



***Summit Strategies Group***

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**MoDOT & Patrol Retirement System**

Performance Review  
June 30, 2011

## Executive Summary

# MoDOT & Patrol Retirement System

Executive Summary  
As of June 30, 2011

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## **Broad Market Performance**

- Mixed economic news, along with inflation fears, created volatile equity markets this quarter leaving returns varied by quarter end. Small cap and emerging markets, the strongest performers in the recent rally, were the worst performers for the quarter. Domestic large core, value, and growth outperformed their small cap counterparts in the second quarter. Small cap growth leads the impressive 1-year double-digit returns for the global equity markets posting an annualized gain of 43.5%. International large cap led the quarter for equities up 1.6%. Emerging markets maintain the strongest 5-year return at 11.4%, significantly outperforming the developed markets (domestic and international).
- Despite modest spread widening (approximately 10 bps each) during the quarter, mortgage-backed spreads and corporate spreads posted positive performance, both returning 2.3%. In addition, high yield spreads widened about 60 bps (to 560 bps) and returned 1.1%. Non-US bonds outperformed the Barclays Aggregate by 130 bps. The Fed left the overnight lending rate unchanged (0-0.25%) as QE2 was completed at the end of the second quarter.

## **MPERS' Quarter-End Investment Highlights**

- The total fund's asset allocation is in line with its policy targets, slightly overweight to real estate and underweight to fixed income and hedge funds.
- This allocation differs from your peers (the public fund universe). For example, MPERS has much less invested in US stocks and in fixed income, and much more invested in alternative investments, than the sample. A fund's asset allocation is the primary driver of its performance, so one must bear this in mind when evaluating MPERS' universe ranking relative to its peer group.
- For the fiscal year ending June 30, 2011, MPERS returned 21.78%. This exceeds the Policy Index by 5.13% and exceeds the actuarial assumed return by 13.53%.
- With the exception of Private Equity, every one of the composites outperformed its index in the fiscal year.
- Longer term, the fund trails the policy index. The shortfall here is in part attributable to underperformance in both fixed income and real estate as a result of the 2008 financial crisis.
- For the seven years ending June 30, the Total Fund return is 6.19%, below the actuarial assumed rate of 8.25%.

## **What's Working**

- The Global Equity Composite beats its benchmark over all periods.
- The Fixed Income Composite outperforms its index by 3.75% in the fiscal year and ranks 11th in the peer group.
- The Hedge Fund composite outperforms its index over all periods.
- The Real Estate Composite outperforms its index by 10.47% in the fiscal year and ranks 7th in the peer group.
- The Private Equity Composite generated a 17.61% return for the fiscal year.

## **What's Not Working**

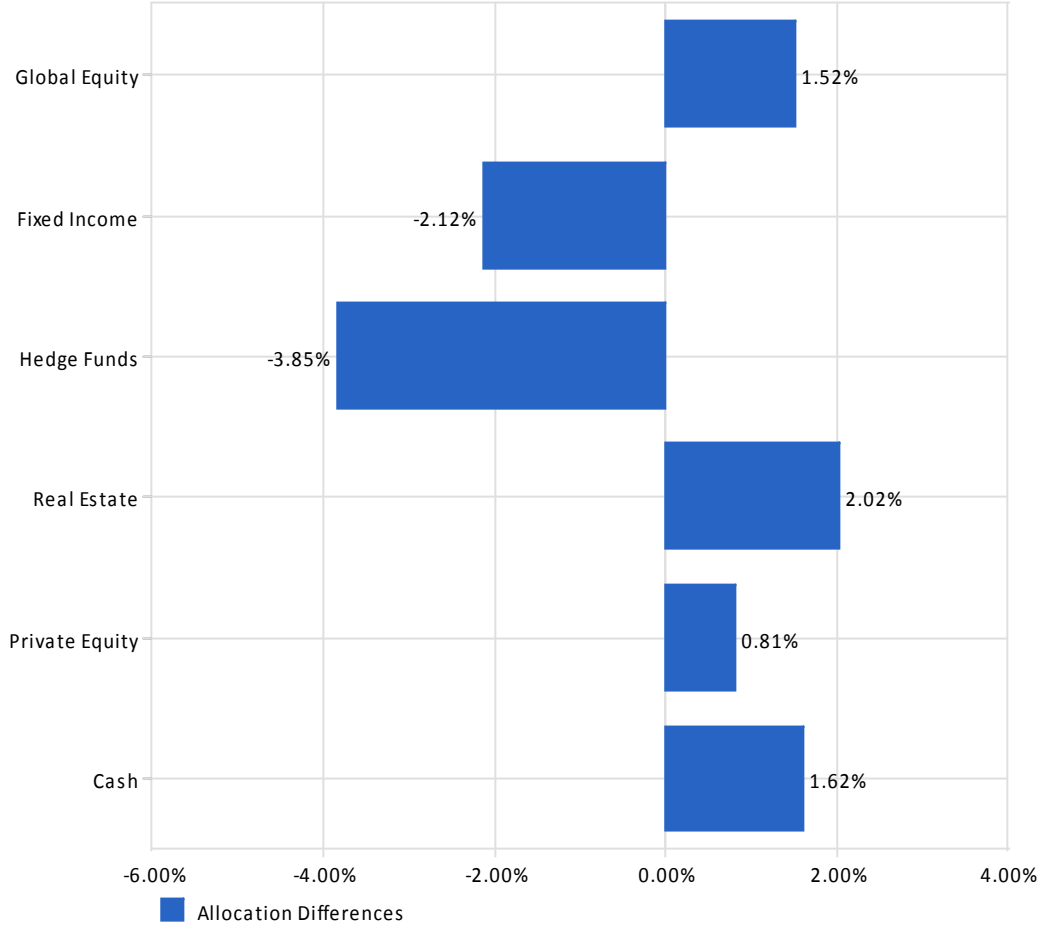
- The Private Equity portfolio is immature and ultimate returns are years away from realization. The mismatch between its appraisal-based valuation and its public equity-based benchmark is contributing to significant policy shortfalls. It is too early in the process for either meaningful returns or concerns about performance.

# MoDOT & Patrol Retirement System

Total Fund Asset Allocation

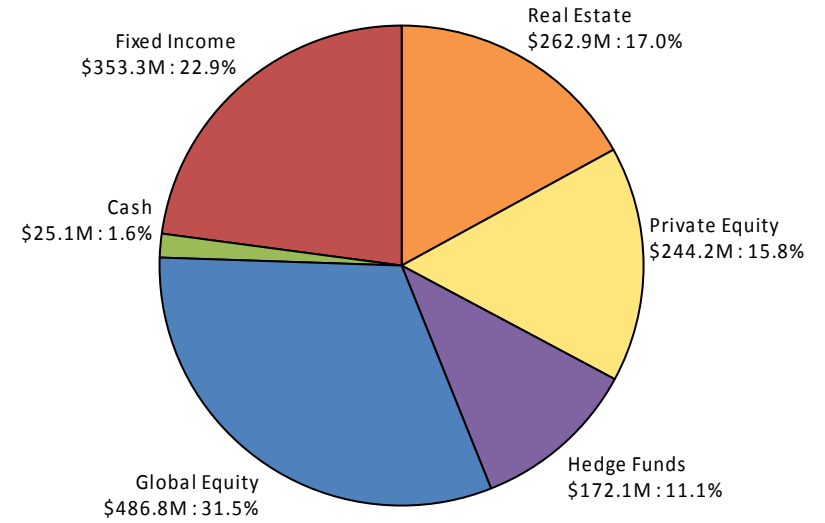
June 30, 2011

## Actual Allocation vs. Policy Allocation

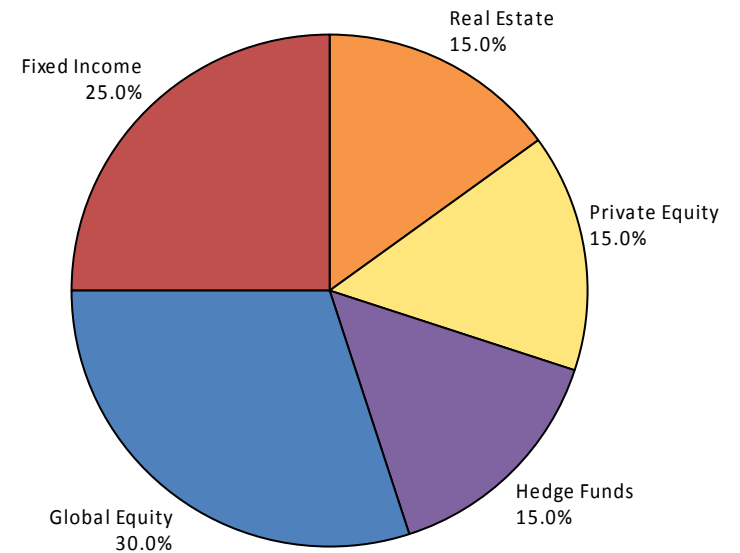


	<u>Market Value</u> (\$)	<u>Allocation</u> (%)	<u>Target</u> (%)
Global Equity	486,757,704	31.52	30.00
Fixed Income	353,287,430	22.88	25.00
Hedge Funds	172,145,792	11.15	15.00
Real Estate	262,909,645	17.02	15.00
Private Equity	244,235,096	15.81	15.00
Cash	25,052,058	1.62	-
<b>Total Fund</b>	<b>1,544,387,724</b>	<b>100.00</b>	<b>100.00</b>

## Actual Asset Allocation



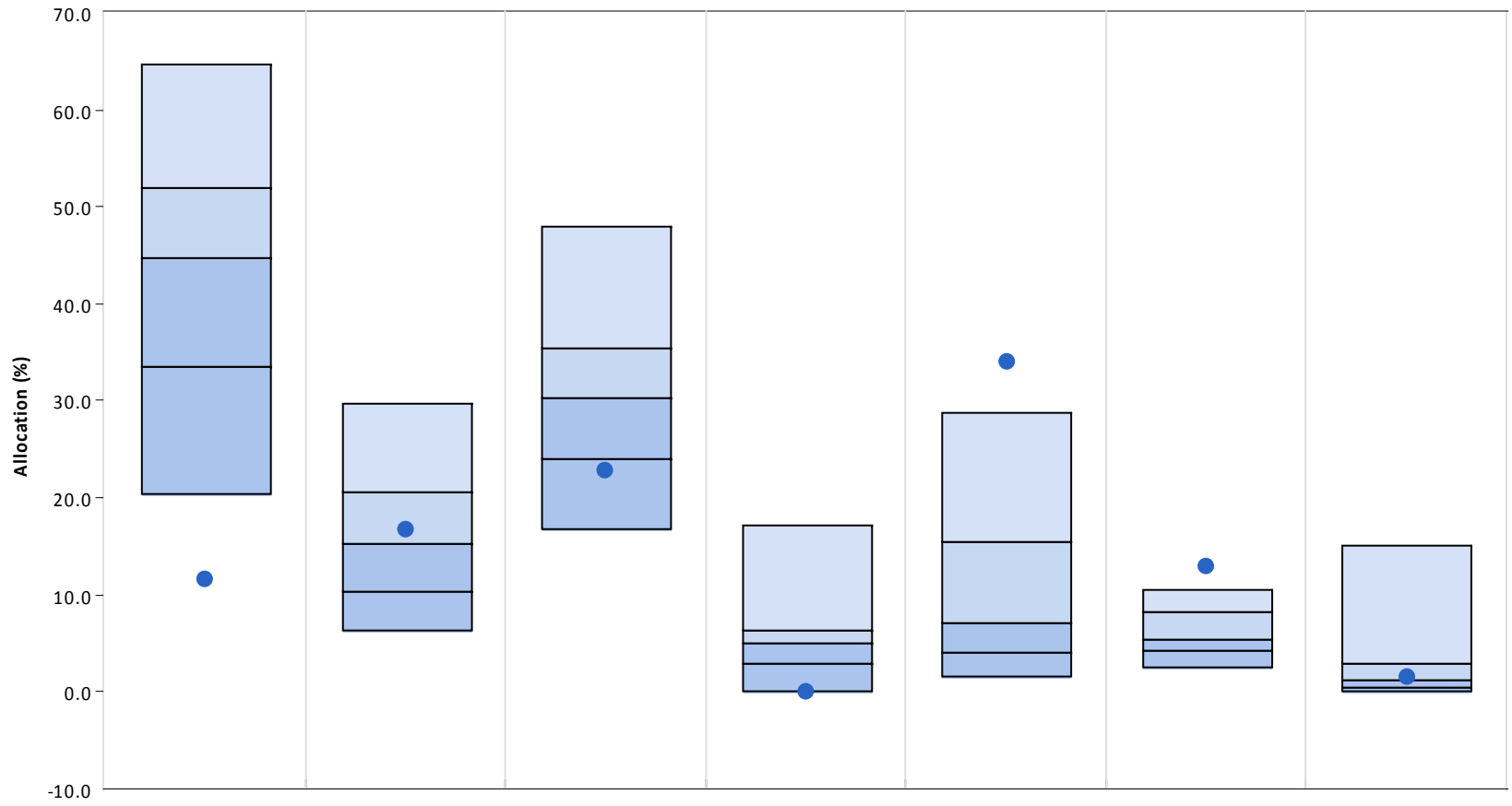
## Policy Asset Allocation



# MoDOT & Patrol Retirement System

Plan Sponsor TF Asset Allocation vs. All Public Plans-Total Fund

As of June 30, 2011



	<u>US Equity</u>	<u>Intl. Equity</u>	<u>US Fixed Income</u>	<u>Intl. Fixed Income</u>	<u>Alternative Inv.</u>	<u>Real Estate</u>	<u>Cash</u>
● MPERS TOTAL FUND COMPOSITE	11.71 (99)	16.73 (42)	22.95 (81)	0.00 N/A	34.03 (2)	12.95 (1)	1.62 (42)
5th Percentile	64.77	29.74	47.87	17.24	28.81	10.45	15.11
1st Quartile	51.91	20.55	35.49	6.29	15.37	8.16	2.93
<b>Median</b>	<b>44.69</b>	<b>15.29</b>	<b>30.28</b>	<b>4.96</b>	<b>7.07</b>	<b>5.41</b>	<b>1.28</b>
3rd Quartile	33.60	10.33	23.96	2.99	4.01	4.31	0.53
95th Percentile	20.44	6.29	16.73	0.07	1.52	2.55	0.07
Population	260	234	258	61	71	102	181

Parentheses contain percentile rankings.

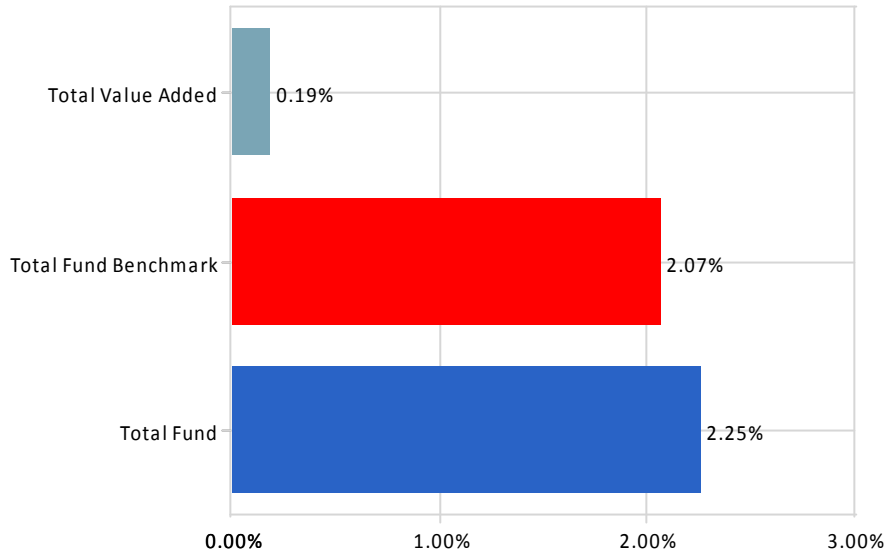
# MoDOT & Patrol Retirement System

Total Fund Attribution

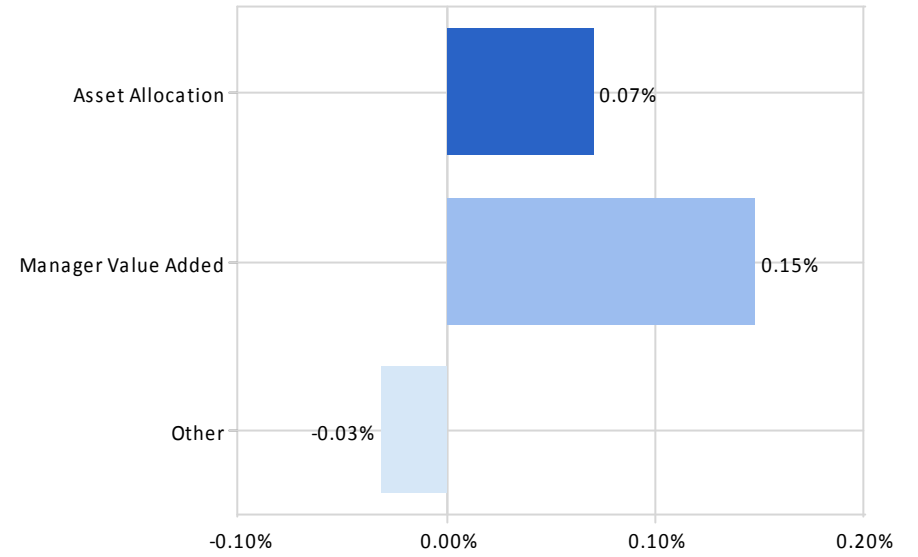
June 30, 2011

## 3 Month Total Fund Attribution

*Total Fund Performance*

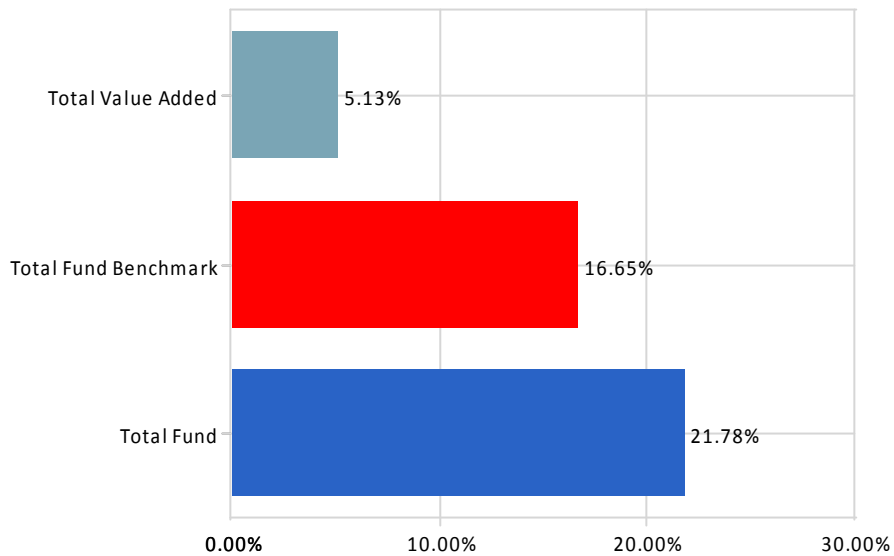


*Total Fund Value Added*

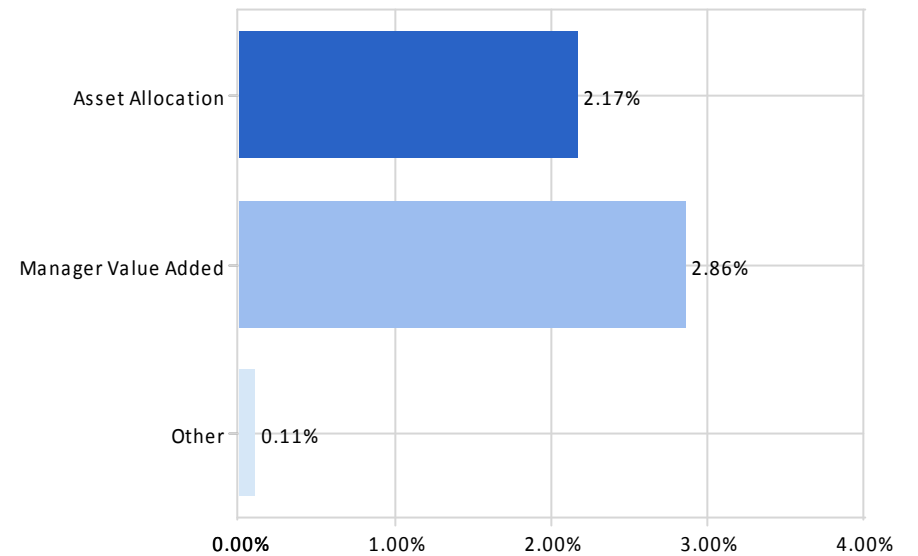


## FYTD Total Fund Attribution

*Total Fund Performance*



*Total Fund Value Added*



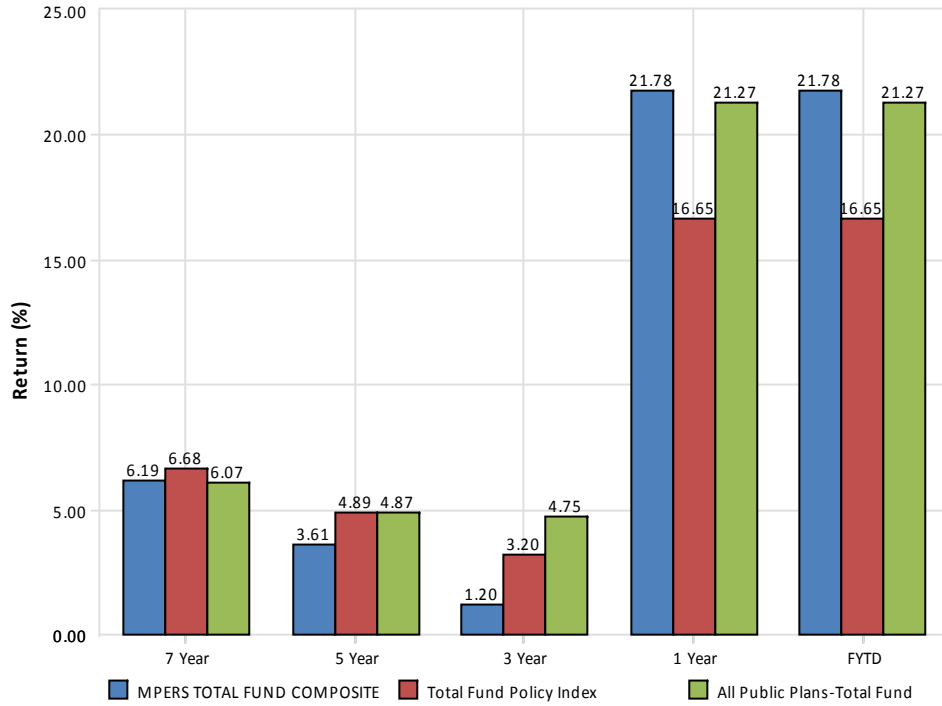
## Performance

# MoDOT & Patrol Retirement System

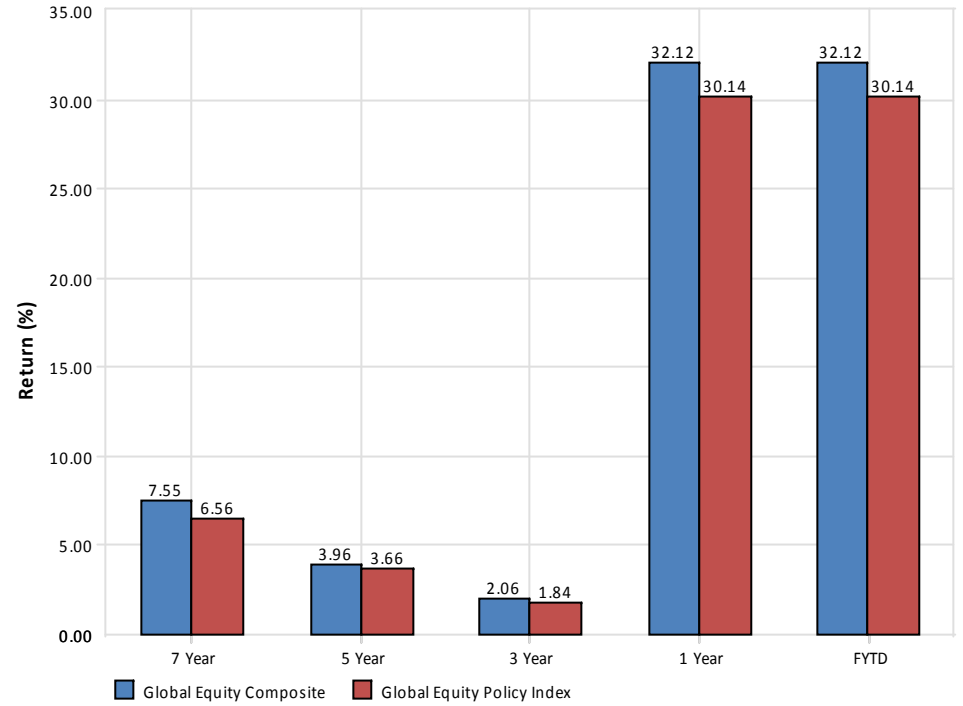
Composite Overview

June 30, 2011

## MPERS TOTAL FUND COMPOSITE Performance



## Global Equity Composite Performance



	7 Year	5 Year	3 Year	1 Year	FYTD
<b>MPERS TOTAL FUND COMPOSITE</b>	<b>6.19</b>	<b>3.61</b>	<b>1.20</b>	<b>21.78</b>	<b>21.78</b>
<i>Total Fund Policy Index</i>	6.68	4.89	3.20	16.65	16.65
All Public Plans - Total Fund Median	6.07	4.87	4.75	21.27	21.27
Percentile Rank	46	92	100	44	44

	7 Year	5 Year	3 Year	1 Year	FYTD
<b>Global Equity Composite</b>	<b>7.55</b>	<b>3.96</b>	<b>2.06</b>	<b>32.12</b>	<b>32.12</b>
<i>Global Equity Policy Index</i>	6.56	3.66	1.84	30.14	30.14

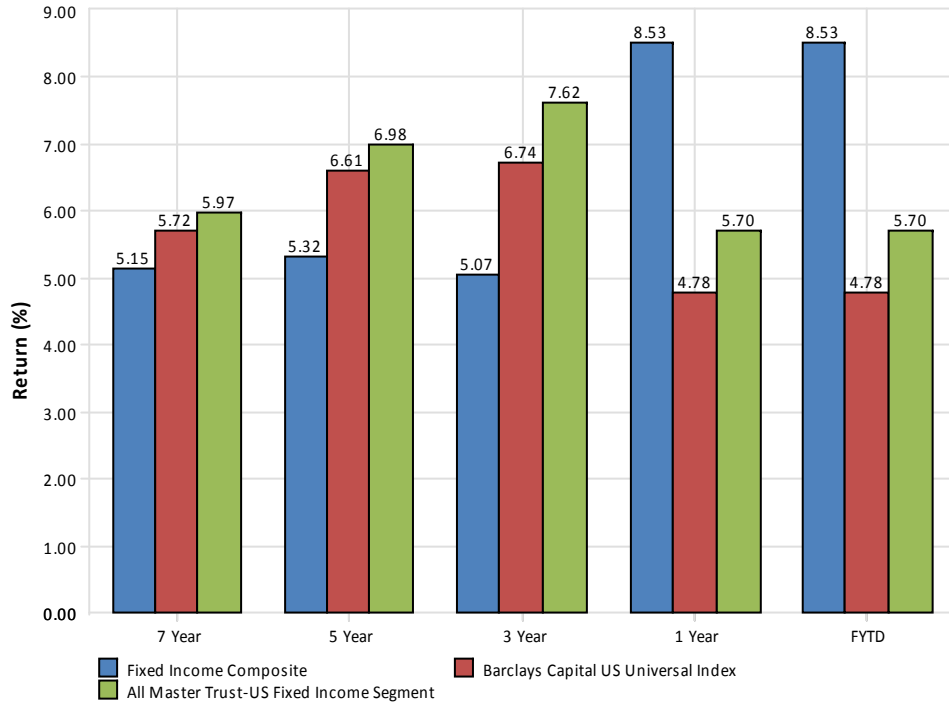


# MoDOT & Patrol Retirement System

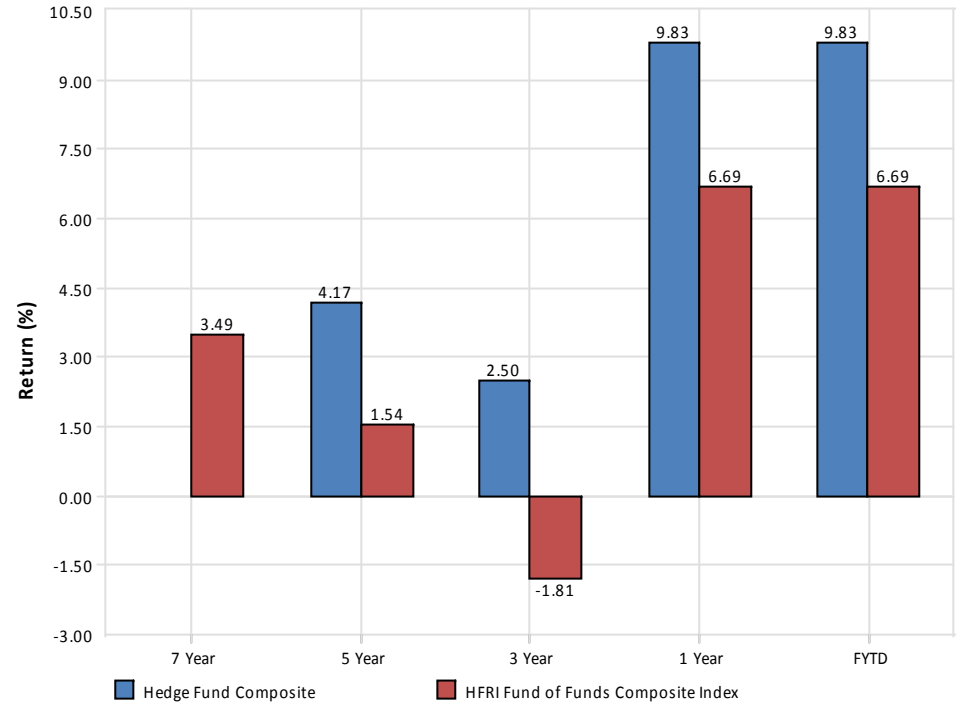
Composite Overview

June 30, 2011

## Fixed Income Composite Performance



## Hedge Fund Composite Performance



	7 Year	5 Year	3 Year	1 Year	FYTD
<b>Fixed Income Composite</b>	<b>5.15</b>	<b>5.32</b>	<b>5.07</b>	<b>8.53</b>	<b>8.53</b>
<i>Barclays Capital US Universal Index</i>	5.72	6.61	6.74	4.78	4.78
All Master Trust-US Fixed Income Segment Median	5.97	6.98	7.62	5.70	5.70
Percentile Rank	86	90	90	11	11

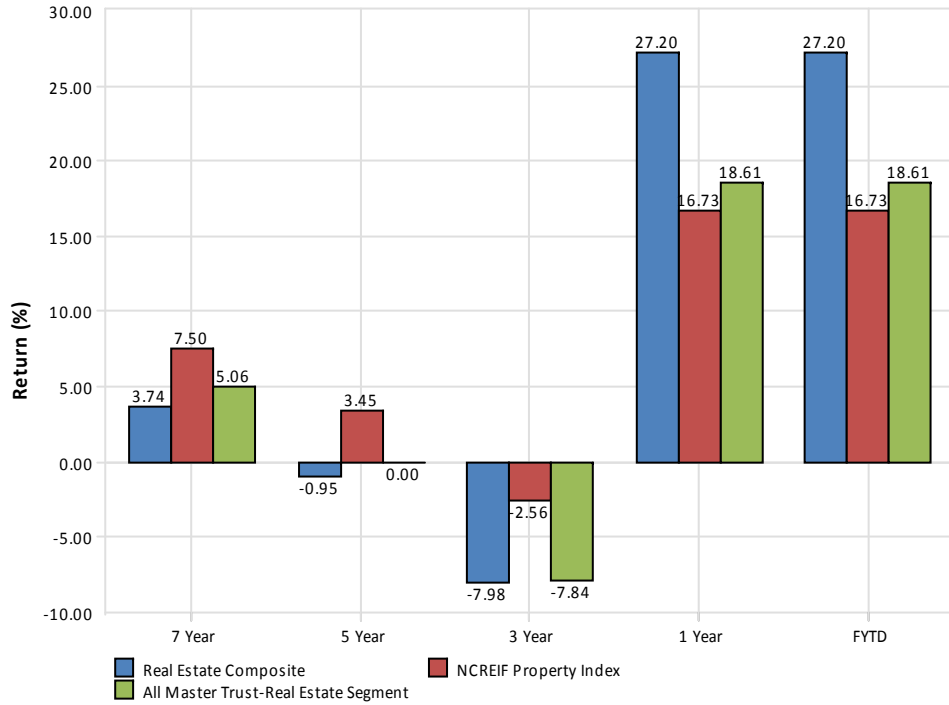
	7 Year	5 Year	3 Year	1 Year	FYTD
<b>Hedge Fund Composite</b>	<b>N/A</b>	<b>4.17</b>	<b>2.50</b>	<b>9.83</b>	<b>9.83</b>
<i>HFRI Fund of Funds Composite Index</i>	3.49	1.54	-1.81	6.69	6.69

# MoDOT & Patrol Retirement System

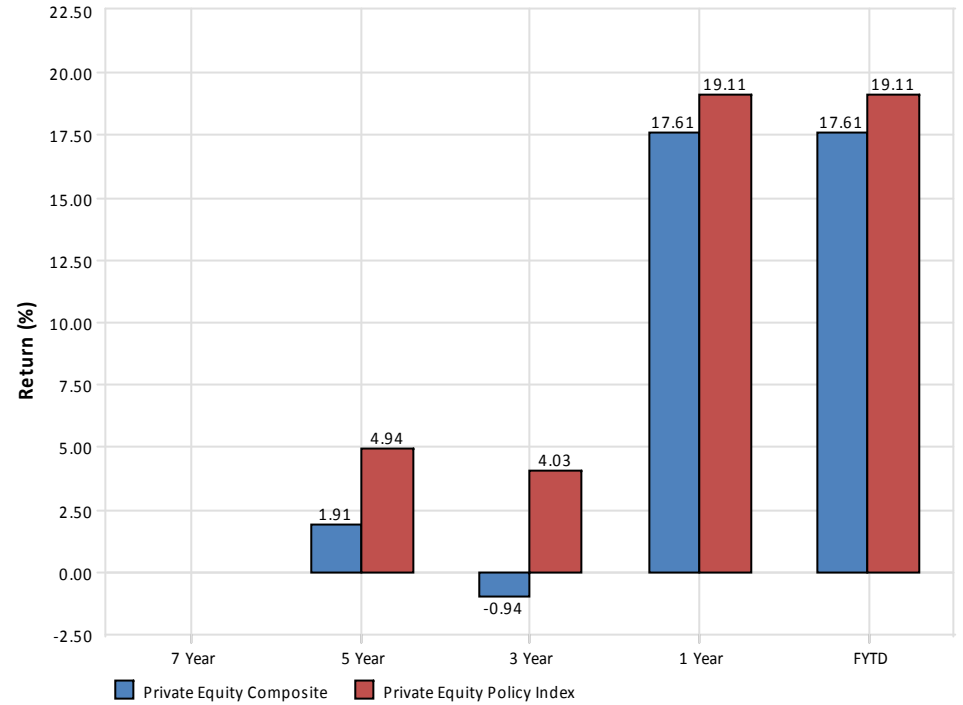
Composite Overview

June 30, 2011

## Real Estate Composite Performance



## Private Equity Composite Performance



	7 Year	5 Year	3 Year	1 Year	FYTD
<b>Real Estate Composite</b>	<b>3.74</b>	<b>-0.95</b>	<b>-7.98</b>	<b>27.20</b>	<b>27.20</b>
<i>NCREIF Property Index</i>	7.50	3.45	-2.56	16.73	16.73
All Master Trust-Real Estate Segment Median	5.06	0.00	-7.84	18.61	18.61
Percentile Rank	87	67	52	7	7

	7 Year	5 Year	3 Year	1 Year	FYTD
<b>Private Equity Composite</b>	<b>N/A</b>	<b>1.91</b>	<b>-0.94</b>	<b>17.61</b>	<b>17.61</b>
<i>Private Equity Policy Index</i>	N/A	4.94	4.03	19.11	19.11

## Appendix

# Economic & Capital Market Highlights

June 30, 2011

## QUARTERLY HIGHLIGHTS

### Economic

- Real GDP Growth (YoY) for the second quarter was 1.6%, as consumers who account for 70% of US GDP reached all-time highs in personal consumption. In spite of this fact, consumers have yet to regain confidence in the recovery as measured by consumer confidence (64.8). The unemployment rate rose over the second quarter to 9.2%, making it the first increase since November. Although mostly positive, housing reports were low indicating a slow recovery. Despite headwinds, such as capping out the debt ceiling and continued political turmoil overseas, the economy continues to grow, albeit at a slow pace.

### Capital Markets

- Mixed economic news, along with inflation fears, created volatile equity markets this quarter leaving returns varied by quarter end. Small cap and emerging markets, the strongest performers in the recent rally, were the worst performers for the quarter. Domestic large core, value, and growth outperformed their small cap counterparts in the second quarter. Small cap growth leads the impressive 1-year double-digit returns for the global equity markets posting an annualized gain of 43.5%. International large cap led the quarter for equities up 1.6%. Emerging markets maintain the strongest 5-year return at 11.4%, significantly outperforming the developed markets (domestic and international).
- Despite modest spread widening (approximately 10 bps each) during the quarter, mortgage-backed spreads and corporate spreads posted positive performance, both returning 2.3%. In addition, high yield spreads widened about 60 bps (to 560 bps) and returned 1.1%. Non-US bonds outperformed the Barclays Aggregate by 130 bps. The Fed left the overnight lending rate unchanged (0-0.25%) as QE2 was completed at the end of the second quarter.

## ECONOMIC STATISTICS

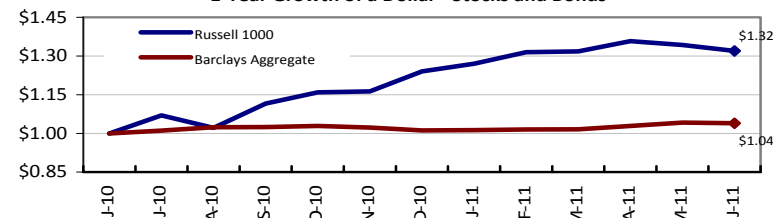
	Current	12-Month Statistics		
		Avg	High	Low
Real GDP Growth (YoY)	1.6 L	2.6	3.5	1.6
Manufacturing Strength	55.3	57.7	61.4	53.5
Unemployment	9.2	9.3	9.8	8.8
Dollar (Composite)	74.3	77.8	83.2	72.9
Consumer Price Index* (YoY)	3.2 H	1.9	3.2	1.1
Producer Price Index (YoY)	7.2	5.1	7.3	3.4
Fed Funds Target Rate	0.25 L	0.25	0.25	0.25
Consumer Confidence	64.8	64.6	71.6	57.9
10-Year Treasury Yield	3.2	3.0	3.5	2.5

\*US CPI Urban Consumer - All, Seasonally Adjusted

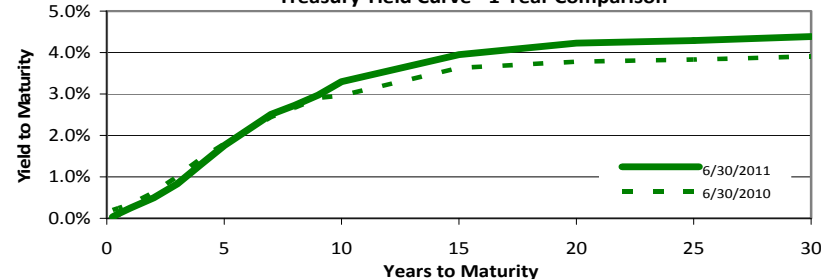
## MARKET PERFORMANCE

	Quarter	1 Year	3 Year	5 Year
S&P 500	0.1	30.7	3.3	2.9
Russell 1000	0.1	31.9	3.7	3.3
Russell 1000 Value	(0.5)	28.9	2.3	1.2
Russell 1000 Growth	0.8	35.0	5.0	5.3
Russell 2000	(1.6)	37.4	7.8	4.1
Russell 2000 Value	(2.6)	31.4	7.1	2.2
Russell 2000 Growth	(0.6)	43.5	8.4	5.8
Russell 3000	0.0	32.4	4.0	3.4
MSCI EAFE Index (Net)	1.6	30.4	(1.8)	1.5
MSCI Emerging Markets (Net)	(1.1)	27.8	4.2	11.4
Barclays Capital Aggregate	2.3	3.9	6.5	6.5
Barclays Capital U.S. Treasury	2.4	2.2	5.1	6.2
Barclays Capital U.S. Corporate	2.3	6.3	8.6	7.0
Barclays Capital US Corp: High Yield	1.1	15.6	12.7	9.3
Barclays Capital U.S. Mortgage	2.3	3.8	6.9	7.0
Barclays Capital Global Aggregate	3.1	10.5	6.0	7.1
NAREIT-All REIT Composite	2.9	33.1	5.7	1.7
NCREIF Property Index	3.9	16.7	(2.6)	3.4

1-Year Growth of a Dollar - Stocks and Bonds



Treasury Yield Curve - 1-Year Comparison



# MoDOT & Patrol Retirement System

Asset Allocation & Net of Fees Performance

As of June 30, 2011

	Asset \$	%	Performance % and Percentile Rank [Blue]											
			3 Month		FYTD		1 Year		3 Year		5 Year		7 Year	
<b>MPERS TOTAL FUND COMPOSITE</b>	<b>1,544,387,724</b>	<b>100.00</b>	<b>2.25</b>	<b>3</b>	<b>21.78</b>	<b>44</b>	<b>21.78</b>	<b>44</b>	<b>1.20</b>	<b>100</b>	<b>3.61</b>	<b>92</b>	<b>6.19</b>	<b>46</b>
<i>Total Fund Policy Index</i>			2.07		16.65		16.65		3.20		4.89		6.68	
Excess Return			0.18		5.13		5.13		-2.00		-1.28		-0.49	
<b>Global Equity Composite</b>	<b>486,757,704</b>	<b>31.52</b>	<b>0.71</b>		<b>32.12</b>		<b>32.12</b>		<b>2.06</b>		<b>3.96</b>		<b>7.55</b>	
<i>Global Equity Policy Index</i>			0.25		30.14		30.14		1.84		3.66		6.56	
Excess Return			0.46		1.98		1.98		0.22		0.30		0.99	
<b>Fixed Income Composite</b>	<b>353,287,430</b>	<b>22.88</b>	<b>2.59</b>	<b>26</b>	<b>8.53</b>	<b>11</b>	<b>8.53</b>	<b>11</b>	<b>5.07</b>	<b>90</b>	<b>5.32</b>	<b>90</b>	<b>5.15</b>	<b>86</b>
<i>Barclays Capital US Universal Index</i>			2.22		4.78		4.78		6.74		6.61		5.72	
Excess Return			0.37		3.75		3.75		-1.67		-1.29		-0.57	
<b>Hedge Fund Composite</b>	<b>172,145,792</b>	<b>11.15</b>	<b>-1.64</b>		<b>9.83</b>		<b>9.83</b>		<b>2.50</b>		<b>4.17</b>		-	
<i>HFRI Fund of Funds Composite Index</i>			-1.17		6.69		6.69		-1.81		1.54		-	
Excess Return			-0.47		3.14		3.14		4.31		2.63		-	
<b>Real Estate Composite</b>	<b>262,909,645</b>	<b>17.02</b>	<b>1.24</b>	<b>86</b>	<b>27.20</b>	<b>7</b>	<b>27.20</b>	<b>7</b>	<b>-7.98</b>	<b>52</b>	<b>-0.95</b>	<b>67</b>	<b>3.74</b>	<b>87</b>
<i>NCREIF Property Index</i>			3.94		16.73		16.73		-2.56		3.45		7.50	
Excess Return			-2.70		10.47		10.47		-5.42		-4.40		-3.76	
<b>Private Equity Composite</b>	<b>244,235,096</b>	<b>15.81</b>	<b>9.87</b>		<b>17.61</b>		<b>17.61</b>		<b>-0.94</b>		<b>1.91</b>		-	
<i>Private Equity Policy Index</i>			6.71		19.11		19.11		4.03		4.94		-	
Excess Return			3.16		-1.50		-1.50		-4.97		-3.03		-	
<b>Cash</b>	<b>25,052,058</b>	<b>1.62</b>	<b>0.08</b>	<b>78</b>	<b>0.43</b>	<b>77</b>	<b>0.43</b>	<b>77</b>	<b>1.09</b>	<b>72</b>	<b>2.96</b>	<b>53</b>	<b>3.16</b>	<b>39</b>
<i>90 Day U.S. Treasury Bill</i>			0.03		0.15		0.15		0.41		1.97		2.23	
Excess Return			0.05		0.28		0.28		0.68		0.99		0.93	

## Glossary

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<u>Term</u>	<u>Description</u>
Simple Alpha	Arithmetic difference between the managers return and the benchmark return over a specified time period.
Alpha	A measure of the difference between a portfolio's actual returns and its expected performance, given its level of risk as measured by beta. It is a measure of the portfolio's historical performance not explained by movements of the market.
Asset Allocation Effect	In attribution analysis, the incremental return attributable to diverging from the target weights of the policy benchmark holding all other factors constant.
Beta	A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of a portfolio's non-diversifiable or systematic risk.
Consistency	The percentage of periods that a product achieved a rate of return higher than that of its benchmark. The higher the consistency figure, the more value a manager has contributed to the product's performance.
Down Market Capture	The ratio of average portfolio return over the benchmark during periods of negative benchmark return. Lower values indicate better product performance.
Excess Return	Arithmetic difference between the managers return and the risk-free return over a specified time period.
Excess Risk	A measure of the standard deviation of a portfolio's performance relative to the risk free return.
Information Ratio	Measured by dividing the active rate of return by the tracking error. The higher the Information Ratio, the more value-added contribution by the manager. Negative Information Ratios are difficult to interpret.
Manager Value-Added (Selection Effect)	In attribution analysis, the incremental return attributable to active management; the result of diverging from the benchmark allocation within a given asset class.
Market Timing / Other	In attribution analysis, represents the impact of intraperiod shifts in asset allocation. For example a rapidly appreciating asset could have markedly different weights throughout the analysis period (which looks at fixed points in time).

## Glossary

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R-Squared	The percentage of a portfolio's performance explained by the behavior of the appropriate benchmark. High R-Squared means a higher correlation of the portfolio's performance to the appropriate benchmark.
Sharpe Ratio	Represents the excess rate of return over the risk free return divided by the standard deviation of the excess return. The result is the absolute rate of return per unit of risk. The higher the value, the better the product's historical risk-adjusted performance.
Tracking Error	A measure of the standard deviation of a portfolio's performance relative to the performance of an appropriate market benchmark.
Treynor Ratio	Similar to Sharpe ratio, but focuses on beta rather than excess risk (standard deviation). Represents the excess rate of return over the risk free rate divided by the beta. The result is the absolute rate of return per unit of risk. The higher the value, the better the product's historical risk-adjusted performance.
Up Market Capture	The ratio of average portfolio return over the benchmark during periods of positive benchmark return. Higher values indicate better product performance.

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