -3.67%        |
| Orion Mine Finance (Delaware) Fund II, L.P.  | 2017         | \$10,000,000         | \$905,188            | \$9,094,812                   | -\$21,064        | \$2,016,896              | \$10,890,190         | \$12,907,086         | \$3,833,337         | 0.22        | 1.42        | 14.22%        |
| Orion Mine Finance (Master) Fund I-A, L.P.   | 2014         | \$10,000,000         | \$1                  | \$9,999,999                   | \$21,489         | \$7,756,409              | \$6,141,420          | \$13,897,829         | \$3,876,341         | 0.77        | 1.39        | 9.53%         |
| Orion Mine Finance (Onshore) Fund III, L.P.  | 2019         | \$12,000,000         | \$4,286,921          | \$7,713,079                   | -\$15,519        | \$0                      | \$8,834,568          | \$8,834,568          | \$1,137,008         | 0.00        | 1.15        | 29.23%        |
| Orion Mine Finance Co-Fund II, L.P.          | 2017         | \$7,500,000          | \$735,710            | \$6,764,290                   | \$20,125         | \$3,037,154              | \$6,672,357          | \$9,709,511          | \$2,925,096         | 0.45        | 1.43        | 23.33%        |
| Orion Mine Finance Co-Fund III, L.P.         | 2019         | \$12,000,000         | \$12,000,000         | \$0                           | \$0              | \$0                      | \$0                  | \$0                  | \$0                 |             |             |               |
| Orion Mineral Royalty Fund, L.P.             | 2018         | \$15,000,000         | \$7,349,804          | \$7,650,196                   | -\$74,432        | \$0                      | \$8,407,380          | \$8,407,380          | \$831,617           | 0.00        | 1.11        | 12.10%        |
| <b>Total Natural Resources</b>               |              | <b>\$69,000,000</b>  | <b>\$25,932,319</b>  | <b>\$43,067,681</b>           | <b>-\$69,400</b> | <b>\$14,549,771</b>      | <b>\$41,451,209</b>  | <b>\$56,000,980</b>  | <b>\$13,002,699</b> | <b>0.34</b> | <b>1.30</b> | <b>13.02%</b> |
| <b>Timber</b>                                |              |                      |                      |                               |                  |                          |                      |                      |                     |             |             |               |
| Cowpens Land and Timber, LLC                 | 2016         | \$16,121,780         | \$0                  | \$16,121,780                  | \$0              | \$0                      | \$15,144,720         | \$15,144,720         | -\$977,060          | 0.00        | 0.94        | -1.91%        |
| Dawsonville Bluffs, LLC                      | 2017         | \$10,539,200         | \$0                  | \$10,539,200                  | \$0              | \$14,052,251             | \$1,509,975          | \$15,562,226         | \$5,023,026         | 1.33        | 1.48        | 27.19%        |
| Lake Murray, LLC                             | 2016         | \$1,217,230          | \$0                  | \$1,217,230                   | \$0              | \$144,401                | \$982,915            | \$1,127,316          | -\$89,914           | 0.12        | 0.93        | -1.96%        |
| Mission Sawmill Fund, LLC                    | 2020         | \$5,000,000          | \$4,488,947          | \$511,053                     | \$0              | \$0                      | \$441,551            | \$441,551            | -\$69,502           | 0.00        | 0.86        | -13.60%       |
| MKH Montana                                  | 2020         | \$15,000,000         | \$7,567,450          | \$7,432,550                   | \$0              | \$0                      | \$7,419,038          | \$7,419,038          | -\$13,512           | 0.00        | 1.00        | -0.18%        |
| MKH Montana North                            | 2020         | \$5,000,000          | \$3,200,000          | \$1,800,000                   | \$0              | \$0                      | \$1,800,000          | \$1,800,000          | \$0                 | 0.00        | 1.00        | 0.00%         |
| MP Timber, LLC                               | 2016         | \$46,074,359         | \$0                  | \$46,074,359                  | \$0              | \$13,894,200             | \$38,553,590         | \$52,447,790         | \$6,373,431         | 0.30        | 1.14        | 4.12%         |
| Muddy Waters Land and Timber, LLC            | 2017         | \$7,772,554          | \$0                  | \$7,772,554                   | \$0              | \$336,535                | \$6,807,620          | \$7,144,155          | -\$628,399          | 0.04        | 0.92        | -2.45%        |
| RMK Select Timberland Investment Fund I, LLC | 2000         | \$30,000,000         | \$0                  | \$30,000,000                  | \$0              | \$46,895,341             | \$0                  | \$46,895,341         | \$16,895,341        | 1.56        | 1.56        | 4.86%         |
| Rocky Top Timber, LLC                        | 2017         | \$8,674,834          | \$0                  | \$8,674,834                   | \$0              | \$1,915,965              | \$7,307,032          | \$9,222,997          | \$548,163           | 0.22        | 1.06        | 1.79%         |
| Rocky Top Uplands                            | 2020         | \$14,812,500         | \$3,140,291          | \$11,672,209                  | \$0              | \$493,750                | \$11,070,970         | \$11,564,720         | -\$107,489          | 0.04        | 0.99        | -1.43%        |
| Russellville Land and Timber, LLC            | 2017         | \$1,145,337          | \$0                  | \$1,145,337                   | \$2,680          | \$1,238,920              | \$888,705            | \$2,127,625          | \$979,608           | 1.08        | 1.85        | 32.70%        |
| Sandy River, LLC                             | 2017         | \$6,097,796          | \$0                  | \$6,097,796                   | \$0              | \$0                      | \$5,099,516          | \$5,099,516          | -\$998,280          | 0.00        | 0.84        | -5.36%        |
| Smallwood Homes, LLC                         | 2017         | \$1,418,333          | -\$150,165           | \$1,568,497                   | \$0              | \$200,000                | \$1,325,484          | \$1,525,484          | -\$43,013           | 0.13        | 0.97        | -0.82%        |
| <b>Total Timber</b>                          |              | <b>\$168,873,923</b> | <b>\$18,246,524</b>  | <b>\$150,627,400</b>          | <b>\$2,680</b>   | <b>\$79,171,363</b>      | <b>\$98,351,116</b>  | <b>\$177,522,479</b> | <b>\$26,892,400</b> | <b>0.53</b> | <b>1.18</b> | <b>4.26%</b>  |
| <b>Total</b>                                 |              | <b>\$599,780,191</b> | <b>\$122,371,726</b> | <b>\$477,408,466</b>          | <b>-\$33,057</b> | <b>\$232,593,003</b>     | <b>\$328,704,249</b> | <b>\$561,297,252</b> | <b>\$83,921,843</b> | <b>0.49</b> | <b>1.18</b> | <b>4.76%</b>  |



**MPERS**

# QUARTERLY TRANSACTION SUMMARY

| Fund Name   | Month Ended | Capital Call     | Additional Fee | Temp Return of Capital | Distribution      | Net Cash Flow     |
|---|-------------|------------------|----------------|------------------------|-------------------|-------------------|
| AIM Education, L.P.                                     | 12/31/2020  |                  | 1,170          |                        | -46,167           | -44,997           |
| <b>Total: AIM Education, L.P.</b>                       |             |                  | <b>1,170</b>   |                        | <b>-46,167</b>    | <b>-44,997</b>    |
| AIM Fuel 2, L.P.  | 10/31/2020  |                  |                |                        | -132,564          | -132,564          |
|   | 11/30/2020  |                  |                |                        | -74,642           | -74,642           |
|   | 12/31/2020  |                  |                |                        | -62,410           | -62,410           |
| <b>Total: AIM Fuel 2, L.P.</b>                          |             |                  |                |                        | <b>-269,616</b>   | <b>-269,616</b>   |
| AIM Fuel, LLC   | 10/31/2020  |                  |                |                        | -518,558          | -518,558          |
|   | 11/30/2020  |                  |                |                        | -75,336           | -75,336           |
|   | 12/31/2020  |                  |                |                        | -68,342           | -68,342           |
| <b>Total: AIM Fuel, LLC</b>                             |             |                  |                |                        | <b>-662,236</b>   | <b>-662,236</b>   |
| AIM Landfill, L.P.                                      | 11/30/2020  |                  |                |                        | -59,151           | -59,151           |
| <b>Total: AIM Landfill, L.P.</b>                        |             |                  |                |                        | <b>-59,151</b>    | <b>-59,151</b>    |
| AIM Marinas, L.P.                                       | 11/30/2020  |                  |                |                        | -4,083,539        | -4,083,539        |
|   | 12/31/2020  |                  | 10,680         |                        | -860,133          | -849,453          |
| <b>Total: AIM Marinas, L.P.</b>                         |             |                  | <b>10,680</b>  |                        | <b>-4,943,672</b> | <b>-4,932,992</b> |
| American Infrastructure MLP Fund II, L.P.               | 10/31/2020  |                  |                |                        | -551,471          | -551,471          |
|   | 11/30/2020  |                  |                |                        | -1,865,350        | -1,865,350        |
|   | 12/31/2020  |                  | 6,824          |                        | -303,941          | -297,117          |
| <b>Total: American Infrastructure MLP Fund II, L.P.</b> |             |                  | <b>6,824</b>   |                        | <b>-2,720,761</b> | <b>-2,713,937</b> |
| American Infrastructure MLP Fund, L.P.                  | 10/31/2020  |                  |                |                        | -532,200          | -532,200          |
|   | 11/30/2020  |                  |                |                        | -206,015          | -206,015          |
|   | 12/31/2020  |                  |                |                        | -73,203           | -73,203           |
| <b>Total: American Infrastructure MLP Fund, L.P.</b>    |             |                  |                |                        | <b>-811,418</b>   | <b>-811,418</b>   |
| Ares Energy Opportunities Fund A, L.P.                  | 10/31/2020  | 670,196          |                |                        |                   | 670,196           |
|   | 11/30/2020  | 586,520          |                | -580,336               | -6,184            | 0                 |
| <b>Total: Ares Energy Opportunities Fund A, L.P.</b>    |             | <b>1,256,716</b> |                | <b>-580,336</b>        | <b>-6,184</b>     | <b>670,196</b>    |



**MPERS**

# QUARTERLY TRANSACTION SUMMARY

| Fund Name  | Month Ended | Capital Call     | Additional Fee | Temp Return of Capital | Distribution    | Net Cash Flow    |
|--|-------------|------------------|----------------|------------------------|-----------------|------------------|
| Ares EPIC Co-Invest, L.P.                                  | 12/31/2020  | 26,410           | 5,193          |                        |                 | 31,603           |
| <b>Total: Ares EPIC Co-Invest, L.P.</b>                    |             | <b>26,410</b>    | <b>5,193</b>   |                        |                 | <b>31,603</b>    |
| CIM Infrastructure Fund II, L.P.                           | 10/31/2020  |                  | 46,875         |                        |                 | 46,875           |
|  | 11/30/2020  | 354,523          |                |                        |                 | 354,523          |
|  | 12/31/2020  | 1,222,555        |                |                        |                 | 1,222,555        |
| <b>Total: CIM Infrastructure Fund II, L.P.</b>             |             | <b>1,577,078</b> | <b>46,875</b>  |                        |                 | <b>1,623,953</b> |
| Columbia Spectrum Partners IV, L.P.                        | 11/30/2020  | 2,159,795        | 6,524          |                        |                 | 2,166,319        |
|  | 12/31/2020  |                  | -3,637         | -518,736               |                 | -522,373         |
| <b>Total: Columbia Spectrum Partners IV, L.P.</b>          |             | <b>2,159,795</b> | <b>2,887</b>   | <b>-518,736</b>        |                 | <b>1,643,946</b> |
| Corrum Capital Aviation Investors 2018, L.P.               | 10/31/2020  | 350,852          |                |                        |                 | 350,852          |
| <b>Total: Corrum Capital Aviation Investors 2018, L.P.</b> |             | <b>350,852</b>   |                |                        |                 | <b>350,852</b>   |
| Corrum Capital Aviation Partners II, L.P.                  | 12/31/2020  | 17,556           |                |                        |                 | 17,556           |
| <b>Total: Corrum Capital Aviation Partners II, L.P.</b>    |             | <b>17,556</b>    |                |                        |                 | <b>17,556</b>    |
| Corrum Capital Aviation Partners, L.P.                     | 12/31/2020  | 126,997          |                |                        |                 | 126,997          |
| <b>Total: Corrum Capital Aviation Partners, L.P.</b>       |             | <b>126,997</b>   |                |                        |                 | <b>126,997</b>   |
| Cowpens Land and Timber, LLC                               | 12/31/2020  | 100,424          |                |                        |                 | 100,424          |
| <b>Total: Cowpens Land and Timber, LLC</b>                 |             | <b>100,424</b>   |                |                        |                 | <b>100,424</b>   |
| Dawsonville Bluffs, LLC                                    | 10/31/2020  |                  |                |                        | -328,764        | -328,764         |
| <b>Total: Dawsonville Bluffs, LLC</b>                      |             |                  |                |                        | <b>-328,764</b> | <b>-328,764</b>  |
| EIF United States Power Fund III, L.P.                     | 12/31/2020  |                  |                |                        | -18,518         | -18,518          |
| <b>Total: EIF United States Power Fund III, L.P.</b>       |             |                  |                |                        | <b>-18,518</b>  | <b>-18,518</b>   |
| EMG AENO Co-Investment, L.P.                               | 12/31/2020  |                  |                |                        | -10,744         | -10,744          |
| <b>Total: EMG AENO Co-Investment, L.P.</b>                 |             |                  |                |                        | <b>-10,744</b>  | <b>-10,744</b>   |





**MPERS**

# QUARTERLY TRANSACTION SUMMARY

| Fund Name   | Month Ended | Capital Call     | Additional Fee | Temp Return of Capital | Distribution    | Net Cash Flow    |
|---|-------------|------------------|----------------|------------------------|-----------------|------------------|
| EMG Fund Spur Co-Investment, L.P.                       | 11/30/2020  |                  |                |                        | -13,937         | -13,937          |
| <b>Total: EMG Fund Spur Co-Investment, L.P.</b>         |             |                  |                |                        | <b>-13,937</b>  | <b>-13,937</b>   |
| EMG V Accordion, L.P.                                   | 11/30/2020  |                  | -10,106        | -108,092               |                 | -118,198         |
| <b>Total: EMG V Accordion, L.P.</b>                     |             |                  | <b>-10,106</b> | <b>-108,092</b>        |                 | <b>-118,198</b>  |
| EMG V, L.P.   | 11/30/2020  | 118,624          | -4,110         | -152                   |                 | 114,362          |
| <b>Total: EMG V, L.P.</b>                               |             | <b>118,624</b>   | <b>-4,110</b>  | <b>-152</b>            |                 | <b>114,362</b>   |
| Energy & Minerals Group Fund IV, L.P.                   | 11/30/2020  | 537,082          |                | -183,229               | -312,740        | 41,113           |
| <b>Total: Energy &amp; Minerals Group Fund IV, L.P.</b> |             | <b>537,082</b>   |                | <b>-183,229</b>        | <b>-312,740</b> | <b>41,113</b>    |
| Grey Rock Energy Fund II, L.P.                          | 12/31/2020  |                  |                |                        | -259,257        | -259,257         |
| <b>Total: Grey Rock Energy Fund II, L.P.</b>            |             |                  |                |                        | <b>-259,257</b> | <b>-259,257</b>  |
| Grey Rock Energy Fund III-A, L.P.                       | 10/31/2020  | 1,242,594        |                |                        |                 | 1,242,594        |
| <b>Total: Grey Rock Energy Fund III-A, L.P.</b>         |             | <b>1,242,594</b> |                |                        |                 | <b>1,242,594</b> |
| Lake Murray, LLC  | 12/31/2020  | 14,680           |                |                        |                 | 14,680           |
| <b>Total: Lake Murray, LLC</b>                          |             | <b>14,680</b>    |                |                        |                 | <b>14,680</b>    |
| Mission Sawmill Fund, LLC                               | 11/30/2020  | 511,053          |                |                        |                 | 511,053          |
| <b>Total: Mission Sawmill Fund, LLC</b>                 |             | <b>511,053</b>   |                |                        |                 | <b>511,053</b>   |
| MP Timber, LLC  | 10/31/2020  |                  |                |                        | -199,800        | -199,800         |
|   | 12/31/2020  | 2,845,669        |                |                        |                 | 2,845,669        |
| <b>Total: MP Timber, LLC</b>                            |             | <b>2,845,669</b> |                |                        | <b>-199,800</b> | <b>2,645,869</b> |
| NGP Midstream & Resources, L.P.                         | 12/31/2020  |                  |                |                        | -138,498        | -138,498         |
| <b>Total: NGP Midstream &amp; Resources, L.P.</b>       |             |                  |                |                        | <b>-138,498</b> | <b>-138,498</b>  |
| NGP Natural Resources X, L.P.                           | 12/31/2020  | 60,880           |                |                        | -88,455         | -27,575          |
| <b>Total: NGP Natural Resources X, L.P.</b>             |             | <b>60,880</b>    |                |                        | <b>-88,455</b>  | <b>-27,575</b>   |



**MPERS**

# QUARTERLY TRANSACTION SUMMARY

| Fund Name  | Month Ended | Capital Call     | Additional Fee | Temp Return of Capital | Distribution      | Net Cash Flow    |
|--|-------------|------------------|----------------|------------------------|-------------------|------------------|
| NGP Natural Resources XI, L.P.                                     | 10/31/2020  | 22,968           |                |                        |                   | 22,968           |
|  | 12/31/2020  | 10,271           |                |                        | -94,197           | -83,926          |
| <b>Total: NGP Natural Resources XI, L.P.</b>                       |             | <b>33,239</b>    |                |                        | <b>-94,197</b>    | <b>-60,958</b>   |
| NGP XI Luxe Coinvest, LLC  | 10/31/2020  | 72               |                |                        | -3,366            | -3,294           |
|  | 12/31/2020  | 175              |                |                        | -3,500            | -3,325           |
| <b>Total: NGP XI Luxe Coinvest, LLC</b>                            |             | <b>247</b>       |                |                        | <b>-6,866</b>     | <b>-6,619</b>    |
| Orion Co-Investments IV, L.P.                                      | 11/30/2020  | 31,781           |                |                        |                   | 31,781           |
| <b>Total: Orion Co-Investments IV, L.P.</b>                        |             | <b>31,781</b>    |                |                        |                   | <b>31,781</b>    |
| Orion Mine Finance (Delaware) Fund II, L.P.                        | 10/31/2020  | 887,285          |                |                        |                   | 887,285          |
|  | 11/30/2020  | 1,485,714        |                | -192,293               | -97,026           | 1,196,395        |
|  | 12/31/2020  |                  |                | 937                    | -127,681          | -886,840         |
| <b>Total: Orion Mine Finance (Delaware) Fund II, L.P.</b>          |             | <b>2,372,999</b> |                | <b>937</b>             | <b>-952,389</b>   | <b>1,196,841</b> |
| Orion Mine Finance (Master) Fund I-A, L.P.                         | 11/30/2020  | 52,171           |                |                        |                   | 52,171           |
| <b>Total: Orion Mine Finance (Master) Fund I-A, L.P.</b>           |             | <b>52,171</b>    |                |                        |                   | <b>52,171</b>    |
| Orion Mine Finance (Onshore) Fund III, L.P.                        | 10/31/2020  | 2,781,930        | -10,943        | -535,776               |                   | 2,235,211        |
|  | 12/31/2020  | 1,719,376        |                |                        |                   | 1,719,376        |
| <b>Total: Orion Mine Finance (Onshore) Fund III, L.P.</b>          |             | <b>4,501,306</b> | <b>-10,943</b> | <b>-535,776</b>        |                   | <b>3,954,587</b> |
| Orion Mine Finance Co-Fund II, L.P.                                | 10/31/2020  | 2,345,941        |                |                        |                   | 2,345,941        |
|  | 11/30/2020  |                  |                |                        | -234,757          | -234,757         |
|  | 12/31/2020  |                  |                | 10,103                 | -1,085,322        | -1,075,219       |
| <b>Total: Orion Mine Finance Co-Fund II, L.P.</b>                  |             | <b>2,345,941</b> |                | <b>10,103</b>          | <b>-1,320,079</b> | <b>1,035,965</b> |
| Orion Mineral Royalty Fund, L.P.                                   | 11/30/2020  |                  | -12,987        | -272,249               |                   | -285,236         |
| <b>Total: Orion Mineral Royalty Fund, L.P.</b>                     |             |                  | <b>-12,987</b> | <b>-272,249</b>        |                   | <b>-285,236</b>  |
| Quantum Energy Partners VII Co-Investment Fund, L.P.               | 11/30/2020  | 62,291           |                |                        |                   | 62,291           |
| <b>Total: Quantum Energy Partners VII Co-Investment Fund, L.P.</b> |             | <b>62,291</b>    |                |                        |                   | <b>62,291</b>    |



**MPERS**

# QUARTERLY TRANSACTION SUMMARY

| Fund Name  | Month Ended | Capital Call      | Additional Fee | Temp Return of Capital | Distribution       | Net Cash Flow    |
|--|-------------|-------------------|----------------|------------------------|--------------------|------------------|
| Quantum Energy Partners VII, L.P.                          | 12/31/2020  | 315,098           |                | -62,985                | -3,053             | 249,059          |
| <b>Total: Quantum Energy Partners VII, L.P.</b>            |             | <b>315,098</b>    |                | <b>-62,985</b>         | <b>-3,053</b>      | <b>249,059</b>   |
| REOG Fund II Coinvest, L.P.                                | 12/31/2020  |                   |                |                        | -18,596            | -18,596          |
| <b>Total: REOG Fund II Coinvest, L.P.</b>                  |             |                   |                |                        | <b>-18,596</b>     | <b>-18,596</b>   |
| Ridgewood Energy Oil & Gas Fund II, L.P.                   | 12/31/2020  | 51,597            |                |                        | -75,907            | -24,310          |
| <b>Total: Ridgewood Energy Oil &amp; Gas Fund II, L.P.</b> |             | <b>51,597</b>     |                |                        | <b>-75,907</b>     | <b>-24,310</b>   |
| Ridgewood Energy Oil & Gas Fund IV, L.P.                   | 12/31/2020  | 130,128           |                |                        |                    | 130,128          |
| <b>Total: Ridgewood Energy Oil &amp; Gas Fund IV, L.P.</b> |             | <b>130,128</b>    |                |                        |                    | <b>130,128</b>   |
| Rocky Top Timber, LLC                                      | 10/31/2020  |                   |                |                        | -995,000           | -995,000         |
| <b>Total: Rocky Top Timber, LLC</b>                        |             |                   |                |                        | <b>-995,000</b>    | <b>-995,000</b>  |
| Rocky Top Uplands  | 10/31/2020  |                   |                |                        | -493,750           | -493,750         |
| <b>Total: Rocky Top Uplands</b>                            |             |                   |                |                        | <b>-493,750</b>    | <b>-493,750</b>  |
| Sandy River, LLC   | 12/31/2020  | 119,649           |                |                        |                    | 119,649          |
| <b>Total: Sandy River, LLC</b>                             |             | <b>119,649</b>    |                |                        |                    | <b>119,649</b>   |
| Smallwood Homes, LLC                                       | 12/31/2020  | 16,079            |                |                        |                    | 16,079           |
| <b>Total: Smallwood Homes, LLC</b>                         |             | <b>16,079</b>     |                |                        |                    | <b>16,079</b>    |
| Turnbridge Capital Partners I, L.P.                        | 12/31/2020  | 754,059           |                |                        |                    | 754,059          |
| <b>Total: Turnbridge Capital Partners I, L.P.</b>          |             | <b>754,059</b>    |                |                        |                    | <b>754,059</b>   |
| <b>Grand Total</b>   |             | <b>21,732,995</b> | <b>46,524</b>  | <b>-3,213,943</b>      | <b>-14,122,074</b> | <b>4,443,502</b> |



# PME Analysis

## Public Markets Equivalent (PME)

| Investments                             |              |                                      | PME Valuation (ICM) |                     |                    | PME Multiples (Kaplan Schoar) |               |                         | PME Returns (Direct Alpha) |                  |                       |
|---|--------------|--------------------------------------|---------------------|---------------------|--------------------|-------------------------------|---------------|-------------------------|----------------------------|------------------|-----------------------|
| Investment Name                         | Vintage Year | Benchmark                            | Valuation           | Valuation ICM       | Valuation Spread   | TVPI                          | Kaplan Schoar | Market Related Multiple | SI IRR                     | Direct Alpha PME | Market Related Return |
| <b>Agriculture</b>                      |              |                                      |                     |                     |                    |                               |               |                         |                            |                  |                       |
| Blue Road Capital, L.P.                 | 2015         | S&P Global Natural Resources Net USD | \$7,994,347         | \$7,454,101         | \$540,246          | 1.38                          | 1.04          | 1.33                    | 9.03%                      | 1.79%            | 7.24%                 |
| Blue Road Co-Inv - BR Superfoods, LLC   | 2019         | S&P Global Natural Resources Net USD | \$1,266,970         | \$1,026,215         | \$240,755          | 1.27                          | 1.23          | 1.03                    | 17.07%                     | 15.07%           | 2.00%                 |
| BRC National Pecan Co-Invest, L.P.      | 2015         | S&P Global Natural Resources Net USD | \$4,041,966         | \$2,885,030         | \$1,156,936        | 1.95                          | 1.38          | 1.41                    | 16.00%                     | 7.66%            | 8.34%                 |
| <b>Total Agriculture</b>                |              |                                      | <b>\$13,303,283</b> | <b>\$11,365,345</b> | <b>\$1,937,938</b> | <b>1.50</b>                   | <b>1.11</b>   | <b>1.35</b>             | <b>11.55%</b>              | <b>4.11%</b>     | <b>7.44%</b>          |
| <b>Energy</b>                           |              |                                      |                     |                     |                    |                               |               |                         |                            |                  |                       |
| Ares Energy Opportunities Fund A, L.P.  | 2019         | S&P 500 Energy                       | \$7,736,282         | \$10,826,847        | -\$3,090,565       | 0.57                          | 0.73          | 0.78                    | -35.18%                    | -25.26%          | -9.92%                |
| Ares EPIC Co-Invest, L.P.               | 2019         | S&P 500 Energy                       | \$1,511,309         | \$974,367           | \$536,942          | 1.01                          | 1.55          | 0.65                    | 0.90%                      | 30.31%           | -29.41%               |
| Ares SCM Co-Invest, L.P.                | 2018         | S&P 500 Energy                       | \$106               | \$654,329           | -\$654,223         | 0.00                          | 0.00          | 0.65                    |                            |                  |                       |
| Columbia Spectrum Partners IV, L.P.     | 2020         | S&P Global Natural Resources Net USD | \$1,616,479         | \$1,832,306         | -\$215,827         | 0.98                          | 0.91          | 1.08                    | -1.33%                     | -9.56%           | 8.23%                 |
| EIF United States Power Fund III, L.P.  | 2007         | S&P 500 Energy                       | \$2,351,203         | \$1,183,138         | \$1,168,065        | 1.27                          | 1.12          | 1.14                    | 3.64%                      | 2.00%            | 1.65%                 |
| EMG AE Permian Co-Investment, L.P.      | 2014         | S&P Global Natural Resources Net USD | \$0                 | \$2,044,449         | -\$2,044,449       | 0.00                          | 0.00          |                         |                            |                  |                       |
| EMG AENO Co-Investment, L.P.            | 2014         | S&P Global Natural Resources Net USD | \$1,759,991         | \$2,062,833         | -\$302,842         | 0.98                          | 0.85          | 1.15                    | -0.35%                     | -2.54%           | 2.20%                 |
| EMG Ascent 2016 Equity, L.P.            | 2016         | S&P Global Natural Resources Net USD | \$3,577,394         | \$4,965,364         | -\$1,387,970       | 1.20                          | 0.72          | 1.66                    | 3.77%                      | -6.51%           | 10.28%                |
| EMG Ascent Secondary Fund, L.P.         | 2017         | S&P Global Natural Resources Net USD | \$170,013           | \$123,524           | \$46,489           | 1.45                          | 1.38          | 1.06                    | 12.93%                     | 10.89%           | 2.04%                 |
| EMG Fund II Ascent Co-Investment, L.P.  | 2015         | S&P Global Natural Resources Net USD | \$0                 | -\$26,688           | \$26,688           | 1.00                          | 1.04          | 0.96                    | 0.00%                      | 32.97%           | -32.97%               |
| EMG Fund III Ascent Co-Investment, L.P. | 2015         | S&P Global Natural Resources Net USD | \$0                 |                     |                    | 1.00                          | 1.04          | 0.96                    | -2.47%                     | 28.96%           | -31.43%               |
| EMG Fund Spur Co-Investment, L.P.       | 2019         | S&P Global Natural Resources Net USD | \$1,198,847         | \$1,021,807         | \$177,040          | 1.25                          | 1.16          | 1.07                    | 20.96%                     | 14.16%           | 6.80%                 |
| EMG Iron Ore Co-Investment, L.P.        | 2019         | S&P Global Natural Resources Net USD | \$4,439,941         | \$2,998,986         | \$1,440,955        | 1.60                          | 1.48          | 1.08                    | 33.61%                     | 27.16%           | 6.44%                 |
| EMG PRES Equity, L.P.                   | 2017         | S&P Global Natural Resources Net USD | \$735               | \$3,733,398         | -\$3,732,663       | 0.00                          | 0.00          | 1.16                    |                            |                  |                       |
| EMG Traverse Co-Investment, L.P.        | 2016         | S&P Global Natural Resources Net USD | \$1,504,865         | \$2,352,842         | -\$847,977         | 0.80                          | 0.65          | 1.22                    | -5.69%                     | -10.43%          | 4.73%                 |
| EMG V Accordion, L.P.                   | 2019         | S&P Global Natural Resources Net USD | \$3,509,360         | \$2,497,197         | \$1,012,163        | 1.54                          | 1.33          | 1.16                    | 34.05%                     | 25.89%           | 8.16%                 |
| EMG V, L.P.                             | 2019         | S&P Global Natural Resources Net USD | \$9,012,990         | \$6,716,339         | \$2,296,651        | 1.46                          | 1.29          | 1.13                    | 29.22%                     | 22.18%           | 7.05%                 |
| Energy & Minerals Group Fund II, L.P.   | 2012         | S&P Global Natural Resources Net USD | \$10,597,369        | \$532,607           | \$10,064,762       | 2.02                          | 1.86          | 1.09                    | 14.56%                     | 13.46%           | 1.10%                 |
| Energy & Minerals Group Fund III, L.P.  | 2014         | S&P Global Natural Resources Net USD | \$4,723,040         | \$10,603,817        | -\$5,880,777       | 0.58                          | 0.51          | 1.12                    | -10.41%                    | -13.18%          | 2.76%                 |
| Energy & Minerals Group Fund IV, L.P.   | 2015         | S&P Global Natural Resources Net USD | \$19,759,725        | \$21,129,510        | -\$1,369,785       | 1.36                          | 0.96          | 1.42                    | 9.13%                      | -1.48%           | 10.61%                |
| Grey Rock Energy Fund II, L.P.          | 2016         | S&P 500 Energy                       | \$9,375,108         | \$5,153,455         | \$4,221,653        | 1.07                          | 1.68          | 0.64                    | 2.10%                      | 16.42%           | -14.32%               |
| Grey Rock Energy Fund III-A, L.P.       | 2018         | S&P 500 Energy                       | \$12,685,587        | \$9,025,533         | \$3,660,054        | 1.08                          | 1.39          | 0.78                    | 5.87%                      | 30.94%           | -25.07%               |
| Natural Gas Partners IX, L.P.           | 2007         | S&P 500 Energy                       | \$343,045           | -\$1,133,805        | \$1,476,850        | 1.48                          | 1.14          | 1.29                    | 10.92%                     | 3.78%            | 7.14%                 |
| NGP Boaz Energy II Co-Invest, LLC       | 2016         | S&P 500 Energy                       | \$86,876            | \$471,712           | -\$384,836         | 0.45                          | 0.43          | 1.04                    | -25.80%                    | -24.63%          | -1.17%                |
| NGP Camino Follow-On, LLC               | 2018         | S&P 500 Energy                       | \$750,002           | \$900,450           | -\$150,448         | 0.75                          | 0.83          | 0.90                    | -14.04%                    | -10.98%          | -3.06%                |



## PME Analysis

| Investments  |              |                                  | PME Valuation (ICM)  |                      |                     | PME Multiples (Kaplan Schoar) |               |                         | PME Returns (Direct Alpha) |                  |                       |
|--|--------------|----------------------------------|----------------------|----------------------|---------------------|-------------------------------|---------------|-------------------------|----------------------------|------------------|-----------------------|
| Investment Name                                      | Vintage Year | Benchmark                        | Valuation            | Valuation ICM        | Valuation Spread    | TVPI                          | Kaplan Schoar | Market Related Multiple | SI IRR                     | Direct Alpha PME | Market Related Return |
| NGP Midstream & Resources, L.P.                      | 2007         | S&P 500 Energy                   | \$727,008            | -\$3,676,094         | \$4,403,102         | 1.83                          | 1.49          | 1.23                    | 13.48%                     | 8.92%            | 4.56%                 |
| NGP Natural Resources X, L.P.                        | 2012         | S&P 500 Energy                   | \$1,417,925          | \$980,902            | \$437,023           | 0.94                          | 1.07          | 0.88                    | -1.91%                     | 1.98%            | -3.89%                |
| NGP Natural Resources XI, L.P.                       | 2014         | S&P 500 Energy                   | \$7,925,919          | \$5,515,863          | \$2,410,056         | 0.98                          | 1.30          | 0.76                    | -0.67%                     | 9.13%            | -9.79%                |
| NGP XI Luxe Coinvest, LLC                            | 2017         | S&P 500 Energy                   | \$908,750            | \$1,077,063          | -\$168,313          | 0.66                          | 0.85          | 0.77                    | -17.04%                    | -7.94%           | -9.10%                |
| NGP XI Midstream Coinvest, LLC                       | 2016         | S&P 500 Energy                   | \$783,651            | \$573,128            | \$210,523           | 0.94                          | 1.36          | 0.69                    | -2.09%                     | 10.76%           | -12.85%               |
| Quantum Energy Partners VII Co-Investment Fund, L.P. | 2017         | S&P 500 Energy                   | \$1,353,322          | \$649,213            | \$704,109           | 1.51                          | 2.06          | 0.74                    | 21.01%                     | 42.85%           | -21.84%               |
| Quantum Energy Partners VII, L.P.                    | 2017         | S&P 500 Energy                   | \$10,699,002         | \$6,023,785          | \$4,675,217         | 1.26                          | 1.70          | 0.74                    | 11.19%                     | 31.47%           | -20.28%               |
| REOG Fund II Coinvest, L.P.                          | 2013         | S&P 500 Energy                   | \$1,595,436          | \$497,120            | \$1,098,316         | 1.44                          | 2.07          | 0.69                    | 9.36%                      | 19.22%           | -9.86%                |
| Ridgewood Energy Oil & Gas Fund II, L.P.             | 2013         | S&P 500 Energy                   | \$5,274,277          | \$4,214,671          | \$1,059,606         | 0.87                          | 1.17          | 0.75                    | -3.49%                     | 4.04%            | -7.53%                |
| Ridgewood Energy Oil & Gas Fund III, L.P.            | 2015         | S&P 500 Energy                   | \$6,704,561          | \$5,191,736          | \$1,512,825         | 1.08                          | 1.28          | 0.84                    | 3.97%                      | 15.01%           | -11.04%               |
| Ridgewood Energy Oil & Gas Fund IV, L.P.             | 2019         | S&P 500 Energy                   | \$130,128            | \$123,025            | \$7,103             | 1.00                          | 1.06          | 0.95                    | 0.00%                      | 5.77%            | -5.77%                |
| TCP Brigade CIV, L.P.                                | 2017         | S&P 500 Energy                   | \$704,117            | \$674,079            | \$30,038            | 0.70                          | 1.04          | 0.67                    | -11.05%                    | 1.45%            | -12.51%               |
| TCP Probe CIV, L.P.                                  | 2017         | S&P 500 Energy                   | \$965,285            | \$650,363            | \$314,922           | 0.97                          | 1.48          | 0.65                    | -1.14%                     | 13.62%           | -14.75%               |
| Turnbridge Capital Partners I, L.P.                  | 2014         | S&P 500 Energy                   | \$4,851,078          | \$4,757,936          | \$93,142            | 0.70                          | 1.01          | 0.69                    | -7.84%                     | 0.45%            | -8.29%                |
| <b>Total Energy</b>                                  |              |                                  | <b>\$140,750,726</b> | <b>\$117,767,165</b> | <b>\$22,983,561</b> | <b>1.12</b>                   | <b>1.11</b>   | <b>1.00</b>             | <b>3.63%</b>               | <b>3.64%</b>     | <b>-0.02%</b>         |
| <b>Infrastructure</b>                                |              |                                  |                      |                      |                     |                               |               |                         |                            |                  |                       |
| AIM Ag Infra, L.P.                                   | 2015         | S&P Global Infrastructure TR USD | \$0                  | \$1,112,251          | -\$1,112,251        | 0.00                          | 0.00          |                         |                            |                  |                       |
| AIM Bridge, LLC                                      | 2010         | S&P Global Infrastructure TR USD | \$2,024,981          | \$2,361,949          | -\$336,968          | 1.70                          | 0.89          | 1.92                    | 6.19%                      | -1.34%           | 7.53%                 |
| AIM Cemetery Infrastructure, L.P.                    | 2014         | S&P Global Infrastructure TR USD | \$137,744            | \$853,235            | -\$715,491          | 0.36                          | 0.32          | 1.12                    | -23.32%                    | -26.71%          | 3.39%                 |
| AIM Dividend Growth Fund, L.P.                       | 2016         | S&P Global Infrastructure TR USD | \$0                  | -\$529,019           | \$529,019           | 1.48                          | 1.26          | 1.18                    | 16.99%                     | 9.53%            | 7.46%                 |
| AIM Education, L.P.                                  | 2016         | S&P Global Infrastructure TR USD | \$444,113            | \$177,246            | \$266,867           | 1.52                          | 1.28          | 1.18                    | 12.51%                     | 7.22%            | 5.29%                 |
| AIM Fuel 2, L.P.                                     | 2014         | S&P Global Infrastructure TR USD | \$603,255            | \$889,044            | -\$285,789          | 1.03                          | 0.86          | 1.20                    | 0.61%                      | -3.37%           | 3.98%                 |
| AIM Fuel, LLC  | 2011         | S&P Global Infrastructure TR USD | \$634,361            | \$76,830             | \$557,531           | 2.08                          | 1.29          | 1.61                    | 12.52%                     | 4.35%            | 8.18%                 |
| AIM Inspire America Fund, L.P.                       | 2015         | S&P Global Infrastructure TR USD | \$0                  | \$41,672             | -\$41,672           | 1.21                          | 0.96          | 1.25                    | 14.77%                     | -2.86%           | 17.63%                |
| AIM Landfill, L.P.                                   | 2014         | S&P Global Infrastructure TR USD | \$0                  | -\$1,291,662         | \$1,291,662         | 2.11                          | 1.80          | 1.17                    | 21.48%                     | 16.82%           | 4.66%                 |
| AIM Marinas, L.P.                                    | 2015         | S&P Global Infrastructure TR USD | \$298,517            | -\$4,535,593         | \$4,834,110         | 2.83                          | 2.36          | 1.20                    | 35.83%                     | 28.34%           | 7.49%                 |
| AIM Midstream, LLC                                   | 2009         | S&P Global Infrastructure TR USD | \$0                  | \$432,496            | -\$432,496          | 1.15                          | 0.90          | 1.27                    | 4.22%                      | -3.30%           | 7.52%                 |
| AIM Storage, LLC                                     | 2011         | S&P Global Infrastructure TR USD | \$0                  |                      |                     | 2.56                          | 2.05          | 1.25                    | 32.41%                     | 24.23%           | 8.18%                 |
| AIM Upstream, LLC                                    | 2012         | S&P Global Infrastructure TR USD | \$0                  | \$449,653            | -\$449,653          | 0.98                          | 0.73          | 1.35                    | -0.97%                     | -14.36%          | 13.39%                |
| AIM Water, LLC                                       | 2012         | S&P Global Infrastructure TR USD | \$0                  | \$1,782,705          | -\$1,782,705        | 0.13                          | 0.12          | 1.07                    | -75.44%                    | -77.75%          | 2.31%                 |
| American Infrastructure MLP Fund II, L.P.            | 2013         | S&P Global Infrastructure TR USD | \$2,281,399          | \$2,304,955          | -\$23,556           | 1.18                          | 1.00          | 1.19                    | 4.44%                      | -0.07%           | 4.51%                 |
| American Infrastructure MLP Fund, L.P.               | 2007         | S&P 500 Energy                   | \$3,307,427          | -\$1,979,255         | \$5,286,682         | 1.43                          | 1.43          | 1.00                    | 6.28%                      | 6.86%            | -0.59%                |
| CIM Infrastructure Fund II, L.P.                     | 2018         | S&P Global Infrastructure TR USD | \$9,032,673          | \$8,379,693          | \$652,980           | 1.16                          | 1.07          | 1.09                    | 9.35%                      | 4.55%            | 4.80%                 |



MPERS

# PME Analysis

| Investments   |              |                                      | PME Valuation (ICM)  |                      |                      | PME Multiples (Kaplan Schoar) |               |                         | PME Returns (Direct Alpha) |                  |                       |
|---|--------------|--------------------------------------|----------------------|----------------------|----------------------|-------------------------------|---------------|-------------------------|----------------------------|------------------|-----------------------|
| Investment Name   | Vintage Year | Benchmark                            | Valuation            | Valuation ICM        | Valuation Spread     | TVPI                          | Kaplan Schoar | Market Related Multiple | SI IRR                     | Direct Alpha PME | Market Related Return |
| Corrum Capital Aviation Investors 2018, L.P.                    | 2018         | S&P Global Infrastructure TR USD     | \$2,837,770          | \$2,809,392          | \$28,378             | 0.99                          | 1.00          | 0.99                    | -0.43%                     | 0.54%            | -0.97%                |
| Corrum Capital Aviation Partners II, L.P.                       | 2019         | S&P Global Infrastructure TR USD     | \$1,129,953          | \$1,112,330          | \$17,623             | 1.02                          | 1.02          | 1.01                    | 1.60%                      | 1.05%            | 0.55%                 |
| Corrum Capital Aviation Partners, L.P.                          | 2017         | S&P Global Infrastructure TR USD     | \$8,114,172          | \$8,584,478          | -\$470,306           | 1.02                          | 0.95          | 1.08                    | 0.99%                      | -2.15%           | 3.14%                 |
| Golden Sciens Marine Investments, Ltd.                          | 2014         | S&P Global Infrastructure TR USD     | \$2,325,509          | \$9,814,353          | -\$7,488,844         | 0.29                          | 0.49          | 0.60                    | -17.08%                    | -19.61%          | 2.53%                 |
| Sciens Aviation Special Opportunities Investment Fund III, L.P. | 2015         | S&P Global Infrastructure TR USD     | \$1,676,041          | -\$160,419           | \$1,836,460          | 1.35                          | 1.07          | 1.26                    | 12.43%                     | 5.49%            | 6.94%                 |
| <b>Total Infrastructure</b>                                     |              |                                      | <b>\$34,847,915</b>  | <b>\$30,142,125</b>  | <b>\$4,705,790</b>   | <b>1.21</b>                   | <b>1.04</b>   | <b>1.17</b>             | <b>5.21%</b>               | <b>1.37%</b>     | <b>3.84%</b>          |
| <b>Natural Resources</b>  |              |                                      |                      |                      |                      |                               |               |                         |                            |                  |                       |
| Orion Co-Investments II, L.P.                                   | 2015         | S&P Global Natural Resources Net USD | \$8,713              | -\$131,779           | \$140,492            | 1.51                          | 1.08          | 1.40                    | 14.16%                     | 3.04%            | 11.13%                |
| Orion Co-Investments IV, L.P.                                   | 2015         | S&P Global Natural Resources Net USD | \$496,581            | \$690,120            | -\$193,539           | 0.91                          | 0.82          | 1.10                    | -3.67%                     | -7.45%           | 3.79%                 |
| Orion Mine Finance (Delaware) Fund II, L.P.                     | 2017         | S&P Global Natural Resources Net USD | \$10,890,190         | \$7,851,472          | \$3,038,718          | 1.42                          | 1.17          | 1.21                    | 14.22%                     | 10.26%           | 3.96%                 |
| Orion Mine Finance (Master) Fund I-A, L.P.                      | 2014         | S&P Global Natural Resources Net USD | \$6,141,420          | \$5,151,663          | \$989,757            | 1.39                          | 1.06          | 1.30                    | 9.53%                      | 1.94%            | 7.59%                 |
| Orion Mine Finance (Onshore) Fund III, L.P.                     | 2019         | S&P Global Natural Resources Net USD | \$8,834,568          | \$8,710,453          | \$124,115            | 1.15                          | 1.01          | 1.14                    | 29.23%                     | 2.78%            | 26.44%                |
| Orion Mine Finance Co-Fund II, L.P.                             | 2017         | S&P Global Natural Resources Net USD | \$6,672,357          | \$3,824,054          | \$2,848,303          | 1.43                          | 1.38          | 1.03                    | 23.33%                     | 22.04%           | 1.29%                 |
| Orion Mine Finance Co-Fund III, L.P.                            | 2019         | S&P Global Natural Resources Net USD | \$0                  |                      |                      |                               |               |                         |                            |                  |                       |
| Orion Mineral Royalty Fund, L.P.                                | 2018         | S&P Global Natural Resources Net USD | \$8,407,380          | \$6,426,543          | \$1,980,837          | 1.11                          | 1.09          | 1.01                    | 12.10%                     | 32.29%           | -20.19%               |
| <b>Total Natural Resources</b>                                  |              |                                      | <b>\$41,451,209</b>  | <b>\$32,522,525</b>  | <b>\$8,928,684</b>   | <b>1.30</b>                   | <b>1.12</b>   | <b>1.17</b>             | <b>13.02%</b>              | <b>7.54%</b>     | <b>5.48%</b>          |
| <b>Timber</b>   |              |                                      |                      |                      |                      |                               |               |                         |                            |                  |                       |
| Cowpens Land and Timber, LLC                                    | 2016         | S&P Global Natural Resources Net USD | \$15,144,720         | \$18,375,757         | -\$3,231,037         | 0.94                          | 0.82          | 1.14                    | -1.91%                     | -5.74%           | 3.83%                 |
| Dawsonville Bluffs, LLC   | 2017         | S&P Global Natural Resources Net USD | \$1,509,975          | -\$1,605,713         | \$3,115,688          | 1.48                          | 1.25          | 1.19                    | 27.19%                     | 13.92%           | 13.27%                |
| Lake Murray, LLC  | 2016         | S&P Global Natural Resources Net USD | \$982,915            | \$1,436,019          | -\$453,104           | 0.93                          | 0.71          | 1.30                    | -1.96%                     | -8.32%           | 6.36%                 |
| Mission Sawmill Fund, LLC                                       | 2020         | S&P Global Natural Resources Net USD | \$441,551            | \$606,689            | -\$165,138           | 0.86                          | 0.73          | 1.19                    | -13.60%                    | -27.22%          | 13.62%                |
| MKH Montana   | 2020         | S&P Global Natural Resources Net USD | \$7,419,038          | \$8,864,427          | -\$1,445,389         | 1.00                          | 0.84          | 1.19                    | -0.18%                     | -16.31%          | 16.12%                |
| MKH Montana North   | 2020         | S&P Global Natural Resources Net USD | \$1,800,000          | \$2,108,097          | -\$308,097           | 1.00                          | 0.85          | 1.17                    | 0.00%                      | -14.61%          | 14.61%                |
| MP Timber, LLC  | 2016         | S&P Global Natural Resources Net USD | \$38,553,590         | \$48,597,986         | -\$10,044,396        | 1.14                          | 0.85          | 1.35                    | 4.12%                      | -4.93%           | 9.05%                 |
| Muddy Waters Land and Timber, LLC                               | 2017         | S&P Global Natural Resources Net USD | \$6,807,620          | \$8,925,477          | -\$2,117,857         | 0.92                          | 0.77          | 1.19                    | -2.45%                     | -7.36%           | 4.91%                 |
| RMK Select Timberland Investment Fund I, LLC                    | 2000         | S&P 500 Energy                       | \$0                  | \$37,838,346         | -\$37,838,346        | 1.56                          | 0.63          | 2.47                    | 4.86%                      | -4.93%           | 9.79%                 |
| Rocky Top Timber, LLC   | 2017         | S&P Global Natural Resources Net USD | \$7,307,032          | \$8,203,792          | -\$896,760           | 1.06                          | 0.91          | 1.16                    | 1.79%                      | -2.59%           | 4.38%                 |
| Rocky Top Uplands   | 2020         | S&P Global Natural Resources Net USD | \$11,070,970         | \$13,023,082         | -\$1,952,112         | 0.99                          | 0.86          | 1.16                    | -1.43%                     | -22.19%          | 20.77%                |
| Russellville Land and Timber, LLC                               | 2017         | S&P Global Natural Resources Net USD | \$888,705            | -\$120,696           | \$1,009,402          | 1.85                          | 1.81          | 1.02                    | 32.70%                     | 31.80%           | 0.90%                 |
| Sandy River, LLC  | 2017         | S&P Global Natural Resources Net USD | \$5,099,516          | \$7,438,510          | -\$2,338,994         | 0.84                          | 0.69          | 1.22                    | -5.36%                     | -11.00%          | 5.64%                 |
| Smallwood Homes, LLC  | 2017         | S&P Global Natural Resources Net USD | \$1,325,484          | \$1,649,948          | -\$324,464           | 0.97                          | 0.83          | 1.17                    | -0.82%                     | -5.51%           | 4.69%                 |
| <b>Total Timber</b>   |              |                                      | <b>\$98,351,116</b>  | <b>\$155,341,720</b> | <b>-\$56,990,604</b> | <b>1.18</b>                   | <b>0.78</b>   | <b>1.52</b>             | <b>4.26%</b>               | <b>-4.94%</b>    | <b>9.19%</b>          |
| <b>Total</b>  |              |                                      | <b>\$328,704,249</b> | <b>\$347,138,881</b> | <b>-\$18,434,632</b> | <b>1.18</b>                   | <b>0.97</b>   | <b>1.21</b>             | <b>4.76%</b>               | <b>-0.69%</b>    | <b>5.46%</b>          |



# GLOSSARY OF TERMS

- **Commitment**– The amount an investor has committed to invest with the General Partner
- **Paid In Capital** – The amount an investor has contributed for investments and management fees, minus recallable distributions
- **Unfunded Commitment**– The remaining amount an investor is contractually obligated to contribute for investment
- **Additional Fees** – Fees that are paid outside the capital commitment, also includes interest paid/received due from subsequent closings of the fund
- **Cumulative Distributions** – The amount an investor has received from realized and partially realized investments
- **Valuation** – Sum of the fair market value of all investments plus cash
- **Call Ratio** – Calculated by dividing Paid in Capital by Commitment
- **Market Exposure** – Calculated by adding Reported Value to Unfunded Commitment
- **Total Value** – Calculated by adding Cumulative Distributions and Valuation. Represents the total amount an investor should expect to receive from their investments
- **Net Benefit** – Calculated by subtracting (Paid In Capital + Additional Fees) from Total Value.
- **Distributions to Paid In Capital (DPI) Ratio\*\*** - Calculated by dividing Cumulative Distributions by (Paid In Capital + Additional Fees)
- **Total Value to Paid In Capital (TVPI) Ratio\*\*** – Calculated by dividing Total Value by (Paid in Capital + Additional Fees). Represents the multiple of the overall cash invested that an investor is expected to receive
- **IRR** - The calculation of the IRR (Internal Rate of Return) takes into consideration the timing of cash contributions and distributions to and from the partnerships, the length of time the investments have been held and the sum of the Valuation. It is the discount rate at which the net present value of all cash flows and the valuation is equal to zero.
- **Direct Alpha PME** - The calculation is deduced from the Kaplan Schoar PME calculation by computing an IRR of the discounted cash flows and taking the natural logarithm of the resulting IRR.
- **Market Related Multiple** - Calculated by dividing the TVPI by the Kaplan Schoar PME.
- **Market Related Return** - Calculated by subtracting the Direct Alpha PME from the since inception IRR.
- **Valuation ICM** – The valuation equivalent that ICM calculates for the public market is called valuation ICM
- **KS PME** – The Kaplan Schoar Public Markets Equivalent is a ratio of the future value of all distributions divided by the future value of all contributions using the index return as the discount rate. The ending valuation is treated as a distribution in this method
- **\*\*Note that NEPC uses a method where recallable distributions are subtracted from Paid In Capital rather than added to Cumulative Distributions, which may affect the calculation of the DPI/TVPI multiples**

# QUARTERLY PERFORMANCE REPORT

## MPERS Real Estate Report

December 31, 2020

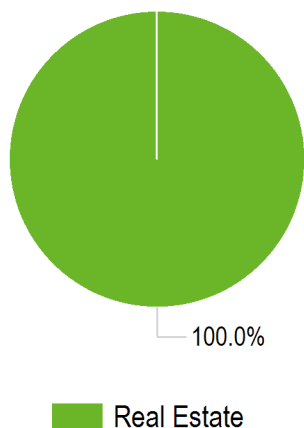


BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

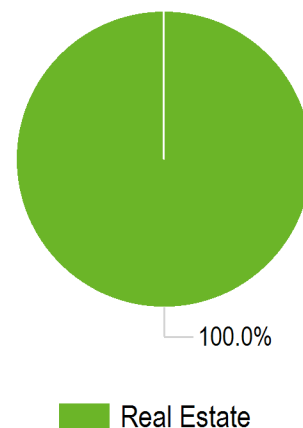


# EXECUTIVE SUMMARY

## Valuation by Asset Class



## Fund Exposure by Asset Class

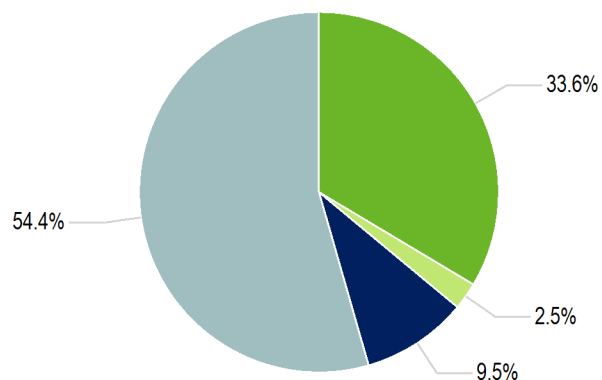


| Asset Class              | Investments \$ |                          |                     |               | Trailing Period Performance (IRR) |       |        |         |         |          |        | Multiples |      |
|--------------------------|----------------|--------------------------|---------------------|---------------|-----------------------------------|-------|--------|---------|---------|----------|--------|-----------|------|
|                          | Commitment     | Cumulative Contributions | Unfunded Commitment | Valuation     | (QTR)                             | (YTD) | (1 YR) | (3 YRS) | (5 YRS) | (10 YRS) | SI IRR | DPI       | TVPI |
| <b>Total Real Estate</b> | \$753,773,339  | \$646,493,468            | \$107,279,871       | \$211,955,822 | 4.11%                             | 1.18% | 1.18%  | 6.73%   | 8.13%   | 10.32%   | 7.76%  | 1.09      | 1.41 |
| <b>Total</b>             | \$753,773,339  | \$646,493,468            | \$107,279,871       | \$211,955,822 | 4.11%                             | 1.18% | 1.18%  | 6.73%   | 8.13%   | 10.32%   | 7.76%  | 1.09      | 1.41 |



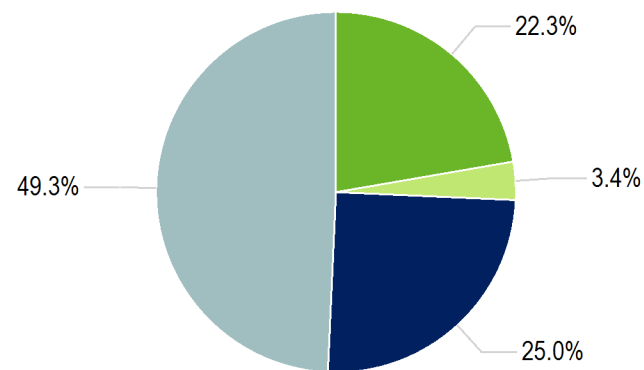
# ANALYSIS BY STRATEGY

Real Estate Valuation by Strategy



Core Debt Opportunistic Value Add

Real Estate Fund Exposure by Strategy



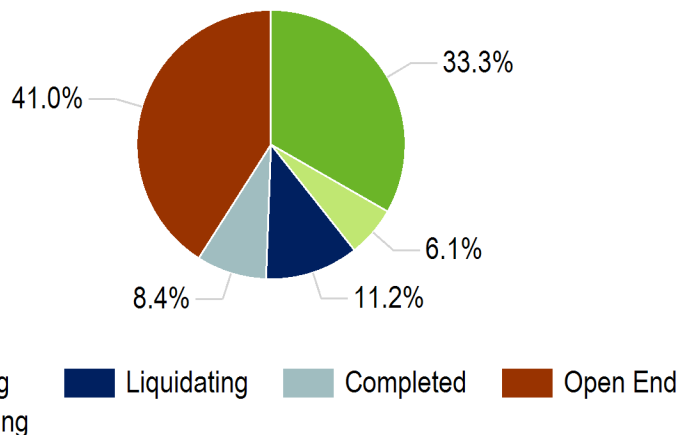
Core Debt Opportunistic Value Add

| Investment Strategy | Commitments          |                      |             | Contributions & Distributions |                    |                          | Valuations           |                      |                      |                      | Performance |             |              |
|---------------------|----------------------|----------------------|-------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|----------------------|-------------|-------------|--------------|
|                     | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions      | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | Fund Exposure        | DPI         | TVPI        | IRR          |
| Total Core          | \$313,754,760        | \$0                  | 1.00        | \$313,754,760                 | \$7,068,703        | \$435,718,482            | \$71,136,771         | \$506,855,253        | \$186,031,790        | \$71,136,771         | 1.36        | 1.58        | 8.81%        |
| Total Debt          | \$51,743,743         | \$5,712,786          | 0.89        | \$46,030,957                  | \$65,388           | \$56,930,094             | \$5,198,475          | \$62,128,570         | \$16,032,225         | \$10,911,261         | 1.24        | 1.35        | 14.95%       |
| Total Opportunistic | \$149,241,734        | \$59,667,239         | 0.60        | \$89,574,495                  | \$2,367,339        | \$88,971,558             | \$20,213,441         | \$109,184,999        | \$17,243,165         | \$79,880,680         | 0.97        | 1.19        | 3.66%        |
| Total Value Add     | \$239,033,102        | \$41,899,847         | 0.82        | \$197,133,255                 | \$310,715          | \$131,407,927            | \$115,407,135        | \$246,815,063        | \$49,371,093         | \$157,306,982        | 0.67        | 1.25        | 6.24%        |
| <b>Total</b>        | <b>\$753,773,339</b> | <b>\$107,279,871</b> | <b>0.86</b> | <b>\$646,493,468</b>          | <b>\$9,812,145</b> | <b>\$713,028,062</b>     | <b>\$211,955,822</b> | <b>\$924,983,885</b> | <b>\$268,678,272</b> | <b>\$319,235,694</b> | <b>1.09</b> | <b>1.41</b> | <b>7.76%</b> |

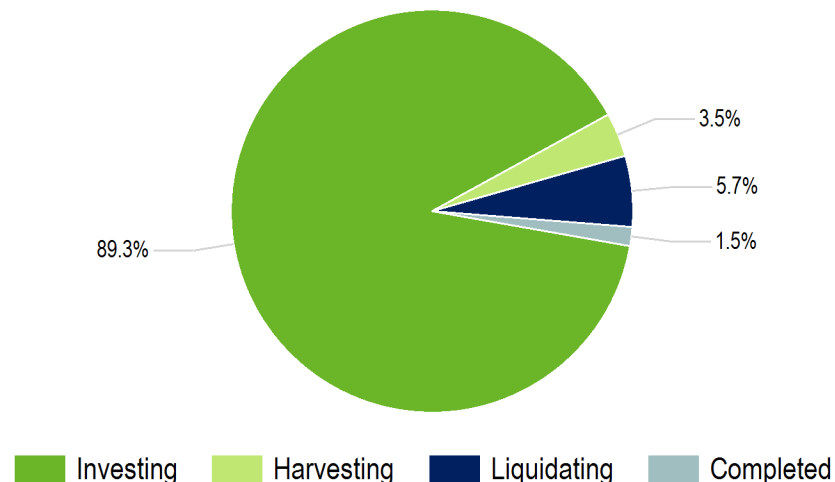


# ANALYSIS BY LIFECYCLE

### Commitment by Lifecycle



### Unfunded Commitment by Lifecycle



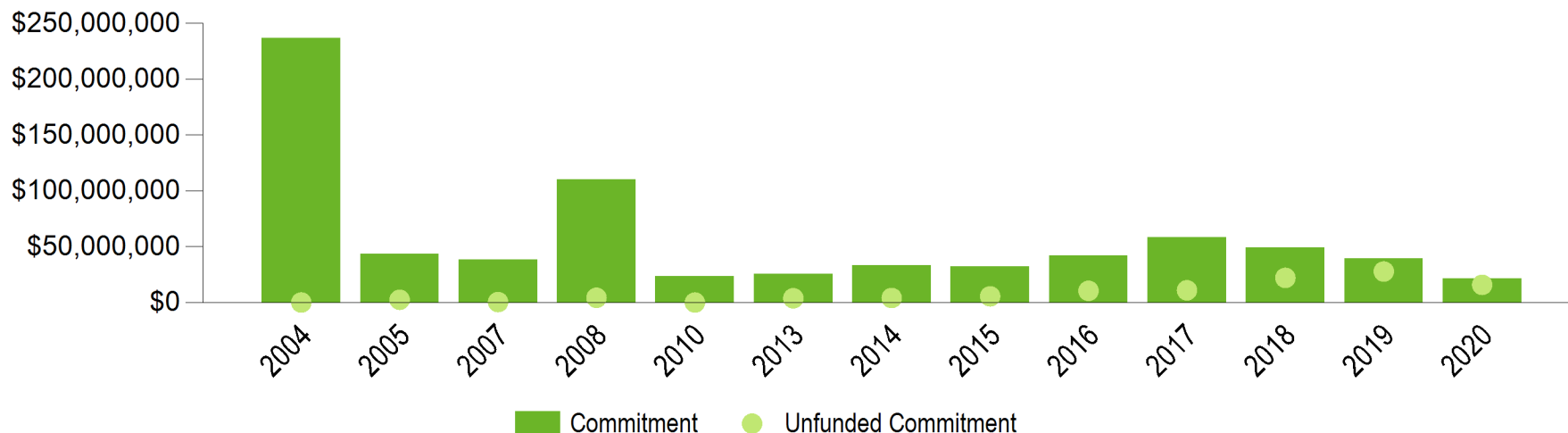
| Lifecycle         | Commitments          |                      |             | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |              |
|-------------------|----------------------|----------------------|-------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|--------------|
|                   | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions      | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR          |
| Total Investing   | \$250,801,965        | \$95,750,623         | 0.62        | \$155,051,342                 | \$1,500,663        | \$72,088,441             | \$124,912,535        | \$197,000,976        | \$40,448,971         | 0.46        | 1.26        | 13.43%       |
| Total Harvesting  | \$45,766,696         | \$3,789,796          | 0.92        | \$41,976,900                  | \$14,680           | \$41,287,036             | \$14,045,093         | \$55,332,129         | \$13,340,549         | 0.98        | 1.32        | 4.90%        |
| Total Liquidating | \$84,759,287         | \$6,105,525          | 0.93        | \$78,653,762                  | \$71,063           | \$87,698,457             | \$1,001,283          | \$88,699,740         | \$9,974,914          | 1.11        | 1.13        | 2.34%        |
| Total Completed   | \$63,690,630         | \$1,633,927          | 0.97        | \$62,056,703                  | \$1,157,036        | \$91,851,947             | \$0                  | \$91,851,947         | \$28,638,208         | 1.45        | 1.45        | 9.55%        |
| Total Open End    | \$308,754,760        | \$0                  | 1.00        | \$308,754,760                 | \$7,068,703        | \$420,102,181            | \$71,996,912         | \$492,099,093        | \$176,275,630        | 1.33        | 1.56        | 8.33%        |
| <b>Total</b>      | <b>\$753,773,339</b> | <b>\$107,279,871</b> | <b>0.86</b> | <b>\$646,493,468</b>          | <b>\$9,812,145</b> | <b>\$713,028,062</b>     | <b>\$211,955,822</b> | <b>\$924,983,885</b> | <b>\$268,678,272</b> | <b>1.09</b> | <b>1.41</b> | <b>7.76%</b> |



# MPERS

## ANALYSIS BY VINTAGE YEAR

### Commitments By Vintage Year



| Investments  | Commitments          |                      |             | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |              |
|--------------|----------------------|----------------------|-------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|--------------|
| Vintage Year | Commitment           | Unfunded Commitment  | Call Ratio  | Cumulative Contributions      | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR          |
| Total 2004   | \$237,061,613        | \$0                  | 1.00        | \$237,061,613                 | \$6,978,629        | \$315,090,904            | \$70,064,425         | \$385,155,329        | \$141,115,087        | 1.29        | 1.58        | 7.92%        |
| Total 2005   | \$43,456,498         | \$2,466,883          | 0.94        | \$40,989,615                  | \$1,129,111        | \$57,977,395             | \$51,301             | \$58,028,696         | \$15,909,970         | 1.38        | 1.38        | 5.86%        |
| Total 2007   | \$38,133,989         | \$375,200            | 0.99        | \$37,758,789                  | \$0                | \$29,528,188             | \$1,147,509          | \$30,675,697         | -\$7,083,092         | 0.78        | 0.81        | -3.67%       |
| Total 2008   | \$110,034,383        | \$4,230,325          | 0.96        | \$105,804,057                 | \$90,074           | \$147,441,390            | \$10,058,612         | \$157,500,001        | \$51,605,870         | 1.39        | 1.49        | 8.81%        |
| Total 2010   | \$23,576,046         | \$0                  | 1.00        | \$23,576,046                  | \$0                | \$32,918,651             | \$0                  | \$32,918,651         | \$9,342,605          | 1.40        | 1.40        | 12.06%       |
| Total 2013   | \$25,766,696         | \$3,789,796          | 0.85        | \$21,976,900                  | \$14,680           | \$21,130,086             | \$5,627,506          | \$26,757,592         | \$4,766,012          | 0.96        | 1.22        | 6.12%        |
| Total 2014   | \$33,017,553         | \$4,018,029          | 0.88        | \$28,999,524                  | \$835,041          | \$39,960,058             | \$3,551,743          | \$43,511,801         | \$13,677,236         | 1.34        | 1.46        | 21.33%       |
| Total 2015   | \$32,108,205         | \$5,496,445          | 0.83        | \$26,611,760                  | \$0                | \$14,093,436             | \$20,762,387         | \$34,855,823         | \$8,244,063          | 0.53        | 1.31        | 11.01%       |
| Total 2016   | \$41,924,596         | \$10,406,002         | 0.75        | \$31,518,594                  | \$641,295          | \$25,151,523             | \$18,939,038         | \$44,090,561         | \$11,930,672         | 0.78        | 1.37        | 16.23%       |
| Total 2017   | \$58,613,795         | \$10,928,958         | 0.81        | \$47,684,837                  | -\$138,433         | \$26,220,902             | \$37,189,736         | \$63,410,639         | \$15,864,234         | 0.55        | 1.33        | 18.83%       |
| Total 2018   | \$49,114,208         | \$22,033,271         | 0.55        | \$27,080,936                  | -\$216,540         | \$2,016,129              | \$26,135,984         | \$28,152,113         | \$1,287,717          | 0.08        | 1.05        | 4.09%        |
| Total 2019   | \$39,500,000         | \$27,743,615         | 0.30        | \$11,756,385                  | \$480,466          | \$1,342,884              | \$12,233,463         | \$13,576,347         | \$1,339,496          | 0.11        | 1.11        | 8.13%        |
| Total 2020   | \$21,465,758         | \$15,791,348         | 0.26        | \$5,674,410                   | -\$2,178           | \$156,516                | \$6,194,118          | \$6,350,634          | \$678,402            | 0.03        | 1.12        | 15.13%       |
| <b>Total</b> | <b>\$753,773,339</b> | <b>\$107,279,871</b> | <b>0.86</b> | <b>\$646,493,468</b>          | <b>\$9,812,145</b> | <b>\$713,028,062</b>     | <b>\$211,955,822</b> | <b>\$924,983,885</b> | <b>\$268,678,272</b> | <b>1.09</b> | <b>1.41</b> | <b>7.76%</b> |



# APPENDIX

## MPERS

December 31, 2020



# MPERS

## RETURN SUMMARY

| Investments   |              |               | Trailing Period Returns (IRR) % |         |         |         |         |          |         |
|---|--------------|---------------|---------------------------------|---------|---------|---------|---------|----------|---------|
| Investment Name   | Vintage Year | Commitment    | (Qtr)                           | (YTD)   | (1 Yr)  | (3 Yrs) | (5 Yrs) | (10 Yrs) | SI IRR  |
| <b>Real Estate</b>  |              |               |                                 |         |         |         |         |          |         |
| AEW Partners V, L.P.                                      | 2005         | \$13,456,498  | 3.32%                           | 0.02%   | 0.02%   | -4.08%  | 29.20%  | 22.37%   | 1.93%   |
| Apollo Real Estate Investment Fund V, L.P.                | 2005         | \$15,000,000  | 0.06%                           | 15.75%  | 15.75%  | 36.82%  | 12.88%  | 14.66%   | 1.47%   |
| Ares European Real Estate Fund III (Euro), L.P.           | 2007         | \$8,944,001   | 7.06%                           | -5.07%  | -5.07%  | -31.01% | -19.08% | 2.50%    | 1.23%   |
| CBRE Capital Partners U.S. I, L.P.                        | 2010         | \$15,000,000  |                                 |         |         |         |         |          | 11.60%  |
| CBRE Capital Partners U.S. Special Situations I, L.P.     | 2010         | \$8,576,046   |                                 |         |         |         |         |          | 12.87%  |
| CenterSquare IV Park Lane Co-Invest, L.P.                 | 2019         | \$12,000,000  | 4.10%                           | 7.70%   | 7.70%   |         |         |          | 7.88%   |
| CenterSquare Value-Added Fund III, L.P.                   | 2016         | \$25,000,000  | 3.80%                           | 4.44%   | 4.44%   | 13.78%  |         |          | 13.91%  |
| CenterSquare Value-Added Fund III, L.P.                   | 2017         | \$28,613,795  | 0.00%                           | 0.75%   | 0.75%   | 13.60%  |         |          | 19.14%  |
| CenterSquare Value-Added Fund IV, L.P.                    | 2018         | \$25,000,000  | 5.92%                           | 9.53%   | 9.53%   |         |         |          | 6.74%   |
| Clarion Lion Properties Fund, L.P.                        | 2004         | \$112,061,613 | -13.40%                         | -39.30% | -39.30% | -10.70% | 1.58%   | 9.40%    | 6.79%   |
| Colony Investors VIII, L.P.                               | 2007         | \$11,000,000  | 13.43%                          | -5.39%  | -5.39%  | -11.65% | -7.63%  | -2.22%   | -11.41% |
| CSIM IV 69 GMR Co-Investment, L.P.                        | 2020         | \$1,465,758   | 4.97%                           |         |         |         |         |          | 0.25%   |
| European Property Investors Special Opportunities 3, L.P. | 2013         | \$12,040,507  | 14.54%                          | 22.93%  | 22.93%  | -6.13%  | 5.62%   |          | 6.54%   |
| European Property Investors Special Opportunities 4, L.P. | 2015         | \$17,108,205  | 12.61%                          | 12.92%  | 12.92%  | 10.90%  | 11.24%  |          | 11.22%  |
| European Property Investors Special Opportunities 5 SCSp  | 2018         | \$24,114,208  | 0.80%                           | -8.97%  | -8.97%  |         |         |          | -20.40% |
| European Property Investors Special Opportunities, L.P.   | 2008         | \$13,341,236  | -47.42%                         | -66.58% | -66.58% | -41.23% | -16.60% | 1.84%    | 2.87%   |
| Global Real Return Strategy                               | 2008         | \$20,000,000  | 13.16%                          | -4.49%  | -4.49%  | 4.88%   | 4.88%   | 4.93%    | 4.48%   |
| Lion Mexico Fund, L.P.                                    | 2007         | \$10,000,000  | -8.11%                          | -13.26% | -13.26% | -14.11% | -16.19% | -8.82%   | -7.64%  |
| M&G Real Estate Debt Fund II Feeder, L.P.                 | 2013         | \$13,726,190  | 7.40%                           | 4.11%   | 4.11%   | 7.06%   | 5.25%   |          | 5.63%   |
| New Mountain Net Lease Partners, L.P.                     | 2017         | \$15,000,000  | 12.32%                          | 22.75%  | 22.75%  |         |         |          | 15.36%  |
| Oak Street Real Estate Capital Fund IV, L.P.              | 2017         | \$15,000,000  | 17.66%                          | 25.79%  | 25.79%  | 20.12%  |         |          | 19.64%  |
| Och Ziff Real Estate BP Fund, L.P.                        | 2005         | \$15,000,000  |                                 | -34.11% | -34.11% | 76.90%  | 33.32%  | 22.88%   | 17.33%  |
| Och-Ziff Real Estate Credit Fund, L.P.                    | 2016         | \$15,000,000  | 3.88%                           | 11.67%  | 11.67%  | 10.35%  |         |          | 12.72%  |
| Och-Ziff Real Estate Fund III, L.P.                       | 2014         | \$10,000,000  | 3.82%                           | 10.43%  | 10.43%  | 15.19%  | 19.28%  |          | 15.87%  |
| Och-Ziff Real Estate RE Fund, L.P.                        | 2016         | \$1,924,596   |                                 | -29.25% | -29.25% | 77.39%  | 93.43%  |          | 93.43%  |
| Principal Enhanced Property Fund, L.P.                    | 2004         | \$60,000,000  | 1.99%                           | 3.59%   | 3.59%   | 6.03%   | 8.69%   | 12.90%   | 7.24%   |
| Principal U.S. Property Account, L.P.                     | 2004         | \$50,000,000  | 1.64%                           | 5.78%   | 5.78%   | 6.94%   | 7.67%   | 10.74%   | 11.37%  |
| Real Estate CMBS Portfolio                                | 2008         | \$76,693,147  | 2.01%                           | 6.17%   | 6.17%   | 29.80%  | 15.44%  | 8.47%    | 11.47%  |
| SCP Real Estate Opportunities Fund I, L.P.                | 2020         | \$20,000,000  | 15.08%                          |         |         |         |         |          | 17.76%  |
| Sculptor Real Estate Fund IV, L.P.                        | 2019         | \$27,500,000  | 15.68%                          |         |         |         |         |          | 8.50%   |



## MPERS

# RETURN SUMMARY

| Investments                               |              |                      | Trailing Period Returns (IRR) % |              |              |              |              |               |              |
|---|--------------|----------------------|---------------------------------|--------------|--------------|--------------|--------------|---------------|--------------|
| Investment Name                           | Vintage Year | Commitment           | (Qtr)                           | (YTD)        | (1 Yr)       | (3 Yrs)      | (5 Yrs)      | (10 Yrs)      | SI IRR       |
| Torchlight Debt Opportunity Fund II, LLC  | 2014         | \$14,139,614         | -1.50%                          | -1.50%       | -1.50%       | 5.90%        | 1.41%        |               | 10.06%       |
| Torchlight Debt Opportunity Fund III, LLC | 2014         | \$8,877,939          | -1.83%                          | -1.83%       | -1.83%       | -3.40%       | 10.02%       |               | 94.57%       |
| Torchlight Debt Opportunity Fund V, L.P.  | 2015         | \$15,000,000         | 3.13%                           | -0.81%       | -0.81%       | 8.98%        | 7.76%        |               | 10.72%       |
| Urdang Value-Added Fund II, L.P.          | 2007         | \$8,189,988          |                                 |              |              |              |              |               | 5.60%        |
| Urdang Value-Added Fund, L.P.             | 2004         | \$15,000,000         |                                 |              |              |              |              |               | 2.91%        |
| <b>Total Real Estate</b>                  |              | <b>\$753,773,339</b> | <b>4.11%</b>                    | <b>1.18%</b> | <b>1.18%</b> | <b>6.73%</b> | <b>8.13%</b> | <b>10.32%</b> | <b>7.76%</b> |
| <b>Total</b>                              |              | <b>\$753,773,339</b> | <b>4.11%</b>                    | <b>1.18%</b> | <b>1.18%</b> | <b>6.73%</b> | <b>8.13%</b> | <b>10.32%</b> | <b>7.76%</b> |



# MPERS

## ANALYSIS BY FUND

| Investments   |              | Commitments   |                     | Contributions & Distributions |                 |                          | Valuations   |               |              | Performance |      |         |
|---|--------------|---------------|---------------------|-------------------------------|-----------------|--------------------------|--------------|---------------|--------------|-------------|------|---------|
| Investment Name   | Vintage Year | Commitment    | Unfunded Commitment | Paid In Capital               | Additional Fees | Cumulative Distributions | Valuation    | Total Value   | Net Benefit  | DPI         | TVPI | IRR     |
| AEW Partners V, L.P.                                      | 2005         | \$13,456,498  | \$0                 | \$13,456,498                  | \$0             | \$14,746,094             | \$33,655     | \$14,779,749  | \$1,323,251  | 1.10        | 1.10 | 1.93%   |
| Apollo Real Estate Investment Fund V, L.P.                | 2005         | \$15,000,000  | \$1,500,000         | \$13,500,000                  | \$0             | \$15,443,848             | \$17,646     | \$15,461,494  | \$1,961,494  | 1.14        | 1.15 | 1.47%   |
| Ares European Real Estate Fund III (Euro), L.P.           | 2007         | \$8,944,001   | \$0                 | \$8,944,001                   | \$0             | \$9,348,757              | \$98,168     | \$9,446,925   | \$502,924    | 1.05        | 1.06 | 1.23%   |
| CBRE Capital Partners U.S. I, L.P.                        | 2010         | \$15,000,000  | \$0                 | \$15,000,000                  | \$0             | \$20,512,232             | \$0          | \$20,512,232  | \$5,512,232  | 1.37        | 1.37 | 11.60%  |
| CBRE Capital Partners U.S. Special Situations I, L.P.     | 2010         | \$8,576,046   | \$0                 | \$8,576,046                   | \$0             | \$12,406,419             | \$0          | \$12,406,419  | \$3,830,373  | 1.45        | 1.45 | 12.87%  |
| CenterSquare IV Park Lane Co-Invest, L.P.                 | 2019         | \$12,000,000  | \$3,143,894         | \$8,856,106                   | \$0             | \$885,500                | \$9,177,711  | \$10,063,211  | \$1,207,105  | 0.10        | 1.14 | 7.88%   |
| CenterSquare Value-Added Fund III, L.P.                   | 2016         | \$25,000,000  | \$1,553,225         | \$23,446,775                  | \$617,408       | \$21,696,251             | \$10,871,180 | \$32,567,431  | \$8,503,248  | 0.90        | 1.35 | 13.91%  |
| CenterSquare Value-Added Fund III, L.P.                   | 2017         | \$28,613,795  | \$2,174,516         | \$26,439,279                  | \$0             | \$22,016,306             | \$14,565,729 | \$36,582,036  | \$10,142,757 | 0.83        | 1.38 | 19.14%  |
| CenterSquare Value-Added Fund IV, L.P.                    | 2018         | \$25,000,000  | \$4,032,258         | \$20,967,742                  | -\$216,540      | \$2,016,129              | \$20,664,851 | \$22,680,980  | \$1,929,778  | 0.10        | 1.09 | 6.74%   |
| Clarion Lion Properties Fund, L.P.                        | 2004         | \$112,061,613 | \$0                 | \$112,061,613                 | \$6,978,629     | \$144,932,551            | \$15,165,318 | \$160,097,869 | \$41,057,627 | 1.22        | 1.34 | 6.79%   |
| Colony Investors VIII, L.P.                               | 2007         | \$11,000,000  | \$375,200           | \$10,624,800                  | \$0             | \$4,538,835              | \$189,200    | \$4,728,035   | -\$5,896,765 | 0.43        | 0.44 | -11.41% |
| CSIM IV 69 GMR Co-Investment, L.P.                        | 2020         | \$1,465,758   | \$0                 | \$1,465,758                   | \$0             | \$0                      | \$1,469,443  | \$1,469,443   | \$3,685      | 0.00        | 1.00 | 0.25%   |
| European Property Investors Special Opportunities 3, L.P. | 2013         | \$12,040,507  | \$1,077,010         | \$10,963,496                  | \$20,355        | \$8,898,400              | \$4,802,221  | \$13,700,621  | \$2,716,770  | 0.81        | 1.25 | 6.54%   |
| European Property Investors Special Opportunities 4, L.P. | 2015         | \$17,108,205  | \$2,496,445         | \$14,611,760                  | \$0             | \$3,085,602              | \$16,483,132 | \$19,568,734  | \$4,956,974  | 0.21        | 1.34 | 11.22%  |
| European Property Investors Special Opportunities 5 SCSp  | 2018         | \$24,114,208  | \$18,001,013        | \$6,113,194                   | \$0             | \$0                      | \$5,471,133  | \$5,471,133   | -\$642,061   | 0.00        | 0.89 | -20.40% |
| European Property Investors Special Opportunities, L.P.   | 2008         | \$13,341,236  | \$4,230,325         | \$9,110,911                   | \$0             | \$9,930,348              | \$568,679    | \$10,499,027  | \$1,388,117  | 1.09        | 1.15 | 2.87%   |
| Global Real Return Strategy                               | 2008         | \$20,000,000  | \$0                 | \$20,000,000                  | \$0             | \$20,156,950             | \$8,417,587  | \$28,574,537  | \$8,574,537  | 1.01        | 1.43 | 4.48%   |
| Lion Mexico Fund, L.P.                                    | 2007         | \$10,000,000  | \$0                 | \$10,000,000                  | \$0             | \$4,895,931              | \$860,141    | \$5,756,072   | -\$4,243,928 | 0.49        | 0.58 | -7.64%  |
| M&G Real Estate Debt Fund II Feeder, L.P.                 | 2013         | \$13,726,190  | \$2,712,786         | \$11,013,404                  | -\$5,675        | \$12,231,686             | \$825,285    | \$13,056,971  | \$2,049,242  | 1.11        | 1.19 | 5.63%   |
| New Mountain Net Lease Partners, L.P.                     | 2017         | \$15,000,000  | \$8,754,442         | \$6,245,558                   | -\$138,433      | \$864,872                | \$6,807,618  | \$7,672,490   | \$1,565,365  | 0.14        | 1.26 | 15.36%  |
| Oak Street Real Estate Capital Fund IV, L.P.              | 2017         | \$15,000,000  | \$0                 | \$15,000,000                  | \$0             | \$3,339,724              | \$15,816,389 | \$19,156,113  | \$4,156,112  | 0.22        | 1.28 | 19.64%  |
| Och Ziff Real Estate BP Fund, L.P.                        | 2005         | \$15,000,000  | \$966,883           | \$14,033,117                  | \$1,129,111     | \$27,787,453             | \$0          | \$27,787,453  | \$12,625,225 | 1.83        | 1.83 | 17.33%  |
| Och-Ziff Real Estate Credit Fund, L.P.                    | 2016         | \$15,000,000  | \$8,185,733         | \$6,814,267                   | -\$4,038        | \$292,840                | \$8,067,858  | \$8,360,698   | \$1,550,469  | 0.04        | 1.23 | 12.72%  |
| Och-Ziff Real Estate Fund III, L.P.                       | 2014         | \$10,000,000  | \$4,018,029         | \$5,981,971                   | \$763,978       | \$6,269,483              | \$3,457,808  | \$9,727,291   | \$2,981,342  | 0.93        | 1.44 | 15.87%  |
| Och-Ziff Real Estate RE Fund, L.P.                        | 2016         | \$1,924,596   | \$667,044           | \$1,257,552                   | \$27,925        | \$3,162,432              | \$0          | \$3,162,432   | \$1,876,955  | 2.46        | 2.46 | 93.43%  |
| Principal Enhanced Property Fund, L.P.                    | 2004         | \$60,000,000  | \$0                 | \$60,000,000                  | \$0             | \$57,530,210             | \$54,152,837 | \$111,683,047 | \$51,683,047 | 0.96        | 1.86 | 7.24%   |
| Principal U.S. Property Account, L.P.                     | 2004         | \$50,000,000  | \$0                 | \$50,000,000                  | \$0             | \$95,389,398             | \$746,270    | \$96,135,668  | \$46,135,668 | 1.91        | 1.92 | 11.37%  |
| Real Estate CMBS Portfolio                                | 2008         | \$76,693,147  | \$0                 | \$76,693,147                  | \$90,074        | \$117,354,091            | \$1,072,346  | \$118,426,437 | \$41,643,216 | 1.53        | 1.54 | 11.47%  |
| SCP Real Estate Opportunities Fund I, L.P.                | 2020         | \$20,000,000  | \$15,791,348        | \$4,208,652                   | -\$2,178        | \$156,516                | \$4,724,675  | \$4,881,191   | \$674,717    | 0.04        | 1.16 | 17.76%  |

\*The below funds show an adjusted commitment due to the fund liquidating before funding the entire commitment amount, or due to the GP retiring a portion of the unfunded commitment early.

CBRE Capital Partners US Special Situations Fund I - \$10,000,000  
 Urdrag Value-Added Fund II - \$10,000,000





## MPERS

# ANALYSIS BY FUND

| Investments                               |              | Commitments          |                      | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |              |
|---|--------------|----------------------|----------------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|--------------|
| Investment Name                           | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR          |
| Sculptor Real Estate Fund IV, L.P.        | 2019         | \$27,500,000         | \$24,599,721         | \$2,900,279                   | \$480,466          | \$457,384                | \$3,055,752          | \$3,513,136          | \$132,391            | 0.14        | 1.04        | 8.50%        |
| Torchlight Debt Opportunity Fund II, LLC  | 2014         | \$14,139,614         | \$0                  | \$14,139,614                  | \$0                | \$18,259,495             | \$58,319             | \$18,317,814         | \$4,178,200          | 1.29        | 1.30        | 10.06%       |
| Torchlight Debt Opportunity Fund III, LLC | 2014         | \$8,877,939          | \$0                  | \$8,877,939                   | \$71,063           | \$15,431,080             | \$35,616             | \$15,466,696         | \$6,517,694          | 1.72        | 1.73        | 94.57%       |
| Torchlight Debt Opportunity Fund V, L.P.  | 2015         | \$15,000,000         | \$3,000,000          | \$12,000,000                  | \$0                | \$11,007,834             | \$4,279,255          | \$15,287,089         | \$3,287,089          | 0.92        | 1.27        | 10.72%       |
| Urdang Value-Added Fund II, L.P.          | 2007         | \$8,189,988          | \$0                  | \$8,189,988                   | \$0                | \$10,744,665             | \$0                  | \$10,744,665         | \$2,554,677          | 1.31        | 1.31        | 5.60%        |
| Urdang Value-Added Fund, L.P.             | 2004         | \$15,000,000         | \$0                  | \$15,000,000                  | \$0                | \$17,238,746             | \$0                  | \$17,238,746         | \$2,238,746          | 1.15        | 1.15        | 2.91%        |
| <b>Total</b>                              |              | <b>\$753,773,339</b> | <b>\$107,279,871</b> | <b>\$646,493,468</b>          | <b>\$9,812,145</b> | <b>\$713,028,062</b>     | <b>\$211,955,822</b> | <b>\$924,983,885</b> | <b>\$268,678,272</b> | <b>1.09</b> | <b>1.41</b> | <b>7.76%</b> |



# ANALYSIS BY LIFECYCLE

| Investments   |              | Commitments          |                     | Contributions & Distributions |                    |                          | Valuations           |                      |                     | Performance |             |               |
|---|--------------|----------------------|---------------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|---------------------|-------------|-------------|---------------|
| Investment Name   | Vintage Year | Commitment           | Unfunded Commitment | Paid In Capital               | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit         | DPI         | TVPI        | IRR           |
| <b>Investing</b>  |              |                      |                     |                               |                    |                          |                      |                      |                     |             |             |               |
| CenterSquare IV Park Lane Co-Invest, L.P.                 | 2019         | \$12,000,000         | \$3,143,894         | \$8,856,106                   | \$0                | \$885,500                | \$9,177,711          | \$10,063,211         | \$1,207,105         | 0.10        | 1.14        | 7.88%         |
| CenterSquare Value-Added Fund III, L.P.                   | 2016         | \$25,000,000         | \$1,553,225         | \$23,446,775                  | \$617,408          | \$21,696,251             | \$10,871,180         | \$32,567,431         | \$8,503,248         | 0.90        | 1.35        | 13.91%        |
| CenterSquare Value-Added Fund III, L.P.                   | 2017         | \$28,613,795         | \$2,174,516         | \$26,439,279                  | \$0                | \$22,016,306             | \$14,565,729         | \$36,582,036         | \$10,142,757        | 0.83        | 1.38        | 19.14%        |
| CenterSquare Value-Added Fund IV, L.P.                    | 2018         | \$25,000,000         | \$4,032,258         | \$20,967,742                  | -\$216,540         | \$2,016,129              | \$20,664,851         | \$22,680,980         | \$1,929,778         | 0.10        | 1.09        | 6.74%         |
| CSIM IV 69 GMR Co-Investment, L.P.                        | 2020         | \$1,465,758          | \$0                 | \$1,465,758                   | \$0                | \$0                      | \$1,469,443          | \$1,469,443          | \$3,685             | 0.00        | 1.00        | 0.25%         |
| European Property Investors Special Opportunities 4, L.P. | 2015         | \$17,108,205         | \$2,496,445         | \$14,611,760                  | \$0                | \$3,085,602              | \$16,483,132         | \$19,568,734         | \$4,956,974         | 0.21        | 1.34        | 11.22%        |
| European Property Investors Special Opportunities 5 SCSp  | 2018         | \$24,114,208         | \$18,001,013        | \$6,113,194                   | \$0                | \$0                      | \$5,471,133          | \$5,471,133          | -\$642,061          | 0.00        | 0.89        | -20.40%       |
| New Mountain Net Lease Partners, L.P.                     | 2017         | \$15,000,000         | \$8,754,442         | \$6,245,558                   | -\$138,433         | \$864,872                | \$6,807,618          | \$7,672,490          | \$1,565,365         | 0.14        | 1.26        | 15.36%        |
| Oak Street Real Estate Capital Fund IV, L.P.              | 2017         | \$15,000,000         | \$0                 | \$15,000,000                  | \$0                | \$3,339,724              | \$15,816,389         | \$19,156,113         | \$4,156,112         | 0.22        | 1.28        | 19.64%        |
| Och-Ziff Real Estate Credit Fund, L.P.                    | 2016         | \$15,000,000         | \$8,185,733         | \$6,814,267                   | -\$4,038           | \$292,840                | \$8,067,858          | \$8,360,698          | \$1,550,469         | 0.04        | 1.23        | 12.72%        |
| Och-Ziff Real Estate Fund III, L.P.                       | 2014         | \$10,000,000         | \$4,018,029         | \$5,981,971                   | \$763,978          | \$6,269,483              | \$3,457,808          | \$9,727,291          | \$2,981,342         | 0.93        | 1.44        | 15.87%        |
| SCP Real Estate Opportunities Fund I, L.P.                | 2020         | \$20,000,000         | \$15,791,348        | \$4,208,652                   | -\$2,178           | \$156,516                | \$4,724,675          | \$4,881,191          | \$674,717           | 0.04        | 1.16        | 17.76%        |
| Sculptor Real Estate Fund IV, L.P.                        | 2019         | \$27,500,000         | \$24,599,721        | \$2,900,279                   | \$480,466          | \$457,384                | \$3,055,752          | \$3,513,136          | \$132,391           | 0.14        | 1.04        | 8.50%         |
| Torchlight Debt Opportunity Fund V, L.P.                  | 2015         | \$15,000,000         | \$3,000,000         | \$12,000,000                  | \$0                | \$11,007,834             | \$4,279,255          | \$15,287,089         | \$3,287,089         | 0.92        | 1.27        | 10.72%        |
| <b>Total Investing</b>                                    |              | <b>\$250,801,965</b> | <b>\$95,750,623</b> | <b>\$155,051,342</b>          | <b>\$1,500,663</b> | <b>\$72,088,441</b>      | <b>\$124,912,535</b> | <b>\$197,000,976</b> | <b>\$40,448,971</b> | <b>0.46</b> | <b>1.26</b> | <b>13.43%</b> |
| <b>Harvesting</b>   |              |                      |                     |                               |                    |                          |                      |                      |                     |             |             |               |
| European Property Investors Special Opportunities 3, L.P. | 2013         | \$12,040,507         | \$1,077,010         | \$10,963,496                  | \$20,355           | \$8,898,400              | \$4,802,221          | \$13,700,621         | \$2,716,770         | 0.81        | 1.25        | 6.54%         |
| Global Real Return Strategy                               | 2008         | \$20,000,000         | \$0                 | \$20,000,000                  | \$0                | \$20,156,950             | \$8,417,587          | \$28,574,537         | \$8,574,537         | 1.01        | 1.43        | 4.48%         |
| M&G Real Estate Debt Fund II Feeder, L.P.                 | 2013         | \$13,726,190         | \$2,712,786         | \$11,013,404                  | -\$5,675           | \$12,231,686             | \$825,285            | \$13,056,971         | \$2,049,242         | 1.11        | 1.19        | 5.63%         |
| <b>Total Harvesting</b>                                   |              | <b>\$45,766,696</b>  | <b>\$3,789,796</b>  | <b>\$41,976,900</b>           | <b>\$14,680</b>    | <b>\$41,287,036</b>      | <b>\$14,045,093</b>  | <b>\$55,332,129</b>  | <b>\$13,340,549</b> | <b>0.98</b> | <b>1.32</b> | <b>4.90%</b>  |
| <b>Liquidating</b>  |              |                      |                     |                               |                    |                          |                      |                      |                     |             |             |               |
| AEW Partners V, L.P.                                      | 2005         | \$13,456,498         | \$0                 | \$13,456,498                  | \$0                | \$14,746,094             | \$33,655             | \$14,779,749         | \$1,323,251         | 1.10        | 1.10        | 1.93%         |
| Apollo Real Estate Investment Fund V, L.P.                | 2005         | \$15,000,000         | \$1,500,000         | \$13,500,000                  | \$0                | \$15,443,848             | \$17,646             | \$15,461,494         | \$1,961,494         | 1.14        | 1.15        | 1.47%         |
| Ares European Real Estate Fund III (Euro), L.P.           | 2007         | \$8,944,001          | \$0                 | \$8,944,001                   | \$0                | \$9,348,757              | \$98,168             | \$9,446,925          | \$502,924           | 1.05        | 1.06        | 1.23%         |
| Colony Investors VIII, L.P.                               | 2007         | \$11,000,000         | \$375,200           | \$10,624,800                  | \$0                | \$4,538,835              | \$189,200            | \$4,728,035          | -\$5,896,765        | 0.43        | 0.44        | -11.41%       |
| European Property Investors Special Opportunities, L.P.   | 2008         | \$13,341,236         | \$4,230,325         | \$9,110,911                   | \$0                | \$9,930,348              | \$568,679            | \$10,499,027         | \$1,388,117         | 1.09        | 1.15        | 2.87%         |
| Torchlight Debt Opportunity Fund II, LLC                  | 2014         | \$14,139,614         | \$0                 | \$14,139,614                  | \$0                | \$18,259,495             | \$58,319             | \$18,317,814         | \$4,178,200         | 1.29        | 1.30        | 10.06%        |
| Torchlight Debt Opportunity Fund III, LLC                 | 2014         | \$8,877,939          | \$0                 | \$8,877,939                   | \$71,063           | \$15,431,080             | \$35,616             | \$15,466,696         | \$6,517,694         | 1.72        | 1.73        | 94.57%        |
| <b>Total Liquidating</b>                                  |              | <b>\$84,759,287</b>  | <b>\$6,105,525</b>  | <b>\$78,653,762</b>           | <b>\$71,063</b>    | <b>\$87,698,457</b>      | <b>\$1,001,283</b>   | <b>\$88,699,740</b>  | <b>\$9,974,914</b>  | <b>1.11</b> | <b>1.13</b> | <b>2.34%</b>  |



# MPERS

## ANALYSIS BY LIFECYCLE

| Investments   |              | Commitments          |                      | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |              |
|---|--------------|----------------------|----------------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|--------------|
| Investment Name                                       | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR          |
| <b>Completed</b>                                      |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |              |
| CBRE Capital Partners U.S. I, L.P.                    | 2010         | \$15,000,000         | \$0                  | \$15,000,000                  | \$0                | \$20,512,232             | \$0                  | \$20,512,232         | \$5,512,232          | 1.37        | 1.37        | 11.60%       |
| CBRE Capital Partners U.S. Special Situations I, L.P. | 2010         | \$8,576,046          | \$0                  | \$8,576,046                   | \$0                | \$12,406,419             | \$0                  | \$12,406,419         | \$3,830,373          | 1.45        | 1.45        | 12.87%       |
| Och Ziff Real Estate BP Fund, L.P.                    | 2005         | \$15,000,000         | \$966,883            | \$14,033,117                  | \$1,129,111        | \$27,787,453             | \$0                  | \$27,787,453         | \$12,625,225         | 1.83        | 1.83        | 17.33%       |
| Och-Ziff Real Estate RE Fund, L.P.                    | 2016         | \$1,924,596          | \$667,044            | \$1,257,552                   | \$27,925           | \$3,162,432              | \$0                  | \$3,162,432          | \$1,876,955          | 2.46        | 2.46        | 93.43%       |
| Urdang Value-Added Fund II, L.P.                      | 2007         | \$8,189,988          | \$0                  | \$8,189,988                   | \$0                | \$10,744,665             | \$0                  | \$10,744,665         | \$2,554,677          | 1.31        | 1.31        | 5.60%        |
| Urdang Value-Added Fund, L.P.                         | 2004         | \$15,000,000         | \$0                  | \$15,000,000                  | \$0                | \$17,238,746             | \$0                  | \$17,238,746         | \$2,238,746          | 1.15        | 1.15        | 2.91%        |
| <b>Total Completed</b>                                |              | <b>\$63,690,630</b>  | <b>\$1,633,927</b>   | <b>\$62,056,703</b>           | <b>\$1,157,036</b> | <b>\$91,851,947</b>      | <b>\$0</b>           | <b>\$91,851,947</b>  | <b>\$28,638,208</b>  | <b>1.45</b> | <b>1.45</b> | <b>9.55%</b> |
| <b>Open End</b>                                       |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |              |
| Clarion Lion Properties Fund, L.P.                    | 2004         | \$112,061,613        | \$0                  | \$112,061,613                 | \$6,978,629        | \$144,932,551            | \$15,165,318         | \$160,097,869        | \$41,057,627         | 1.22        | 1.34        | 6.79%        |
| Lion Mexico Fund, L.P.                                | 2007         | \$10,000,000         | \$0                  | \$10,000,000                  | \$0                | \$4,895,931              | \$860,141            | \$5,756,072          | -\$4,243,928         | 0.49        | 0.58        | -7.64%       |
| Principal Enhanced Property Fund, L.P.                | 2004         | \$60,000,000         | \$0                  | \$60,000,000                  | \$0                | \$57,530,210             | \$54,152,837         | \$111,683,047        | \$51,683,047         | 0.96        | 1.86        | 7.24%        |
| Principal U.S. Property Account, L.P.                 | 2004         | \$50,000,000         | \$0                  | \$50,000,000                  | \$0                | \$95,389,398             | \$746,270            | \$96,135,668         | \$46,135,668         | 1.91        | 1.92        | 11.37%       |
| Real Estate CMBS Portfolio                            | 2008         | \$76,693,147         | \$0                  | \$76,693,147                  | \$90,074           | \$117,354,091            | \$1,072,346          | \$118,426,437        | \$41,643,216         | 1.53        | 1.54        | 11.47%       |
| <b>Total Open End</b>                                 |              | <b>\$308,754,760</b> | <b>\$0</b>           | <b>\$308,754,760</b>          | <b>\$7,068,703</b> | <b>\$420,102,181</b>     | <b>\$71,996,912</b>  | <b>\$492,099,093</b> | <b>\$176,275,630</b> | <b>1.33</b> | <b>1.56</b> | <b>8.33%</b> |
| <b>Total</b>  |              | <b>\$753,773,339</b> | <b>\$107,279,871</b> | <b>\$646,493,468</b>          | <b>\$9,812,145</b> | <b>\$713,028,062</b>     | <b>\$211,955,822</b> | <b>\$924,983,885</b> | <b>\$268,678,272</b> | <b>1.09</b> | <b>1.41</b> | <b>7.76%</b> |



**MPERS**

# ANALYSIS BY VINTAGE YEAR

| Investments   |              | Commitments          |                     | Contributions & Distributions |                    |                          | Valuations          |                      |                      | Performance |             |               |
|---|--------------|----------------------|---------------------|-------------------------------|--------------------|--------------------------|---------------------|----------------------|----------------------|-------------|-------------|---------------|
| Investment Name   | Vintage Year | Commitment           | Unfunded Commitment | Paid In Capital               | Additional Fees    | Cumulative Distributions | Valuation           | Total Value          | Net Benefit          | DPI         | TVPI        | IRR           |
| <b>2004</b>   |              |                      |                     |                               |                    |                          |                     |                      |                      |             |             |               |
| Clarion Lion Properties Fund, L.P.                        | 2004         | \$112,061,613        | \$0                 | \$112,061,613                 | \$6,978,629        | \$144,932,551            | \$15,165,318        | \$160,097,869        | \$41,057,627         | 1.22        | 1.34        | 6.79%         |
| Principal Enhanced Property Fund, L.P.                    | 2004         | \$60,000,000         | \$0                 | \$60,000,000                  | \$0                | \$57,530,210             | \$54,152,837        | \$111,683,047        | \$51,683,047         | 0.96        | 1.86        | 7.24%         |
| Principal U.S. Property Account, L.P.                     | 2004         | \$50,000,000         | \$0                 | \$50,000,000                  | \$0                | \$95,389,398             | \$746,270           | \$96,135,668         | \$46,135,668         | 1.91        | 1.92        | 11.37%        |
| Urdang Value-Added Fund, L.P.                             | 2004         | \$15,000,000         | \$0                 | \$15,000,000                  | \$0                | \$17,238,746             | \$0                 | \$17,238,746         | \$2,238,746          | 1.15        | 1.15        | 2.91%         |
| <b>Total 2004</b>   |              | <b>\$237,061,613</b> | <b>\$0</b>          | <b>\$237,061,613</b>          | <b>\$6,978,629</b> | <b>\$315,090,904</b>     | <b>\$70,064,425</b> | <b>\$385,155,329</b> | <b>\$141,115,087</b> | <b>1.29</b> | <b>1.58</b> | <b>7.92%</b>  |
| <b>2005</b>   |              |                      |                     |                               |                    |                          |                     |                      |                      |             |             |               |
| AEW Partners V, L.P.                                      | 2005         | \$13,456,498         | \$0                 | \$13,456,498                  | \$0                | \$14,746,094             | \$33,655            | \$14,779,749         | \$1,323,251          | 1.10        | 1.10        | 1.93%         |
| Apollo Real Estate Investment Fund V, L.P.                | 2005         | \$15,000,000         | \$1,500,000         | \$13,500,000                  | \$0                | \$15,443,848             | \$17,646            | \$15,461,494         | \$1,961,494          | 1.14        | 1.15        | 1.47%         |
| Och Ziff Real Estate BP Fund, L.P.                        | 2005         | \$15,000,000         | \$966,883           | \$14,033,117                  | \$1,129,111        | \$27,787,453             | \$0                 | \$27,787,453         | \$12,625,225         | 1.83        | 1.83        | 17.33%        |
| <b>Total 2005</b>   |              | <b>\$43,456,498</b>  | <b>\$2,466,883</b>  | <b>\$40,989,615</b>           | <b>\$1,129,111</b> | <b>\$57,977,395</b>      | <b>\$51,301</b>     | <b>\$58,028,696</b>  | <b>\$15,909,970</b>  | <b>1.38</b> | <b>1.38</b> | <b>5.86%</b>  |
| <b>2007</b>   |              |                      |                     |                               |                    |                          |                     |                      |                      |             |             |               |
| Ares European Real Estate Fund III (Euro), L.P.           | 2007         | \$8,944,001          | \$0                 | \$8,944,001                   | \$0                | \$9,348,757              | \$98,168            | \$9,446,925          | \$502,924            | 1.05        | 1.06        | 1.23%         |
| Colony Investors VIII, L.P.                               | 2007         | \$11,000,000         | \$375,200           | \$10,624,800                  | \$0                | \$4,538,835              | \$189,200           | \$4,728,035          | -\$5,896,765         | 0.43        | 0.44        | -11.41%       |
| Lion Mexico Fund, L.P.                                    | 2007         | \$10,000,000         | \$0                 | \$10,000,000                  | \$0                | \$4,895,931              | \$860,141           | \$5,756,072          | -\$4,243,928         | 0.49        | 0.58        | -7.64%        |
| Urdang Value-Added Fund II, L.P.                          | 2007         | \$8,189,988          | \$0                 | \$8,189,988                   | \$0                | \$10,744,665             | \$0                 | \$10,744,665         | \$2,554,677          | 1.31        | 1.31        | 5.60%         |
| <b>Total 2007</b>   |              | <b>\$38,133,989</b>  | <b>\$375,200</b>    | <b>\$37,758,789</b>           | <b>\$0</b>         | <b>\$29,528,188</b>      | <b>\$1,147,509</b>  | <b>\$30,675,697</b>  | <b>-\$7,083,092</b>  | <b>0.78</b> | <b>0.81</b> | <b>-3.67%</b> |
| <b>2008</b>   |              |                      |                     |                               |                    |                          |                     |                      |                      |             |             |               |
| European Property Investors Special Opportunities, L.P.   | 2008         | \$13,341,236         | \$4,230,325         | \$9,110,911                   | \$0                | \$9,930,348              | \$568,679           | \$10,499,027         | \$1,388,117          | 1.09        | 1.15        | 2.87%         |
| Global Real Return Strategy                               | 2008         | \$20,000,000         | \$0                 | \$20,000,000                  | \$0                | \$20,156,950             | \$8,417,587         | \$28,574,537         | \$8,574,537          | 1.01        | 1.43        | 4.48%         |
| Real Estate CMBS Portfolio                                | 2008         | \$76,693,147         | \$0                 | \$76,693,147                  | \$90,074           | \$117,354,091            | \$1,072,346         | \$118,426,437        | \$41,643,216         | 1.53        | 1.54        | 11.47%        |
| <b>Total 2008</b>   |              | <b>\$110,034,383</b> | <b>\$4,230,325</b>  | <b>\$105,804,057</b>          | <b>\$90,074</b>    | <b>\$147,441,390</b>     | <b>\$10,058,612</b> | <b>\$157,500,001</b> | <b>\$51,605,870</b>  | <b>1.39</b> | <b>1.49</b> | <b>8.81%</b>  |
| <b>2010</b>   |              |                      |                     |                               |                    |                          |                     |                      |                      |             |             |               |
| CBRE Capital Partners U.S. I, L.P.                        | 2010         | \$15,000,000         | \$0                 | \$15,000,000                  | \$0                | \$20,512,232             | \$0                 | \$20,512,232         | \$5,512,232          | 1.37        | 1.37        | 11.60%        |
| CBRE Capital Partners U.S. Special Situations I, L.P.     | 2010         | \$8,576,046          | \$0                 | \$8,576,046                   | \$0                | \$12,406,419             | \$0                 | \$12,406,419         | \$3,830,373          | 1.45        | 1.45        | 12.87%        |
| <b>Total 2010</b>   |              | <b>\$23,576,046</b>  | <b>\$0</b>          | <b>\$23,576,046</b>           | <b>\$0</b>         | <b>\$32,918,651</b>      | <b>\$0</b>          | <b>\$32,918,651</b>  | <b>\$9,342,605</b>   | <b>1.40</b> | <b>1.40</b> | <b>12.06%</b> |
| <b>2013</b>   |              |                      |                     |                               |                    |                          |                     |                      |                      |             |             |               |
| European Property Investors Special Opportunities 3, L.P. | 2013         | \$12,040,507         | \$1,077,010         | \$10,963,496                  | \$20,355           | \$8,898,400              | \$4,802,221         | \$13,700,621         | \$2,716,770          | 0.81        | 1.25        | 6.54%         |
| M&G Real Estate Debt Fund II Feeder, L.P.                 | 2013         | \$13,726,190         | \$2,712,786         | \$11,013,404                  | -\$5,675           | \$12,231,686             | \$825,285           | \$13,056,971         | \$2,049,242          | 1.11        | 1.19        | 5.63%         |
| <b>Total 2013</b>   |              | <b>\$25,766,696</b>  | <b>\$3,789,796</b>  | <b>\$21,976,900</b>           | <b>\$14,680</b>    | <b>\$21,130,086</b>      | <b>\$5,627,506</b>  | <b>\$26,757,592</b>  | <b>\$4,766,012</b>   | <b>0.96</b> | <b>1.22</b> | <b>6.12%</b>  |



**MPERS**

# ANALYSIS BY VINTAGE YEAR

| Investments   |              | Commitments          |                      | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |               |
|---|--------------|----------------------|----------------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|---------------|
| Investment Name   | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR           |
| <b>2014</b>   |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| Och-Ziff Real Estate Fund III, L.P.                       | 2014         | \$10,000,000         | \$4,018,029          | \$5,981,971                   | \$763,978          | \$6,269,483              | \$3,457,808          | \$9,727,291          | \$2,981,342          | 0.93        | 1.44        | 15.87%        |
| Torchlight Debt Opportunity Fund II, LLC                  | 2014         | \$14,139,614         | \$0                  | \$14,139,614                  | \$0                | \$18,259,495             | \$58,319             | \$18,317,814         | \$4,178,200          | 1.29        | 1.30        | 10.06%        |
| Torchlight Debt Opportunity Fund III, LLC                 | 2014         | \$8,877,939          | \$0                  | \$8,877,939                   | \$71,063           | \$15,431,080             | \$35,616             | \$15,466,696         | \$6,517,694          | 1.72        | 1.73        | 94.57%        |
| <b>Total 2014</b>   |              | <b>\$33,017,553</b>  | <b>\$4,018,029</b>   | <b>\$28,999,524</b>           | <b>\$835,041</b>   | <b>\$39,960,058</b>      | <b>\$3,551,743</b>   | <b>\$43,511,801</b>  | <b>\$13,677,236</b>  | <b>1.34</b> | <b>1.46</b> | <b>21.33%</b> |
| <b>2015</b>   |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| European Property Investors Special Opportunities 4, L.P. | 2015         | \$17,108,205         | \$2,496,445          | \$14,611,760                  | \$0                | \$3,085,602              | \$16,483,132         | \$19,568,734         | \$4,956,974          | 0.21        | 1.34        | 11.22%        |
| Torchlight Debt Opportunity Fund V, L.P.                  | 2015         | \$15,000,000         | \$3,000,000          | \$12,000,000                  | \$0                | \$11,007,834             | \$4,279,255          | \$15,287,089         | \$3,287,089          | 0.92        | 1.27        | 10.72%        |
| <b>Total 2015</b>   |              | <b>\$32,108,205</b>  | <b>\$5,496,445</b>   | <b>\$26,611,760</b>           | <b>\$0</b>         | <b>\$14,093,436</b>      | <b>\$20,762,387</b>  | <b>\$34,855,823</b>  | <b>\$8,244,063</b>   | <b>0.53</b> | <b>1.31</b> | <b>11.01%</b> |
| <b>2016</b>   |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| CenterSquare Value-Added Fund III, L.P.                   | 2016         | \$25,000,000         | \$1,553,225          | \$23,446,775                  | \$617,408          | \$21,696,251             | \$10,871,180         | \$32,567,431         | \$8,503,248          | 0.90        | 1.35        | 13.91%        |
| Och-Ziff Real Estate Credit Fund, L.P.                    | 2016         | \$15,000,000         | \$8,185,733          | \$6,814,267                   | -\$4,038           | \$292,840                | \$8,067,858          | \$8,360,698          | \$1,550,469          | 0.04        | 1.23        | 12.72%        |
| Och-Ziff Real Estate RE Fund, L.P.                        | 2016         | \$1,924,596          | \$667,044            | \$1,257,552                   | \$27,925           | \$3,162,432              | \$0                  | \$3,162,432          | \$1,876,955          | 2.46        | 2.46        | 93.43%        |
| <b>Total 2016</b>   |              | <b>\$41,924,596</b>  | <b>\$10,406,002</b>  | <b>\$31,518,594</b>           | <b>\$641,295</b>   | <b>\$25,151,523</b>      | <b>\$18,939,038</b>  | <b>\$44,090,561</b>  | <b>\$11,930,672</b>  | <b>0.78</b> | <b>1.37</b> | <b>16.23%</b> |
| <b>2017</b>   |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| CenterSquare Value-Added Fund III, L.P.                   | 2017         | \$28,613,795         | \$2,174,516          | \$26,439,279                  | \$0                | \$22,016,306             | \$14,565,729         | \$36,582,036         | \$10,142,757         | 0.83        | 1.38        | 19.14%        |
| New Mountain Net Lease Partners, L.P.                     | 2017         | \$15,000,000         | \$8,754,442          | \$6,245,558                   | -\$138,433         | \$864,872                | \$6,807,618          | \$7,672,490          | \$1,565,365          | 0.14        | 1.26        | 15.36%        |
| Oak Street Real Estate Capital Fund IV, L.P.              | 2017         | \$15,000,000         | \$0                  | \$15,000,000                  | \$0                | \$3,339,724              | \$15,816,389         | \$19,156,113         | \$4,156,112          | 0.22        | 1.28        | 19.64%        |
| <b>Total 2017</b>   |              | <b>\$58,613,795</b>  | <b>\$10,928,958</b>  | <b>\$47,684,837</b>           | <b>-\$138,433</b>  | <b>\$26,220,902</b>      | <b>\$37,189,736</b>  | <b>\$63,410,639</b>  | <b>\$15,864,234</b>  | <b>0.55</b> | <b>1.33</b> | <b>18.83%</b> |
| <b>2018</b>   |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| CenterSquare Value-Added Fund IV, L.P.                    | 2018         | \$25,000,000         | \$4,032,258          | \$20,967,742                  | -\$216,540         | \$2,016,129              | \$20,664,851         | \$22,680,980         | \$1,929,778          | 0.10        | 1.09        | 6.74%         |
| European Property Investors Special Opportunities 5 SCSp  | 2018         | \$24,114,208         | \$18,001,013         | \$6,113,194                   | \$0                | \$0                      | \$5,471,133          | \$5,471,133          | -\$642,061           | 0.00        | 0.89        | -20.40%       |
| <b>Total 2018</b>   |              | <b>\$49,114,208</b>  | <b>\$22,033,271</b>  | <b>\$27,080,936</b>           | <b>-\$216,540</b>  | <b>\$2,016,129</b>       | <b>\$26,135,984</b>  | <b>\$28,152,113</b>  | <b>\$1,287,717</b>   | <b>0.08</b> | <b>1.05</b> | <b>4.09%</b>  |
| <b>2019</b>   |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| CenterSquare IV Park Lane Co-Invest, L.P.                 | 2019         | \$12,000,000         | \$3,143,894          | \$8,856,106                   | \$0                | \$885,500                | \$9,177,711          | \$10,063,211         | \$1,207,105          | 0.10        | 1.14        | 7.88%         |
| Sculptor Real Estate Fund IV, L.P.                        | 2019         | \$27,500,000         | \$24,599,721         | \$2,900,279                   | \$480,466          | \$457,384                | \$3,055,752          | \$3,513,136          | \$132,391            | 0.14        | 1.04        | 8.50%         |
| <b>Total 2019</b>   |              | <b>\$39,500,000</b>  | <b>\$27,743,615</b>  | <b>\$11,756,385</b>           | <b>\$480,466</b>   | <b>\$1,342,884</b>       | <b>\$12,233,463</b>  | <b>\$13,576,347</b>  | <b>\$1,339,496</b>   | <b>0.11</b> | <b>1.11</b> | <b>8.13%</b>  |
| <b>2020</b>   |              |                      |                      |                               |                    |                          |                      |                      |                      |             |             |               |
| CSIM IV 69 GMR Co-Investment, L.P.                        | 2020         | \$1,465,758          | \$0                  | \$1,465,758                   | \$0                | \$0                      | \$1,469,443          | \$1,469,443          | \$3,685              | 0.00        | 1.00        | 0.25%         |
| SCP Real Estate Opportunities Fund I, L.P.                | 2020         | \$20,000,000         | \$15,791,348         | \$4,208,652                   | -\$2,178           | \$156,516                | \$4,724,675          | \$4,881,191          | \$674,717            | 0.04        | 1.16        | 17.76%        |
| <b>Total 2020</b>   |              | <b>\$21,465,758</b>  | <b>\$15,791,348</b>  | <b>\$5,674,410</b>            | <b>-\$2,178</b>    | <b>\$156,516</b>         | <b>\$6,194,118</b>   | <b>\$6,350,634</b>   | <b>\$678,402</b>     | <b>0.03</b> | <b>1.12</b> | <b>15.13%</b> |
| <b>Total</b>  |              | <b>\$753,773,339</b> | <b>\$107,279,871</b> | <b>\$646,493,468</b>          | <b>\$9,812,145</b> | <b>\$713,028,062</b>     | <b>\$211,955,822</b> | <b>\$924,983,885</b> | <b>\$268,678,272</b> | <b>1.09</b> | <b>1.41</b> | <b>7.76%</b>  |



**MPERS**

# ANALYSIS BY INVESTMENT STRATEGY

| Investments   |              | Commitments          |                     | Contributions & Distributions |                    |                          | Valuations          |                      |                      | Performance |             |               |
|---|--------------|----------------------|---------------------|-------------------------------|--------------------|--------------------------|---------------------|----------------------|----------------------|-------------|-------------|---------------|
| Investment Name   | Vintage Year | Commitment           | Unfunded Commitment | Paid In Capital               | Additional Fees    | Cumulative Distributions | Valuation           | Total Value          | Net Benefit          | DPI         | TVPI        | IRR           |
| <b>Core</b>   |              |                      |                     |                               |                    |                          |                     |                      |                      |             |             |               |
| CBRE Capital Partners U.S. I, L.P.                      | 2010         | \$15,000,000         | \$0                 | \$15,000,000                  | \$0                | \$20,512,232             | \$0                 | \$20,512,232         | \$5,512,232          | 1.37        | 1.37        | 11.60%        |
| Clarion Lion Properties Fund, L.P.                      | 2004         | \$112,061,613        | \$0                 | \$112,061,613                 | \$6,978,629        | \$144,932,551            | \$15,165,318        | \$160,097,869        | \$41,057,627         | 1.22        | 1.34        | 6.79%         |
| Principal Enhanced Property Fund, L.P.                  | 2004         | \$60,000,000         | \$0                 | \$60,000,000                  | \$0                | \$57,530,210             | \$54,152,837        | \$111,683,047        | \$51,683,047         | 0.96        | 1.86        | 7.24%         |
| Principal U.S. Property Account, L.P.                   | 2004         | \$50,000,000         | \$0                 | \$50,000,000                  | \$0                | \$95,389,398             | \$746,270           | \$96,135,668         | \$46,135,668         | 1.91        | 1.92        | 11.37%        |
| Real Estate CMBS Portfolio                              | 2008         | \$76,693,147         | \$0                 | \$76,693,147                  | \$90,074           | \$117,354,091            | \$1,072,346         | \$118,426,437        | \$41,643,216         | 1.53        | 1.54        | 11.47%        |
| <b>Total Core</b>                                       |              | <b>\$313,754,760</b> | <b>\$0</b>          | <b>\$313,754,760</b>          | <b>\$7,068,703</b> | <b>\$435,718,482</b>     | <b>\$71,136,771</b> | <b>\$506,855,253</b> | <b>\$186,031,790</b> | <b>1.36</b> | <b>1.58</b> | <b>8.81%</b>  |
| <b>Debt</b>   |              |                      |                     |                               |                    |                          |                     |                      |                      |             |             |               |
| M&G Real Estate Debt Fund II Feeder, L.P.               | 2013         | \$13,726,190         | \$2,712,786         | \$11,013,404                  | -\$5,675           | \$12,231,686             | \$825,285           | \$13,056,971         | \$2,049,242          | 1.11        | 1.19        | 5.63%         |
| Torchlight Debt Opportunity Fund II, LLC                | 2014         | \$14,139,614         | \$0                 | \$14,139,614                  | \$0                | \$18,259,495             | \$58,319            | \$18,317,814         | \$4,178,200          | 1.29        | 1.30        | 10.06%        |
| Torchlight Debt Opportunity Fund III, LLC               | 2014         | \$8,877,939          | \$0                 | \$8,877,939                   | \$71,063           | \$15,431,080             | \$35,616            | \$15,466,696         | \$6,517,694          | 1.72        | 1.73        | 94.57%        |
| Torchlight Debt Opportunity Fund V, L.P.                | 2015         | \$15,000,000         | \$3,000,000         | \$12,000,000                  | \$0                | \$11,007,834             | \$4,279,255         | \$15,287,089         | \$3,287,089          | 0.92        | 1.27        | 10.72%        |
| <b>Total Debt</b>                                       |              | <b>\$51,743,743</b>  | <b>\$5,712,786</b>  | <b>\$46,030,957</b>           | <b>\$65,388</b>    | <b>\$56,930,094</b>      | <b>\$5,198,475</b>  | <b>\$62,128,570</b>  | <b>\$16,032,225</b>  | <b>1.24</b> | <b>1.35</b> | <b>14.95%</b> |
| <b>Opportunistic</b>                                    |              |                      |                     |                               |                    |                          |                     |                      |                      |             |             |               |
| AEW Partners V, L.P.                                    | 2005         | \$13,456,498         | \$0                 | \$13,456,498                  | \$0                | \$14,746,094             | \$33,655            | \$14,779,749         | \$1,323,251          | 1.10        | 1.10        | 1.93%         |
| Apollo Real Estate Investment Fund V, L.P.              | 2005         | \$15,000,000         | \$1,500,000         | \$13,500,000                  | \$0                | \$15,443,848             | \$17,646            | \$15,461,494         | \$1,961,494          | 1.14        | 1.15        | 1.47%         |
| Ares European Real Estate Fund III (Euro), L.P.         | 2007         | \$8,944,001          | \$0                 | \$8,944,001                   | \$0                | \$9,348,757              | \$98,168            | \$9,446,925          | \$502,924            | 1.05        | 1.06        | 1.23%         |
| Colony Investors VIII, L.P.                             | 2007         | \$11,000,000         | \$375,200           | \$10,624,800                  | \$0                | \$4,538,835              | \$189,200           | \$4,728,035          | -\$5,896,765         | 0.43        | 0.44        | -11.41%       |
| European Property Investors Special Opportunities, L.P. | 2008         | \$13,341,236         | \$4,230,325         | \$9,110,911                   | \$0                | \$9,930,348              | \$568,679           | \$10,499,027         | \$1,388,117          | 1.09        | 1.15        | 2.87%         |
| Och Ziff Real Estate BP Fund, L.P.                      | 2005         | \$15,000,000         | \$966,883           | \$14,033,117                  | \$1,129,111        | \$27,787,453             | \$0                 | \$27,787,453         | \$12,625,225         | 1.83        | 1.83        | 17.33%        |
| Och-Ziff Real Estate Credit Fund, L.P.                  | 2016         | \$15,000,000         | \$8,185,733         | \$6,814,267                   | -\$4,038           | \$292,840                | \$8,067,858         | \$8,360,698          | \$1,550,469          | 0.04        | 1.23        | 12.72%        |
| Och-Ziff Real Estate Fund III, L.P.                     | 2014         | \$10,000,000         | \$4,018,029         | \$5,981,971                   | \$763,978          | \$6,269,483              | \$3,457,808         | \$9,727,291          | \$2,981,342          | 0.93        | 1.44        | 15.87%        |
| SCP Real Estate Opportunities Fund I, L.P.              | 2020         | \$20,000,000         | \$15,791,348        | \$4,208,652                   | -\$2,178           | \$156,516                | \$4,724,675         | \$4,881,191          | \$674,717            | 0.04        | 1.16        | 17.76%        |
| Sculptor Real Estate Fund IV, L.P.                      | 2019         | \$27,500,000         | \$24,599,721        | \$2,900,279                   | \$480,466          | \$457,384                | \$3,055,752         | \$3,513,136          | \$132,391            | 0.14        | 1.04        | 8.50%         |
| <b>Total Opportunistic</b>                              |              | <b>\$149,241,734</b> | <b>\$59,667,239</b> | <b>\$89,574,495</b>           | <b>\$2,367,339</b> | <b>\$88,971,558</b>      | <b>\$20,213,441</b> | <b>\$109,184,999</b> | <b>\$17,243,165</b>  | <b>0.97</b> | <b>1.19</b> | <b>3.66%</b>  |
| <b>Value Add</b>  |              |                      |                     |                               |                    |                          |                     |                      |                      |             |             |               |
| CBRE Capital Partners U.S. Special Situations I, L.P.   | 2010         | \$8,576,046          | \$0                 | \$8,576,046                   | \$0                | \$12,406,419             | \$0                 | \$12,406,419         | \$3,830,373          | 1.45        | 1.45        | 12.87%        |
| CenterSquare IV Park Lane Co-Invest, L.P.               | 2019         | \$12,000,000         | \$3,143,894         | \$8,856,106                   | \$0                | \$885,500                | \$9,177,711         | \$10,063,211         | \$1,207,105          | 0.10        | 1.14        | 7.88%         |
| CenterSquare Value-Added Fund III, L.P.                 | 2016         | \$25,000,000         | \$1,553,225         | \$23,446,775                  | \$617,408          | \$21,696,251             | \$10,871,180        | \$32,567,431         | \$8,503,248          | 0.90        | 1.35        | 13.91%        |
| CenterSquare Value-Added Fund III, L.P.                 | 2017         | \$28,613,795         | \$2,174,516         | \$26,439,279                  | \$0                | \$22,016,306             | \$14,565,729        | \$36,582,036         | \$10,142,757         | 0.83        | 1.38        | 19.14%        |
| CenterSquare Value-Added Fund IV, L.P.                  | 2018         | \$25,000,000         | \$4,032,258         | \$20,967,742                  | -\$216,540         | \$2,016,129              | \$20,664,851        | \$22,680,980         | \$1,929,778          | 0.10        | 1.09        | 6.74%         |



## MPERS

# ANALYSIS BY INVESTMENT STRATEGY

| Investments   |              | Commitments          |                      | Contributions & Distributions |                    |                          | Valuations           |                      |                      | Performance |             |              |
|---|--------------|----------------------|----------------------|-------------------------------|--------------------|--------------------------|----------------------|----------------------|----------------------|-------------|-------------|--------------|
| Investment Name   | Vintage Year | Commitment           | Unfunded Commitment  | Paid In Capital               | Additional Fees    | Cumulative Distributions | Valuation            | Total Value          | Net Benefit          | DPI         | TVPI        | IRR          |
| CSIM IV 69 GMR Co-Investment, L.P.                        | 2020         | \$1,465,758          | \$0                  | \$1,465,758                   | \$0                | \$0                      | \$1,469,443          | \$1,469,443          | \$3,685              | 0.00        | 1.00        | 0.25%        |
| European Property Investors Special Opportunities 3, L.P. | 2013         | \$12,040,507         | \$1,077,010          | \$10,963,496                  | \$20,355           | \$8,898,400              | \$4,802,221          | \$13,700,621         | \$2,716,770          | 0.81        | 1.25        | 6.54%        |
| European Property Investors Special Opportunities 4, L.P. | 2015         | \$17,108,205         | \$2,496,445          | \$14,611,760                  | \$0                | \$3,085,602              | \$16,483,132         | \$19,568,734         | \$4,956,974          | 0.21        | 1.34        | 11.22%       |
| European Property Investors Special Opportunities 5 SCSp  | 2018         | \$24,114,208         | \$18,001,013         | \$6,113,194                   | \$0                | \$0                      | \$5,471,133          | \$5,471,133          | -\$642,061           | 0.00        | 0.89        | -20.40%      |
| Global Real Return Strategy                               | 2008         | \$20,000,000         | \$0                  | \$20,000,000                  | \$0                | \$20,156,950             | \$8,417,587          | \$28,574,537         | \$8,574,537          | 1.01        | 1.43        | 4.48%        |
| Lion Mexico Fund, L.P.                                    | 2007         | \$10,000,000         | \$0                  | \$10,000,000                  | \$0                | \$4,895,931              | \$860,141            | \$5,756,072          | -\$4,243,928         | 0.49        | 0.58        | -7.64%       |
| New Mountain Net Lease Partners, L.P.                     | 2017         | \$15,000,000         | \$8,754,442          | \$6,245,558                   | -\$138,433         | \$864,872                | \$6,807,618          | \$7,672,490          | \$1,565,365          | 0.14        | 1.26        | 15.36%       |
| Oak Street Real Estate Capital Fund IV, L.P.              | 2017         | \$15,000,000         | \$0                  | \$15,000,000                  | \$0                | \$3,339,724              | \$15,816,389         | \$19,156,113         | \$4,156,112          | 0.22        | 1.28        | 19.64%       |
| Och-Ziff Real Estate RE Fund, L.P.                        | 2016         | \$1,924,596          | \$667,044            | \$1,257,552                   | \$27,925           | \$3,162,432              | \$0                  | \$3,162,432          | \$1,876,955          | 2.46        | 2.46        | 93.43%       |
| Urdang Value-Added Fund II, L.P.                          | 2007         | \$8,189,988          | \$0                  | \$8,189,988                   | \$0                | \$10,744,665             | \$0                  | \$10,744,665         | \$2,554,677          | 1.31        | 1.31        | 5.60%        |
| Urdang Value-Added Fund, L.P.                             | 2004         | \$15,000,000         | \$0                  | \$15,000,000                  | \$0                | \$17,238,746             | \$0                  | \$17,238,746         | \$2,238,746          | 1.15        | 1.15        | 2.91%        |
| <b>Total Value Add</b>                                    |              | <b>\$239,033,102</b> | <b>\$41,899,847</b>  | <b>\$197,133,255</b>          | <b>\$310,715</b>   | <b>\$131,407,927</b>     | <b>\$115,407,135</b> | <b>\$246,815,063</b> | <b>\$49,371,093</b>  | <b>0.67</b> | <b>1.25</b> | <b>6.24%</b> |
| <b>Total</b>  |              | <b>\$753,773,339</b> | <b>\$107,279,871</b> | <b>\$646,493,468</b>          | <b>\$9,812,145</b> | <b>\$713,028,062</b>     | <b>\$211,955,822</b> | <b>\$924,983,885</b> | <b>\$268,678,272</b> | <b>1.09</b> | <b>1.41</b> | <b>7.76%</b> |



**MPERS**

# QUARTERLY TRANSACTION SUMMARY

| Fund Name   | Month Ended | Capital Call     | Additional Fee | Temp Return of Capital | Distribution      | Net Cash Flow     |
|---|-------------|------------------|----------------|------------------------|-------------------|-------------------|
| Apollo Real Estate Investment Fund V, L.P.                              | 12/31/2020  |                  |                |                        | -100,721          | -100,721          |
| <b>Total: Apollo Real Estate Investment Fund V, L.P.</b>                |             |                  |                |                        | <b>-100,721</b>   | <b>-100,721</b>   |
| CenterSquare IV Park Lane Co-Invest, L.P.                               | 10/31/2020  |                  |                |                        | -19,600           | -19,600           |
|   | 11/30/2020  |                  |                |                        | -20,800           | -20,800           |
|   | 12/31/2020  |                  |                |                        | -15,900           | -15,900           |
| <b>Total: CenterSquare IV Park Lane Co-Invest, L.P.</b>                 |             |                  |                |                        | <b>-56,300</b>    | <b>-56,300</b>    |
| CenterSquare Value-Added Fund III, L.P.                                 | 12/31/2020  |                  |                |                        | -1,726,208        | -1,726,208        |
| <b>Total: CenterSquare Value-Added Fund III, L.P.</b>                   |             |                  |                |                        | <b>-1,726,208</b> | <b>-1,726,208</b> |
| CenterSquare Value-Added Fund III, L.P.                                 | 12/31/2020  |                  |                |                        | -2,057,435        | -2,057,435        |
| <b>Total: CenterSquare Value-Added Fund III, L.P.</b>                   |             |                  |                |                        | <b>-2,057,435</b> | <b>-2,057,435</b> |
| Clarion Lion Properties Fund, L.P.                                      | 12/31/2020  |                  | 45,944         |                        | -166,061          | -120,117          |
| <b>Total: Clarion Lion Properties Fund, L.P.</b>                        |             |                  | <b>45,944</b>  |                        | <b>-166,061</b>   | <b>-120,117</b>   |
| European Property Investors Special Opportunities 3, L.P.               | 10/31/2020  | 93,560           |                |                        |                   | 93,560            |
| <b>Total: European Property Investors Special Opportunities 3, L.P.</b> |             | <b>93,560</b>    |                |                        |                   | <b>93,560</b>     |
| European Property Investors Special Opportunities 5 SCSp                | 11/30/2020  | 1,536,921        |                |                        |                   | 1,536,921         |
| <b>Total: European Property Investors Special Opportunities 5 SCSp</b>  |             | <b>1,536,921</b> |                |                        |                   | <b>1,536,921</b>  |
| M&G Real Estate Debt Fund II Feeder, L.P.                               | 10/31/2020  |                  |                |                        | -2,792,185        | -2,792,185        |
|   | 11/30/2020  |                  |                |                        | -265,514          | -265,514          |
| <b>Total: M&amp;G Real Estate Debt Fund II Feeder, L.P.</b>             |             |                  |                |                        | <b>-3,057,700</b> | <b>-3,057,700</b> |
| New Mountain Net Lease Partners, L.P.                                   | 10/31/2020  | 497,192          |                |                        |                   | 497,192           |
|   | 11/30/2020  | 393,803          |                |                        |                   | 393,803           |
|   | 12/31/2020  |                  |                |                        | -154,320          | -154,320          |
| <b>Total: New Mountain Net Lease Partners, L.P.</b>                     |             | <b>890,995</b>   |                |                        | <b>-154,320</b>   | <b>736,675</b>    |





**MPERS**

# QUARTERLY TRANSACTION SUMMARY

| Fund Name  | Month Ended | Capital Call     | Additional Fee | Temp Return of Capital | Distribution      | Net Cash Flow     |
|--|-------------|------------------|----------------|------------------------|-------------------|-------------------|
| Oak Street Real Estate Capital Fund IV, L.P.               | 10/31/2020  |                  |                |                        | -93,862           | -93,862           |
|  | 11/30/2020  |                  |                |                        | -96,897           | -96,897           |
|  | 12/31/2020  |                  |                |                        | -1,162,623        | -1,162,623        |
| <b>Total: Oak Street Real Estate Capital Fund IV, L.P.</b> |             |                  |                |                        | <b>-1,353,382</b> | <b>-1,353,382</b> |
| Och-Ziff Real Estate Credit Fund, L.P.                     | 10/31/2020  |                  |                | -78,794                |                   | -78,794           |
|  | 11/30/2020  | 295,380          |                |                        |                   | 295,380           |
|  | 12/31/2020  | 2,515,581        | 34,776         | -134,586               |                   | 2,415,771         |
| <b>Total: Och-Ziff Real Estate Credit Fund, L.P.</b>       |             | <b>2,810,961</b> | <b>34,776</b>  | <b>-213,380</b>        |                   | <b>2,632,357</b>  |
| Och-Ziff Real Estate Fund III, L.P.                        | 11/30/2020  | 20,133           | -705           |                        | -158,786          | -139,358          |
| <b>Total: Och-Ziff Real Estate Fund III, L.P.</b>          |             | <b>20,133</b>    | <b>-705</b>    |                        | <b>-158,786</b>   | <b>-139,358</b>   |
| Principal Enhanced Property Fund, L.P.                     | 12/31/2020  |                  |                |                        | -525,369          | -525,369          |
| <b>Total: Principal Enhanced Property Fund, L.P.</b>       |             |                  |                |                        | <b>-525,369</b>   | <b>-525,369</b>   |
| Real Estate CMBS Portfolio                                 | 10/31/2020  |                  |                |                        | -42,419           | -42,419           |
|  | 11/30/2020  |                  |                |                        | -25,078           | -25,078           |
|  | 12/31/2020  |                  |                |                        | -36,841           | -36,841           |
| <b>Total: Real Estate CMBS Portfolio</b>                   |             |                  |                |                        | <b>-104,338</b>   | <b>-104,338</b>   |
| SCP Real Estate Opportunities Fund I, L.P.                 | 10/31/2020  | 133,824          |                |                        |                   | 133,824           |
|  | 12/31/2020  | 213,852          |                |                        | -44,020           | 169,832           |
| <b>Total: SCP Real Estate Opportunities Fund I, L.P.</b>   |             | <b>347,676</b>   |                |                        | <b>-44,020</b>    | <b>303,656</b>    |
| Sculptor Real Estate Fund IV, L.P.                         | 11/30/2020  |                  |                | -417,943               | -271,653          | -689,596          |
|  | 12/31/2020  | 1,393,258        | 8,196          |                        |                   | 1,401,454         |
| <b>Total: Sculptor Real Estate Fund IV, L.P.</b>           |             | <b>1,393,258</b> | <b>8,196</b>   | <b>-417,943</b>        | <b>-271,653</b>   | <b>711,858</b>    |
| Torchlight Debt Opportunity Fund II, LLC                   | 12/31/2020  |                  |                |                        | -11,729           | -11,729           |
| <b>Total: Torchlight Debt Opportunity Fund II, LLC</b>     |             |                  |                |                        | <b>-11,729</b>    | <b>-11,729</b>    |
| <b>Grand Total</b>   |             | <b>7,093,503</b> | <b>88,211</b>  | <b>-631,323</b>        | <b>-9,788,021</b> | <b>-3,237,630</b> |



# PME Analysis

## Public Markets Equivalent (PME)

| Investments   |              |                      | PME Valuations (ICM) |                     |                      | PME Multiples (Kaplan Schoar) |               |                         | PME Returns (Direct Alpha) |                  |                       |
|---|--------------|----------------------|----------------------|---------------------|----------------------|-------------------------------|---------------|-------------------------|----------------------------|------------------|-----------------------|
| Investment Name   | Vintage Year | Benchmark            | Valuation            | Valuation ICM       | Valuation Spread     | TVPI                          | Kaplan Schoar | Market Related Multiple | SI IRR                     | Direct Alpha PME | Market Related Return |
| <b>Core</b>   |              |                      |                      |                     |                      |                               |               |                         |                            |                  |                       |
| CBRE Capital Partners U.S. I, L.P.                      | 2010         | FTSE NAREIT All REIT | \$0                  | \$1,175,388         | -\$1,175,388         | 1.37                          | 0.96          | 1.43                    | 11.60%                     | -1.48%           | 13.09%                |
| Clarion Lion Properties Fund, L.P.                      | 2004         | FTSE NAREIT All REIT | \$15,165,318         | \$36,053,849        | -\$20,888,531        | 1.34                          | 0.93          | 1.44                    | 6.79%                      | -1.63%           | 8.42%                 |
| Real Estate CMBS Portfolio                              | 2008         | FTSE NAREIT All REIT | \$1,072,346          |                     |                      | 1.54                          | 1.22          | 1.26                    | 11.47%                     | 6.56%            | 4.91%                 |
| Principal Enhanced Property Fund, L.P.                  | 2004         | FTSE NAREIT All REIT | \$54,152,837         | \$53,489,874        | \$662,963            | 1.86                          | 1.00          | 1.85                    | 7.24%                      | 0.05%            | 7.19%                 |
| Principal U.S. Property Account, L.P.                   | 2004         | FTSE NAREIT All REIT | \$746,270            | \$20,296,074        | -\$19,549,804        | 1.92                          | 0.90          | 2.14                    | 11.37%                     | -1.75%           | 13.12%                |
| <b>Total Core</b>                                       |              |                      | <b>\$71,136,771</b>  | <b>\$67,467,962</b> | <b>\$3,668,809</b>   | <b>1.58</b>                   | <b>1.00</b>   | <b>1.57</b>             | <b>8.81%</b>               | <b>0.08%</b>     | <b>8.73%</b>          |
| <b>Debt</b>   |              |                      |                      |                     |                      |                               |               |                         |                            |                  |                       |
| M&G Real Estate Debt Fund II Feeder, L.P.               | 2013         | FTSE NAREIT All REIT | \$825,285            | \$1,376,282         | -\$550,997           | 1.19                          | 0.97          | 1.22                    | 5.63%                      | -1.13%           | 6.76%                 |
| Torchlight Debt Opportunity Fund II, LLC                | 2014         | FTSE NAREIT All REIT | \$58,319             | \$901,683           | -\$843,364           | 1.30                          | 0.97          | 1.34                    | 10.06%                     | -1.29%           | 11.35%                |
| Torchlight Debt Opportunity Fund III, LLC               | 2014         | FTSE NAREIT All REIT | \$35,616             | -\$7,026,911        | \$7,062,527          | 1.73                          | 1.45          | 1.19                    | 94.57%                     | 57.31%           | 37.26%                |
| Torchlight Debt Opportunity Fund V, L.P.                | 2015         | FTSE NAREIT All REIT | \$4,279,255          | \$3,293,189         | \$986,066            | 1.27                          | 1.07          | 1.19                    | 10.72%                     | 2.79%            | 7.93%                 |
| <b>Total Debt</b>                                       |              |                      | <b>\$5,198,475</b>   | <b>-\$1,455,756</b> | <b>\$6,654,232</b>   | <b>1.35</b>                   | <b>1.09</b>   | <b>1.23</b>             | <b>14.95%</b>              | <b>4.29%</b>     | <b>10.66%</b>         |
| <b>Opportunistic</b>                                    |              |                      |                      |                     |                      |                               |               |                         |                            |                  |                       |
| AEW Partners V, L.P.                                    | 2005         | FTSE NAREIT All REIT | \$33,655             | \$6,029,020         | -\$5,995,365         | 1.10                          | 0.84          | 1.31                    | 1.93%                      | -4.34%           | 6.26%                 |
| European Property Investors Special Opportunities, L.P. | 2008         | FTSE NAREIT All REIT | \$568,679            | \$14,051,793        | -\$13,483,114        | 1.15                          | 0.63          | 1.84                    | 2.87%                      | -11.55%          | 14.43%                |
| Apollo Real Estate Investment Fund V, L.P.              | 2005         | FTSE NAREIT All REIT | \$17,646             | \$11,614,051        | -\$11,596,405        | 1.15                          | 0.67          | 1.72                    | 1.47%                      | -5.17%           | 6.64%                 |
| Ares European Real Estate Fund III (Euro), L.P.         | 2007         | FTSE NAREIT All REIT | \$98,168             | \$10,388,942        | -\$10,290,774        | 1.06                          | 0.62          | 1.71                    | 1.23%                      | -11.05%          | 12.29%                |
| Colony Investors VIII, L.P.                             | 2007         | FTSE NAREIT All REIT | \$189,200            | \$20,808,671        | -\$20,619,471        | 0.44                          | 0.26          | 1.74                    | -11.41%                    | -19.22%          | 7.81%                 |
| Och Ziff Real Estate BP Fund, L.P.                      | 2005         | FTSE NAREIT All REIT | \$0                  | -\$13,155,866       | \$13,155,866         | 1.83                          | 1.27          | 1.44                    | 17.33%                     | 9.02%            | 8.31%                 |
| Och-Ziff Real Estate Fund III, L.P.                     | 2014         | FTSE NAREIT All REIT | \$3,457,808          | \$1,461,720         | \$1,996,088          | 1.44                          | 1.20          | 1.20                    | 15.87%                     | 8.75%            | 7.11%                 |
| Och-Ziff Real Estate Credit Fund, L.P.                  | 2016         | FTSE NAREIT All REIT | \$8,067,858          | \$6,959,348         | \$1,108,510          | 1.23                          | 1.08          | 1.14                    | 12.72%                     | 8.33%            | 4.40%                 |
| Sculptor Real Estate Fund IV, L.P.                      | 2019         | FTSE NAREIT All REIT | \$3,055,752          | \$3,378,093         | -\$322,341           | 1.04                          | 0.94          | 1.10                    | 8.50%                      | -16.10%          | 24.60%                |
| SCP Real Estate Opportunities Fund I, L.P.              | 2020         | FTSE NAREIT All REIT | \$4,724,675          | \$5,381,008         | -\$656,333           | 1.16                          | 0.89          | 1.31                    | 17.76%                     | -12.81%          | 30.57%                |
| <b>Total Opportunistic</b>                              |              |                      | <b>\$20,213,441</b>  | <b>\$66,916,780</b> | <b>-\$46,703,339</b> | <b>1.19</b>                   | <b>0.81</b>   | <b>1.47</b>             | <b>3.66%</b>               | <b>-5.29%</b>    | <b>8.95%</b>          |
| <b>Value Add</b>  |              |                      |                      |                     |                      |                               |               |                         |                            |                  |                       |
| New Mountain Net Lease Partners, L.P.                   | 2017         | FTSE NAREIT All REIT | \$6,807,618          | \$5,800,932         | \$1,006,686          | 1.26                          | 1.11          | 1.13                    | 15.36%                     | 9.05%            | 6.32%                 |
| Oak Street Real Estate Capital Fund IV, L.P.            | 2017         | FTSE NAREIT All REIT | \$15,816,389         | \$12,536,235        | \$3,280,154          | 1.28                          | 1.20          | 1.07                    | 19.64%                     | 14.27%           | 5.37%                 |
| CBRE Capital Partners U.S. Special Situations I, L.P.   | 2010         | FTSE NAREIT All REIT | \$0                  | -\$407,926          | \$407,926            | 1.45                          | 1.03          | 1.41                    | 12.87%                     | 0.90%            | 11.97%                |
| Global Real Return Strategy                             | 2008         | FTSE NAREIT All REIT | \$8,417,587          | \$19,344,574        | -\$10,926,988        | 1.43                          | 0.79          | 1.80                    | 4.48%                      | -3.28%           | 7.76%                 |



## MPERS

# PME Analysis

| Investments   |              |                      | PME Valuations (ICM) |                      |                      | PME Multiples (Kaplan Schoar) |               |                         | PME Returns (Direct Alpha) |                  |                       |
|---|--------------|----------------------|----------------------|----------------------|----------------------|-------------------------------|---------------|-------------------------|----------------------------|------------------|-----------------------|
| Investment Name   | Vintage Year | Benchmark            | Valuation            | Valuation ICM        | Valuation Spread     | TVPI                          | Kaplan Schoar | Market Related Multiple | SI IRR                     | Direct Alpha PME | Market Related Return |
| CenterSquare Value-Added Fund III, L.P.                   | 2016         | FTSE NAREIT AII REIT | \$10,871,180         | \$5,462,217          | \$5,408,963          | 1.35                          | 1.15          | 1.17                    | 13.91%                     | 7.59%            | 6.32%                 |
| CenterSquare Value-Added Fund III, L.P.                   | 2017         | FTSE NAREIT AII REIT | \$14,565,729         | \$7,130,186          | \$7,435,543          | 1.38                          | 1.19          | 1.16                    | 19.14%                     | 12.54%           | 6.60%                 |
| CenterSquare Value-Added Fund IV, L.P.                    | 2018         | FTSE NAREIT AII REIT | \$20,664,851         | \$20,059,418         | \$605,433            | 1.09                          | 1.02          | 1.07                    | 6.74%                      | 2.02%            | 4.72%                 |
| CenterSquare IV Park Lane Co-Invest, L.P.                 | 2019         | FTSE NAREIT AII REIT | \$9,177,711          | \$8,411,372          | \$766,339            | 1.14                          | 1.08          | 1.05                    | 7.88%                      | 4.80%            | 3.08%                 |
| Lion Mexico Fund, L.P.                                    | 2007         | FTSE NAREIT AII REIT | \$860,141            | \$22,714,638         | -\$21,854,497        | 0.58                          | 0.28          | 2.06                    | -7.64%                     | -17.49%          | 9.85%                 |
| European Property Investors Special Opportunities 3, L.P. | 2013         | FTSE NAREIT AII REIT | \$4,802,221          | \$5,016,089          | -\$213,868           | 1.25                          | 0.99          | 1.26                    | 6.54%                      | -0.40%           | 6.94%                 |
| European Property Investors Special Opportunities 4, L.P. | 2015         | FTSE NAREIT AII REIT | \$16,483,132         | \$13,804,531         | \$2,678,602          | 1.34                          | 1.15          | 1.16                    | 11.22%                     | 5.32%            | 5.90%                 |
| European Property Investors Special Opportunities 5 SCSp  | 2018         | FTSE NAREIT AII REIT | \$5,471,133          | \$6,635,832          | -\$1,164,698         | 0.89                          | 0.82          | 1.09                    | -20.40%                    | -32.91%          | 12.51%                |
| Urdang Value-Added Fund, L.P.                             | 2004         | FTSE NAREIT AII REIT | \$0                  | \$1,993,416          | -\$1,993,416         | 1.15                          | 0.93          | 1.23                    | 2.91%                      | -1.47%           | 4.38%                 |
| Urdang Value-Added Fund II, L.P.                          | 2007         | FTSE NAREIT AII REIT | \$0                  | \$1,696,229          | -\$1,696,229         | 1.31                          | 0.92          | 1.43                    | 5.60%                      | -2.29%           | 7.88%                 |
| Och-Ziff Real Estate RE Fund, L.P.                        | 2016         | FTSE NAREIT AII REIT | \$0                  | -\$2,008,378         | \$2,008,378          | 2.46                          | 2.11          | 1.17                    | 93.43%                     | 77.68%           | 15.74%                |
| CSIM IV 69 GMR Co-Investment, L.P.                        | 2020         | FTSE NAREIT AII REIT | \$1,469,443          | \$1,346,402          | \$123,041            | 1.00                          | 1.09          | 0.92                    | 0.25%                      | 9.14%            | -8.89%                |
| <b>Total Value Add</b>                                    |              |                      | <b>\$115,407,135</b> | <b>\$129,535,766</b> | <b>-\$14,128,631</b> | <b>1.25</b>                   | <b>0.96</b>   | <b>1.31</b>             | <b>6.24%</b>               | <b>-1.16%</b>    | <b>7.40%</b>          |
| <b>Total</b>  |              |                      | <b>\$211,955,822</b> | <b>\$262,464,752</b> | <b>-\$50,508,930</b> | <b>1.41</b>                   | <b>0.97</b>   | <b>1.46</b>             | <b>7.76%</b>               | <b>-0.75%</b>    | <b>8.50%</b>          |



# GLOSSARY OF TERMS

- **Commitment**– The amount an investor has committed to invest with the General Partner
- **Paid In Capital** – The amount an investor has contributed for investments and management fees, minus recallable distributions
- **Unfunded Commitment**– The remaining amount an investor is contractually obligated to contribute for investment
- **Additional Fees** – Fees that are paid outside the capital commitment, also includes interest paid/received due from subsequent closings of the fund
- **Cumulative Distributions** – The amount an investor has received from realized and partially realized investments
- **Valuation** – Sum of the fair market value of all investments plus cash
- **Call Ratio** – Calculated by dividing Paid in Capital by Commitment
- **Market Exposure** – Calculated by adding Reported Value to Unfunded Commitment
- **Total Value** – Calculated by adding Cumulative Distributions and Valuation. Represents the total amount an investor should expect to receive from their investments
- **Net Benefit** – Calculated by subtracting (Paid In Capital + Additional Fees) from Total Value.
- **Distributions to Paid In Capital (DPI) Ratio\*\*** - Calculated by dividing Cumulative Distributions by (Paid In Capital + Additional Fees)
- **Total Value to Paid In Capital (TVPI) Ratio\*\*** – Calculated by dividing Total Value by (Paid in Capital + Additional Fees). Represents the multiple of the overall cash invested that an investor is expected to receive
- **IRR** - The calculation of the IRR (Internal Rate of Return) takes into consideration the timing of cash contributions and distributions to and from the partnerships, the length of time the investments have been held and the sum of the Valuation. It is the discount rate at which the net present value of all cash flows and the valuation is equal to zero.
- **Direct Alpha PME** - The calculation is deduced from the Kaplan Schoar PME calculation by computing an IRR of the discounted cash flows and taking the natural logarithm of the resulting IRR.
- **Market Related Multiple** - Calculated by dividing the TVPI by the Kaplan Schoar PME.
- **Market Related Return** - Calculated by subtracting the Direct Alpha PME from the since inception IRR.
- **Valuation ICM** – The valuation equivalent that ICM calculates for the public market is called valuation ICM
- **KS PME** – The Kaplan Schoar Public Markets Equivalent is a ratio of the future value of all distributions divided by the future value of all contributions using the index return as the discount rate. The ending valuation is treated as a distribution in this method
- **\*\*Note that NEPC uses a method where recallable distributions are subtracted from Paid In Capital rather than added to Cumulative Distributions, which may affect the calculation of the DPI/TVPI multiples**