

Callan



Chicago Teachers' Pension Fund

Executive Summary

September 30, 2016

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**Public School Teachers' Pension and Retirement Fund of Chicago
Performance Evaluation Executive Summary
Third Quarter 2016**

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Total Fund Commentary

The Fund was valued at \$10.1 billion at the end of the third quarter, representing an increase of \$5 million from June 30, 2016. Investment gains of \$368 million offset negative cash flow activity during the quarter. The portfolio was broadly in-line with its long term target asset allocation as of September 30, 2016.

Investor angst over the unexpected vote on Brexit was short-lived with a "risk-on" theme returning to the markets in July and leading to stock market highs for the Dow, NASDAQ and S&P 500 in August. Highly unusual election antics and continued geopolitical concerns on a number of fronts did not dampen investors' risk appetite or their quest for yield. Emerging markets equities posted their best quarterly return since 2012, outperforming developed markets, and high yield bonds were also top performers. Volatility was exceptionally low throughout the quarter as investors appeared to be somewhat complacent about continued accommodative policies from central banks and steady, albeit slow, economic growth.

In this environment, the Fund registered a positive return, outperforming the peer group median but underperforming the Policy Benchmark. Over the long-term, the Fund continues to do well relative to its Policy Target and peers. The Fund outperformed the Policy Target over the trailing three- and five-year periods, ranking within the top 39% of its peer group. Moreover, compared to the rate of return assumption of 7.75%, the Fund outperformed its target by approximately 223 basis points in the trailing 5-year period, net of fees. Performance relative to this target is mixed over longer periods measured, however.

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Key Issues, Observations and Recommendations

- **Asset Allocation, Portfolio Structure, and Implementation:** Callan completed portfolio structure analyses covering Domestic Equity, International Equity, and Fixed Income, working closely with Staff over the last several months. The portfolio structure exercise helps optimize the Fund's strategic asset allocation and its implementation approach through active and passive managers. Now that decisions have been made with regards to the structure of the portfolio, we will work closely with Staff to develop a prudent implementation plan to rebalance the assets accordingly.
- **Watch Status Report and IPS:** Callan will work with Staff to develop an enhanced set of criteria for the Watch Status process. A preliminary process has been presented and discussed with Staff and we aim to complete this process in the near future. We will also review potential changes/enhancements to the current IPS and will provide recommendations to the Board, as appropriate.
- **Manager Due Diligence Exercise:** We will do a deeper dive on all the managers that fall in the Watch List to ensure they continue to meet expectations in light of:
 1. Performance patterns
 2. Tracking error/risk profile
 3. Portfolio characteristics
- As we go through this process, we encourage the Board to consider the following important points, as it evaluates its options with respect to the roster of managers represented in the Fund:
 1. **Dynamic nature of active managers:** By definition, active managers will underperform during periods where market conditions may not be conducive to the strategy in question. We do expect managers to provide value added over full market cycles, but are mindful of the dynamic nature of active management and the time that may be required to fully appreciate the potential for excess returns.
 2. **Changing managers can be expensive:** We need to be careful not to terminate managers that may be well positioned to provide excess returns over the long-term, even if they show weakness over recent periods. Every dollar we spend to terminate relationships comes out of the Fund. Therefore, we want to exercise caution, and have good justification, to terminate relationships or implement any changes in the Fund. *Relying only on historical performance to terminate investment manager relationships is not in the best interest of the Fund or its participants.*
 3. **Peer group distributions are not static; manager performance patterns are not static:** A top quartile manager today may fall in the bottom quartile in the future. Peer group distributions are not constant. A manager in the top quartile today will not necessarily fall in the top quartile in the future. Peer group distributions are helpful to observe relative performance patterns, but they are not static, or representative of a set of managers that "always" fall in the top quartile, above median, or any other areas of the data distribution. Therefore, a decision to terminate a manager should not, and

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cannot, be based “only” on relative historical peer group comparisons. Peer group analysis is only one tool we utilize to evaluate investment performance and should be taken into account along with a variety of other metrics to evaluate performance objectively and prudently.

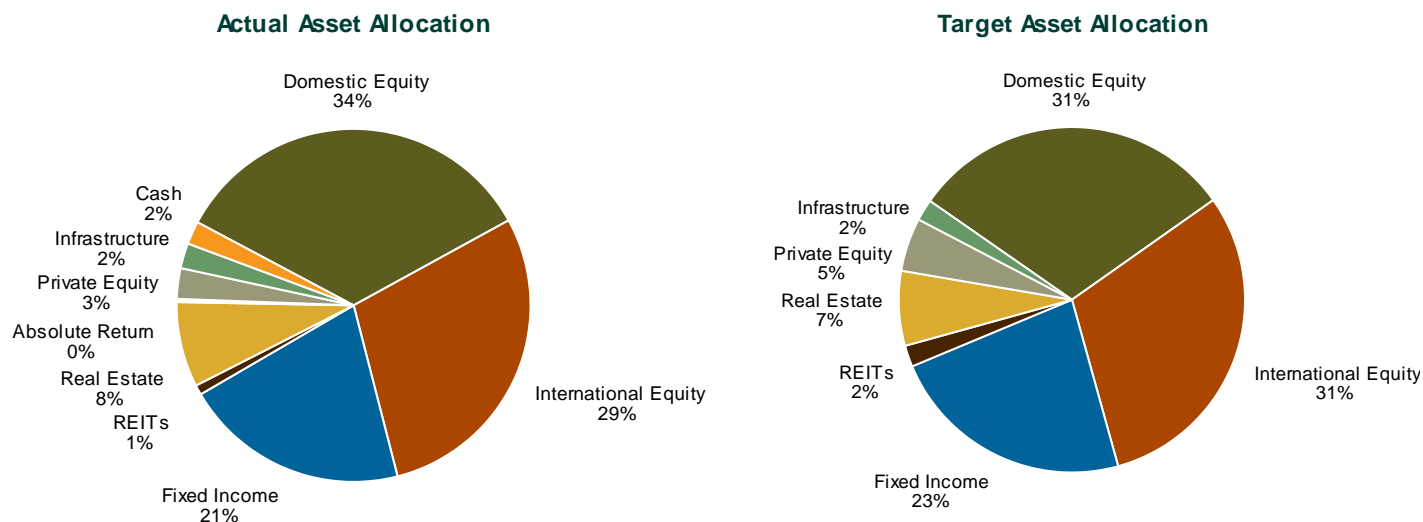
- **Real Estate Update:**
 - The Board approved the hire of Blackstone to fill the real estate debt allocation.
 - The Board will interview 3 MWDBE Real Estate Managers to fulfill an approved allocation at the November Board Meeting.

- **Watch Status Report:** Based on CTPF’s current Watch List Policy, the following managers remain on the Watch List until further notice:
 - Waddell & Reed: Included on the Watch List due to inconsistent rolling three-year performance relative to the market index and peer group median.
 - Taplin Canida Habacht (TCH): Included on the Watch List due to inconsistent rolling three-year performance relative to the market index and peer group median. TCH was already on the Watch List due to planned organizational changes; Tere Canida and Alan Habacht will retire at the end of 2016.
 - Holland continues to be on Watch due to performance results relative to CTPF’s policy guidelines.
 - Morgan Stanley is on Watch for performance results and brokerage, achieving 22% versus a goal of 25%.
 - William Blair ILCG is on Watch for brokerage, achieving 24% versus a goal of 25%.
 - Pugh Capital is on Watch for brokerage, achieving 23% versus goal of 25%.

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Asset Allocation

The Fund was valued at \$10.1 billion at the end of the third quarter, representing an increase of \$5 million from June 30, 2016. Investment gains of \$368 million offset negative cash flow activity during the quarter. The portfolio was broadly in-line with its long term target asset allocation as of September 30, 2016.

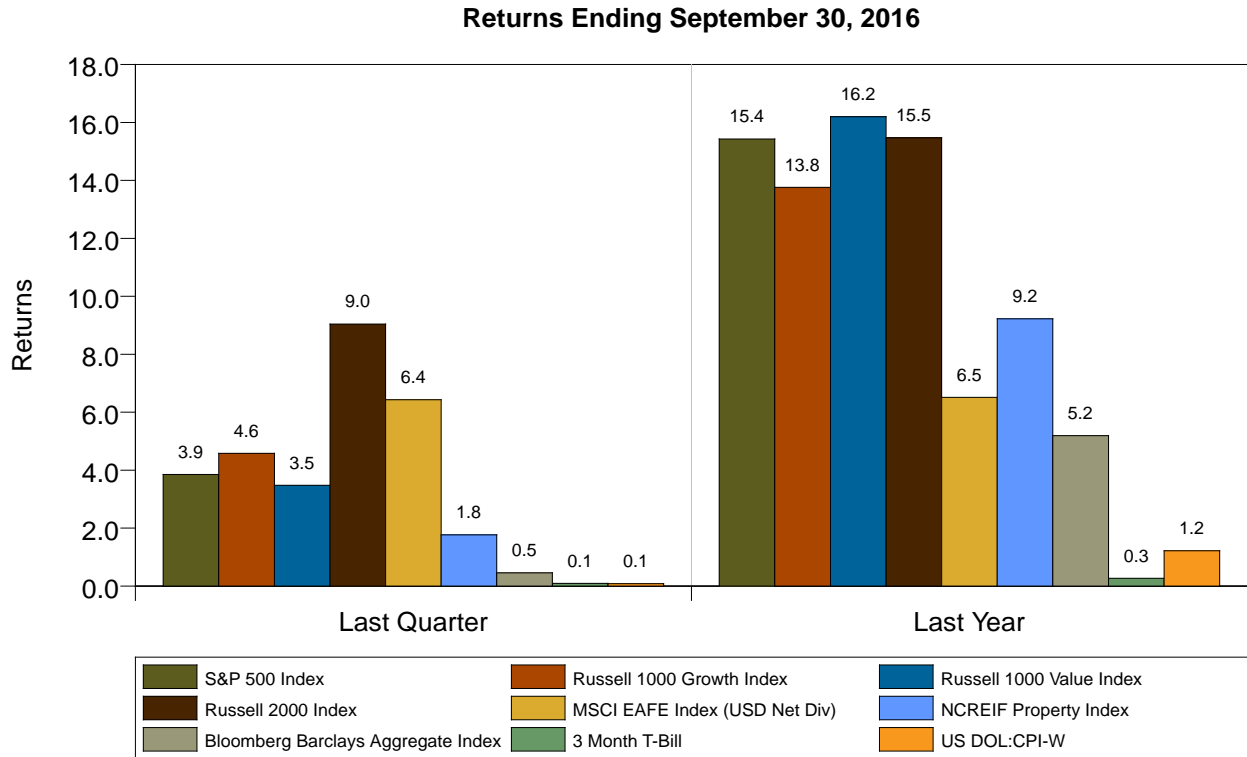


Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	3,448,619	34.2%	30.5%	3.7%	374,850
International Equity	2,920,400	29.0%	30.5%	(1.5%)	(153,368)
Fixed Income	2,072,289	20.6%	23.0%	(2.4%)	(245,635)
REITs	94,674	0.9%	2.0%	(1.1%)	(106,885)
Real Estate	786,164	7.8%	7.0%	0.8%	80,709
Absolute Return	28,878	0.3%	0.0%	0.3%	28,878
Private Equity	284,443	2.8%	5.0%	(2.2%)	(219,454)
Infrastructure	235,593	2.3%	2.0%	0.3%	34,035
Cash	206,869	2.1%	0.0%	2.1%	206,869
Total	10,077,929	100.0%	100.0%		

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Select Market Returns

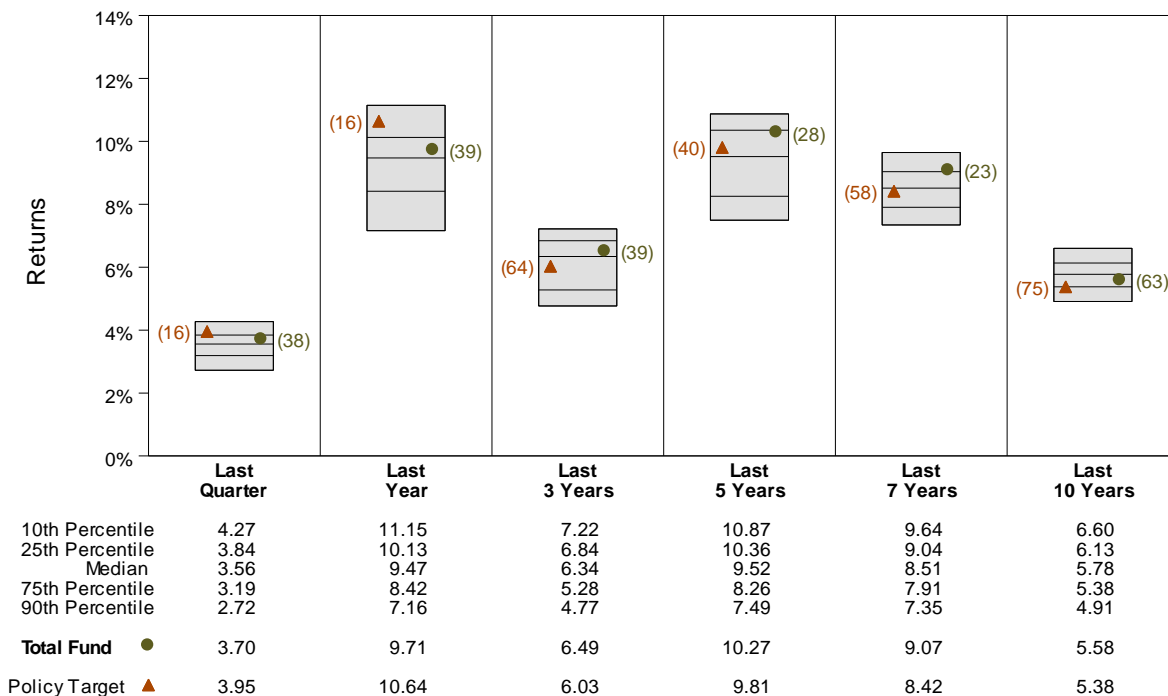


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Total Fund Performance vs. Target

CAI Public Fund Sponsor - Large (>1B)



Note: Performance is shown gross-of-fees.

Current quarter Policy Target = 30.5% Russell 3000 Index, 30.5% MSCI ACWI ex US Index, 23% BB BC Aggregate Bond Index, 7% NFI ODCE Value Weight Index, 5% Russell 3000 Index, 2% FTSE NAREIT Index and 2% Annualized 8% Return.

For the third quarter, the Fund underperformed the market benchmark, but ranked in the 38th percentile of its peers. For the trailing one-year period, the Fund underperformed the Policy Target by 93 basis points, gross of investment management fees (122 basis points net of investment management fees), but ranked in the top 39 percent of its peer group.

Key detractors from performance for the quarter (all net of fees):

- Domestic Equity:** The domestic equity composite outperformed its market benchmark by 17 basis points for the quarter, ranking in the bottom quartile of its peers. Holland Capital Large Cap Growth, Northern Trust Small Cap Core and Phocas Small Cap Value underperformed their market benchmarks. All of the other domestic equity active managers outperformed their respective benchmarks over the quarter. Zevenbergen and Channing posted particularly strong relative performance this quarter, outperforming their custom benchmarks by a wide margin. Long-term performance results continue to be favorable for most of these managers.
- International Equity:** Performance was mixed for the international equity managers this quarter. However, the international equity composite underperformed the custom international equity benchmark by 87 basis points over the period. Morgan Stanley, Lazard and EARNEST Partners Emerging Markets posted the weakest relative performance over the third quarter.

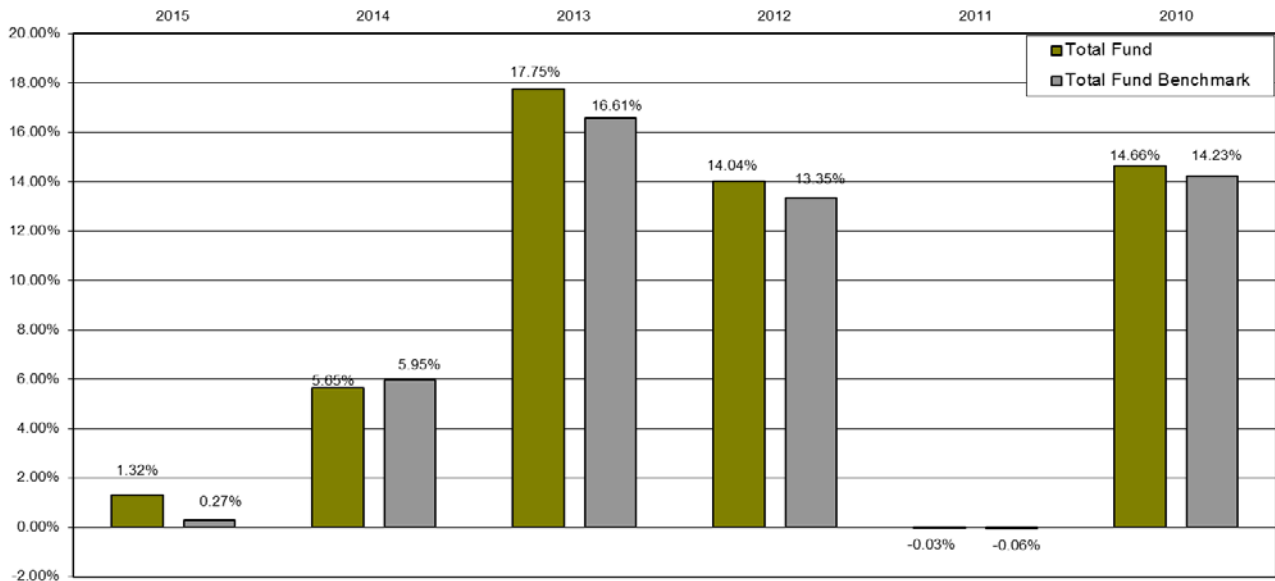
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- **Alternative Investments:** Real Estate (including REIT's) and private equity detracted from results over the quarter on a TWR basis.

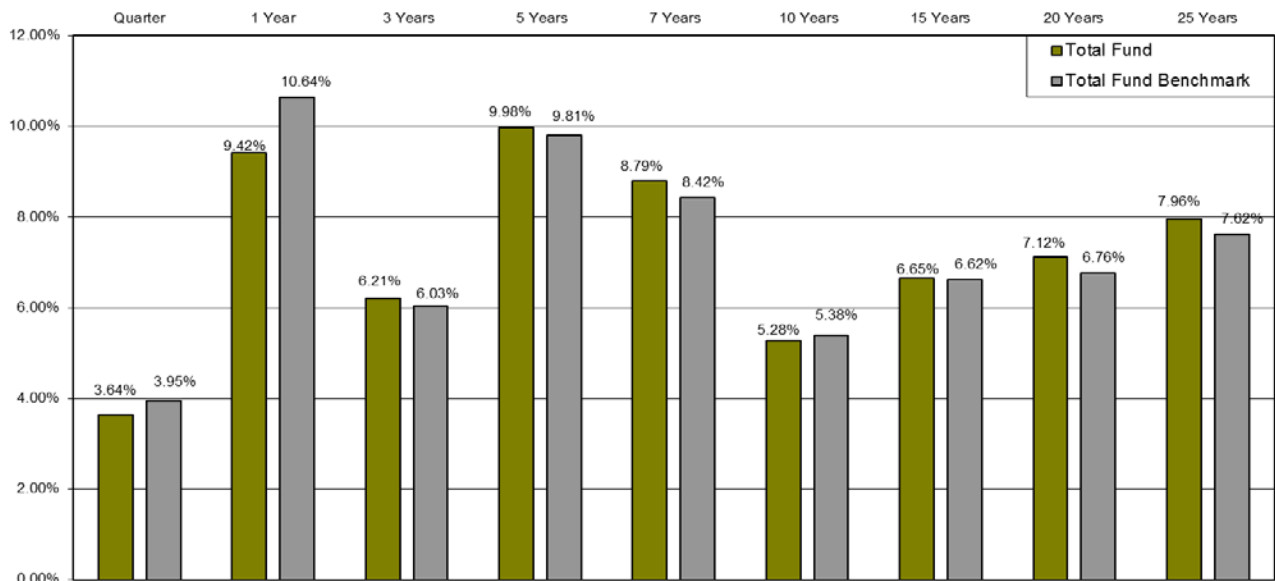
Additional observations:

- Infrastructure, hedge funds and fixed income provided favorable results over the quarter; however, these gains were not enough to offset the underperformance incurred in other areas of the portfolio over the period.

Total Fund Calendar Year Performance Net of Fees



Total Fund Trailing Year Performance Net of Fees



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Manager Performance

Table I presents returns for the public market domestic and international equity and fixed income managers and composites in the Chicago Teacher Pension Fund relative to appropriate benchmarks. Managers highlighted in red are currently on the Watch List.

Table 1 (Net-of-Fees):

CTPF Investment Strategies	Investment Returns as of 9/30/2016					Inception Date	Qtr-End MV
	Qtr	1 Yr	3 Yr	5 Yr	Since Inception		
FUND							
Fixed Income							
Northern Trust Gov/ Credit Index Fund	0.39	5.77	4.15	3.20	5.62	Jan-94	\$975m
Barclays Gov/Credit Index	0.40	5.86	4.22	3.24	5.61		
Variance	-0.01	-0.09	-0.07	-0.04	0.01		
Peer Ranking – CAI Core Bond	87	41	77	94			
Garcia Hamilton	0.22	5.39	5.04	5.09	4.64	Oct-10	\$106m
Barclays Aggregate Index	0.46	5.19	4.03	3.08	3.44		
Variance	-0.24	0.20	1.01	2.01	1.20		
Peer Ranking – CAI Core Bond	98	69	8	3			
LM Capital*	1.01	6.41	4.51	3.43	4.61	Nov-04	\$216m
Barclays Aggregate Index	0.46	5.19	4.03	3.08	4.49		
Variance	0.55	1.22	0.48	0.35	0.12		
Peer Ranking - CAI Core Plus Bond	81	58	62	99			
Pugh Capital Management	0.54	5.35	4.22	3.34	3.70	Oct-10	\$173m
Barclays Aggregate Index	0.46	5.19	4.03	3.08	3.44		
Variance	0.08	0.16	0.19	0.26	0.26		
Peer Ranking - CAI Core Bond	71	73	75	83			
Taplin, Canida & Habacht	1.66	6.95	4.23	3.91	4.34	Nov-04	\$126m
Barclays Aggregate Index	0.46	5.19	4.03	3.08	4.49		
Variance	1.20	1.76	0.20	0.83	-0.15		
Peer Ranking - CAI Core Bond	1	8	75	36			
Western Asset Management	2.25	8.84	5.43	5.04	5.62	Feb-03	\$428m
Barclays Aggregate Index	0.46	5.19	4.03	3.08	4.52		
Variance	1.79	3.65	1.40	1.96	1.10		
Peer Ranking - CAI Core Plus Bond	7	4	10	31			

*LM mandate changed from Core Bond to Core Plus Bond as of 7/1/13. Peer group rankings are not applicable to the full track record given the change in mandates.

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Table 1 (Net-of-Fees, Continued):

CTPF Investment Strategies	Investment Returns as of 9/30/2016					Inception Date	Qtr-End MV
	Qtr	1 Yr	3 Yr	5 Yr	Since Inception		
FUND							
Large Cap Equity							
Northern Trust S&P 500 Index Fund	3.85	15.69	11.20	16.39	9.47	Apr-90	\$901m
S&P 500 Index	3.85	15.43	11.16	16.37	9.54		
Variance	0.00	0.26	0.04	0.02	-0.07		
Peer Ranking – CAI Large Cap	66	13	27	43			
Rhumbline Russell 1000 Index Fund	4.09	14.92	10.69	16.39	6.26	Jun-07	\$1,341m
Russell 1000 Index	4.03	14.93	10.78	16.41	6.16		
Variance	0.06	-0.01	-0.09	-0.02	0.10		
Peer Ranking – CAI Large Cap	61	21	39	43			
Waddell & Reed	4.66	11.51	8.72	16.04	11.29	Jan-91	\$124m
Russell 1000 Index	4.03	14.93	10.78	16.41	10.07		
Variance	0.63	-3.42	-2.06	-0.37	1.22		
Peer Ranking - CAI Large Cap Core	47	64	85	54			
Holland Capital	4.05	9.84	9.49	14.59	9.14	Feb-94	\$254m
Russell 1000 Growth Index	4.58	13.76	11.83	16.60	8.49		
Variance	-0.53	-3.92	-2.34	-2.01	0.65		
Peer Ranking - CAI Large Cap Growth	78	75	82	84			
Zevenbergen Capital Management	12.18	6.77	5.31	15.56	10.01	Oct-92	\$110m
Russell 3000 Growth Index	4.92	13.64	11.40	16.56	8.44		
Variance	7.26	-6.87	-6.09	-1.00	1.57		
Peer Ranking - CAI All Cap	5	84	91	40			
Channing*	6.82	9.28	7.46	16.47	14.66	Jul-09	\$127m
Channing Benchmark	3.87	16.38	9.46	16.09	16.23		
Variance	2.95	-7.10	-2.00	0.38	-1.57		
Peer Ranking – CAI All Cap Value	19	74	58	30			
BMO Harris Investment Management	3.69	8.20	9.59	16.28	6.62	Jul-99	\$252m
Harris Benchmark**	3.48	16.20	9.70	16.15	4.62		
Variance	0.21	-8.00	-0.11	0.13	2.00		
Peer Ranking - CAI Large Cap Value	55	95	35	37			

*Channing mandate changed from Mid Cap Value to All Cap Value as of 10/1/11. Channing Benchmark reflects Russell MC Value Index through 9/30/11 and Russell 3000 Value thereafter. Peer group rankings are not applicable to the full track record given the change in mandates.

**Harris benchmark reflects the S&P 500 from inception to 12/31/2002 and the Russell 1000 Value benchmark thereafter.

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Table 1 (Net-of-Fees, Continued):

CTPF Investment Strategies	Investment Returns as of 9/30/2016					Inception Date	Qtr-End MV
	Qtr	1 Yr	3 Yr	5 Yr	Since Inception		
FUND							
<i>Small Cap Equity</i>							
Northern Trust Small Cap	7.27	15.18	8.06	16.90	12.13	Jan-91	\$139m
Russell 2000 Index	9.05	15.47	6.71	15.82	10.65		
Variance	-1.78	-0.29	1.35	1.08	1.48		
Peer Ranking - CAI Small Cap	62	37	41	47			
Phocas Small Cap Value	5.94	-	-	-	-	Jul-16	\$129m
Russell 2000 Value Index	8.87	-	-	-	-		
Variance	-2.93	-	-	-	-		
Peer Ranking - CAI Small Cap Value	85	-	-	-			
<i>Manager of Managers</i>							
Attucks*	5.07	10.32	--	--	--	Jul-04	\$205m
Custom Benchmark	5.55	12.87	--	--	--		
Variance	-0.48	-2.55	--	--	--		

*In 4Q13, Attucks was transitioned from a domestic equity portfolio to a Best in Class portfolio.

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	Qtr	1 Yr	3 Yr	5 Yr	Since Inception		
FUND							
International Equity							
Ariel Investments	6.37	-	-	-	-	Jul-16	\$74m
MSCI EAFE Index	6.43	-	-	-	-		
Variance	-0.06	-	-	-	-		
Peer Ranking - CAI Non-US Equity	64	-	-	-	-		
Morgan Stanley	2.99	4.19	0.60	7.82	8.34	Apr-95	\$527m
MSCI EAFE Index	6.43	6.52	0.48	7.39	4.62		
Variance	-3.44	-2.33	0.12	0.43	3.72		
Peer Ranking - CAI Non-US Equity	99	87	78	74			
Strategic Global Advisors	6.08	-	-	-	-	Jul-16	\$69m
MSCI EAFE Index	6.43	-	-	-	-		
Variance	-0.35	-	-	-	-		
Peer Ranking - CAI Non-US Equity	70	-	-	-	-		
EARNEST Partners	9.20	11.48	1.23	7.00	4.09	Apr-07	\$497m
MSCI ACWI ex-US Index	6.91	9.26	0.18	6.04	0.76		
Variance	2.29	2.22	1.05	0.96	3.33		
Peer Ranking - CAI Non-US Equity	8	20	66	86			
Lazard	4.81	7.87	2.61	8.88	5.45	Jan-01	\$540m
MSCI ACWI ex-US Index	6.91	9.26	0.18	6.04	4.04		
Variance	-2.10	-1.39	2.43	2.84	1.41		
Peer Ranking - CAI Non-US Equity	86	50	38	47			
William Blair Growth	6.01	6.83	2.83	9.41	7.69	Feb-10	\$524m
MSCI ACWI ex-US IMI Growth Index	6.20	11.76	2.51	7.62	5.67		
Variance	-0.19	-4.93	0.32	1.79	2.02		
Peer Ranking - CAI Core Growth Int'l Equity	76	62	34	40			
William Blair International Small Cap	7.74	10.82	3.37	10.44	3.66	Apr-07	\$177m
William Blair ISCE Benchmark*	7.00	13.49	4.41	8.48	1.76		
Variance	0.74	-2.67	-1.04	1.96	1.90		
Peer Ranking - CAI Int'l Small Cap Equity	58	56	84	82			
Dimensional Fund Advisors	10.54	10.60	4.24	--	13.28	Jun-12	\$163m
MSCI World Small Cap ex-US	8.00	13.5	4.15	--	11.18		
Variance	2.54	-2.90	0.09	--	2.10		
Peer Ranking - CAI Int'l Small Cap Equity	6	60	79	--			
EARNEST Partners Emerging Markets	6.58	17.42	-0.49	--	-2.09	Mar-13	\$150m
MSCI Emerging Markets Index	9.03	16.78	-0.56	--	-1.73		
Variance	-2.45	0.64	0.07	--	-0.36		
Peer Ranking - CAI EM Equity	74	46	74	--			
International Manager of Managers							
Leading Edge	6.83	10.35	1.49	8.31	4.24	Apr-10	\$114m
MSCI ACWI ex-US Index	6.91	9.26	0.18	6.04	3.11		
Variance	-0.08	1.09	1.31	2.27	1.13		
Peer Ranking - CAI Non-US Equity	48	29	62	62			

* The William Blair ISCE benchmark is comprised of the MSCI ACWI ex US Small Cap Index through 5/31/12 and the MSCI ACWI ex US Small Cap Growth Index thereafter.

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	Qtr	1 Yr	3 Yr	5 Yr	Since Inception		
FUND							
Infrastructure							
Infrastructure Composite	2.64	7.92	3.45	5.33	5.30	Nov-08	\$236m
8% Annualized Return	1.94	8.00	8.00	8.00	8.00		
Variance	0.70	-0.08	-4.55	-2.67	-2.70		
Hedge Funds							
Pluscios	2.01	-4.99	0.90	2.91	2.47	Nov-10	\$29m
T-Bill + 5% (1-mo lag)	1.31	5.23	5.10	5.09	5.10		
Variance	0.70	-10.22	-4.20	-2.18	-2.63		
REITs							
REITs Composite	-1.19	11.26	8.29	12.78	10.16	Jan-02	\$95m
EPRA/NAREIT Developed Index	1.46	15.85	8.60	13.17	10.43		
Variance	-2.65	-4.59	-0.31	-0.39	-0.27		
Real Estate							
Real Estate Composite	0.55	11.89	12.62	11.10	7.33	Jan-02	\$786m
NFI-ODCE Value Weight	1.83	9.08	11.42	11.34	7.14		
Variance	-1.28	2.81	1.20	-0.24	0.19		
Private Equity							
Private Equity Composite	2.35	2.98	12.08	8.85	8.25	Jan-02	\$284m
Russell 3000 Index	4.40	14.96	10.44	16.36	6.93		
Variance	-2.05	-11.98	1.64	-7.51	1.32		

Note: Private market investments shown above are typically reported on a one quarter lag. Private Equity returns are, at times, reported on a longer lag. CTPF Private Equity data is reported for Q1 2016 and the benchmark represents Q2 2016. Comments on Infrastructure, REITs and Real Estate are covered in the quarterly Real Estate Report. Private Equity is discussed in the quarterly Private Equity Report.

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MANAGER COMMENTARIES

Active Domestic Equity Manager Commentary

- Waddell & Reed outperformed the Russell 1000 Index for the quarter and ranked 47th among their peers. The one, three and five year returns also lagged the benchmark, but the fund has outperformed over the last ten years and since inception. Waddell & Reed's outperformance for the quarter was due primarily to solid stock selection in the Information Technology sector.
- Holland underperformed the Russell 1000 Growth Index in the third quarter and ranked 78th in the large cap growth equity peer group. Holland's poor selection in Consumer Discretionary and Consumer Staples stocks detracted from performance. Holland's three- and five-year performance is challenged relative to the Russell 1000 Growth Index and peer group median. Since inception, Holland has outperformed the market index and ranks at median.
- Zevenbergen, the Fund's all-cap growth manager, outperformed the Russell 3000 Growth Index by 736 basis points this quarter and ranked 5th in its peer group. The portfolio's outperformance was mainly attributable to security selection in Health Care and Industrials. Since inception, returns continue to be favorable compared to the Russell 3000 Growth Index.
- Channing, the Fund's all-cap value manager, outperformed the index and ranked 19th among its peers for the quarter. Stock selection in the Health Care, Financials, and Energy sectors coupled with an overweight to Information Technology and an underweight to Utilities contributed to strong relative results over the quarter.
- BMO Harris outperformed the market index in the third quarter and ranked 55th among its peers. Positive stock selection in the Financials sector and an underweight to the Telecommunications sector boosted relative quarterly results. Performance over three, five, and ten year time periods continues to be attractive relative to the benchmark.
- The Northern Trust Small Cap Fund underperformed the Russell 2000 Index for the quarter and ranked 62nd in its peer group. Poor stock selection in Health Care detracted most from relative quarterly performance. The Fund has outperformed the market benchmark over the trailing three, five, and ten year time periods.
- Phocas underperformed the Russell 2000 Value Index in the third quarter and ranked 85th in its peer group. Poor security selection in the Financials, Health Care and Consumer Discretionary sectors detracted from relative quarterly performance. The Ariel Small Cap Value strategy was transitioned to Phocas in June.

Active International Equity Manager Commentary

- Ariel underperformed its benchmarks in the third quarter and ranked 64th among peers. Ariel was added to the international equity lineup in July.
- EARNEST Partners outperformed its benchmark in the third quarter and ranked 8th in its peer group. Performance continues to be favorable relative to the market index over the five-year period and since inception.

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- Lazard underperformed the MSCI ACWI ex US index in the quarter and ranked 86th in its peer group. Performance is strong relative to the market benchmark and the peer group median over the long term.
- Morgan Stanley underperformed the MSCI EAFE Index in the third quarter and ranked below the peer group median in the 99th percentile. Morgan Stanley's long term performance is above the market benchmark and mixed relative to peers.
- Strategic Global Advisors underperformed its benchmark and ranked in the 70th percentile among peers over the third quarter. Strategic Global Advisors was added to the lineup in July.
- During the third quarter, William Blair International Growth underperformed its benchmark index and ranked 76th in its peer group. The portfolio exhibits favorable results relative to the market benchmark and peer group median over longer periods measured.
- William Blair International Small Cap outperformed its benchmark index and ranked 58th in its peer group for the quarter. Performance relative to the market benchmark has been mixed over long-term trailing time periods.
- International MWBDE manager-of-managers, Leading Edge, underperformed the MSCI ACWI ex US Index for the quarter but ranked above median in its peer group at the 48th percentile. Long-term performance is above the MSCI ACWI ex-US Index, but below the peer group median.
- Dimensional Fund Advisors (DFA) outperformed the MSCI World Small Cap ex US Index and ranked 6th in its peer group for the quarter. The strategy's since inception returns continue to be favorable relative to the market benchmark.
- EARNEST Partners underperformed the MSCI Emerging Markets Index in the third quarter and ranked 74th in its peer group. Since inception, performance is below the index and has been challenged versus peers.

Fixed Income

- Taplin, Canida & Habacht outperformed the Barclay's Aggregate Bond Index and ranked in the 1st percentile of their peer group for the quarter. Performance is mixed compared to the market benchmark over longer periods.
- Western Asset Management outperformed the Barclays Capital Aggregate Index for the quarter, and ranked 7th in its peer group. The strategy has registered strong performance compared to the benchmark and peers over longer time periods.
- Pugh slightly outperformed the Barclays Capital Aggregate Index and ranked 71st in its peer group for the quarter. The strategy's long term performance is mixed as compared to the Barclay's Aggregate Index and median member of the Core Bond peer group.
- Garcia Hamilton underperformed the Barclays Capital Aggregate Bond Index in the third quarter and ranked 98th in its peer group. The strategy's performance is very favorable over the trailing three and five year periods.

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- LM Capital outperformed the Barclays Capital Aggregate Bond Index and ranked 81st in the peer group for the quarter. Long term performance is above the market benchmark, but below the peer group median.

Hedge Funds

- Pluscios returned 2.01% in the third quarter. The fund has added 2.47%, on an annualized basis, since inception.

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Manager Watch List

MANAGER	DATE WATCH STARTED, REASON	LAST DUE DILIGENCE MEETING	ACTIONS TAKEN	POLICY/ RECOMMENDED ACTIONS	AUM as of 6/30/2016
Holland	August – 14 Performance	May - 16	Monitor	Monitor	\$245 mil.
Morgan Stanley	December – 15 Brokerage & August – 15 Performance	May - 16	Monitor	Monitor	\$521 mil.
William Blair ILCG	December – 15 Brokerage	May - 16	Monitor	Monitor	\$507 mil.
Pugh Capital	December – 15 Brokerage	May - 16	Monitor	Monitor	\$171 mil.
TCH	February – 16 Org Changes & June –16 Performance	Jan - 16	Monitor	Monitor	\$138 mil.
Waddell & Reed	February – 16 Performance	May - 16	Monitor	Monitor	\$141 mil.

Policy/Recommended Actions Legend

Remove = Policy action taken due to IPS guidelines. Remove manager from the watch list as performance improves.

Termination = Recommended action for the Board

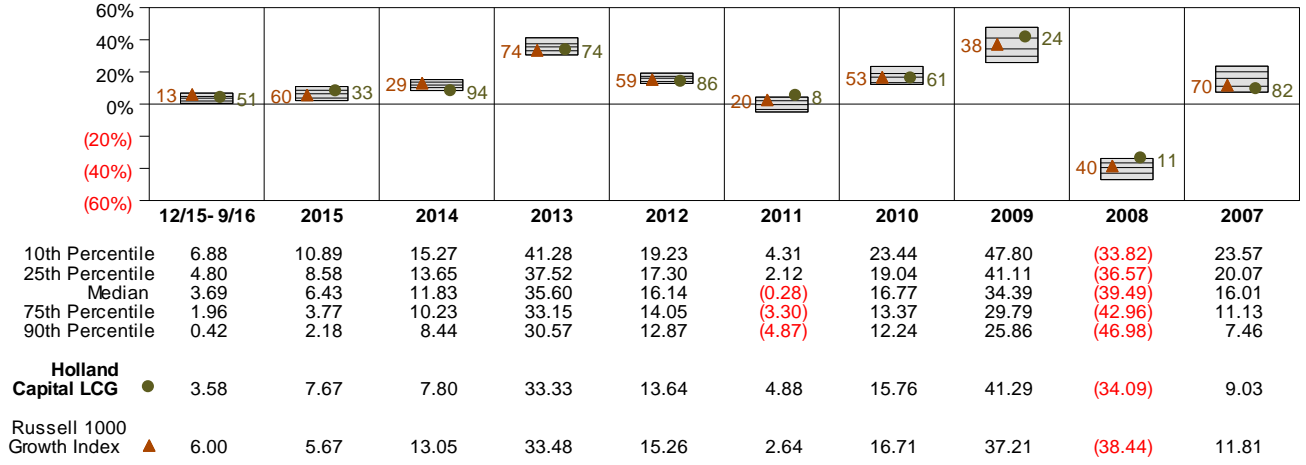
Monitor = Recommended action for the Board

Search = Board authorized a manager search

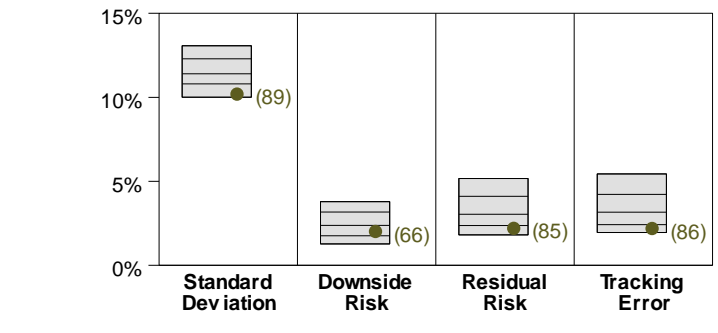
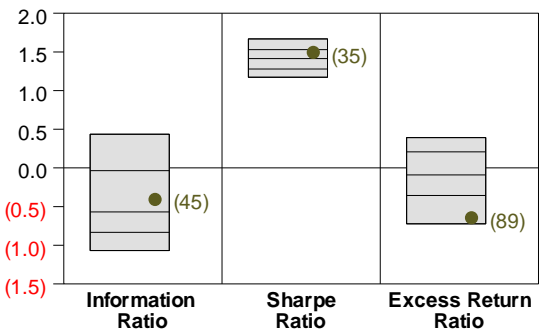
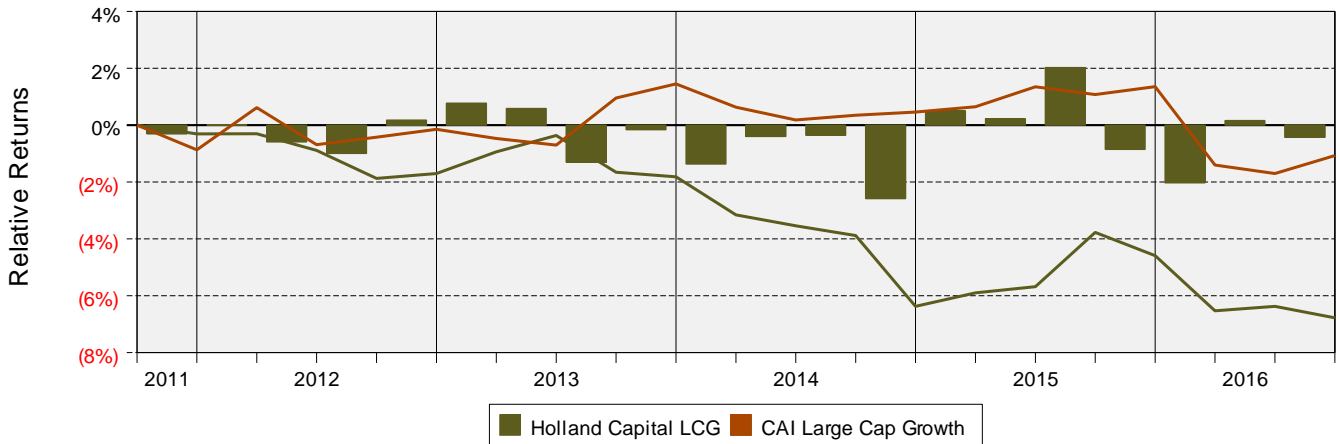
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Manager Watch List: Holland

Performance vs CAI Large Cap Growth (Gross)



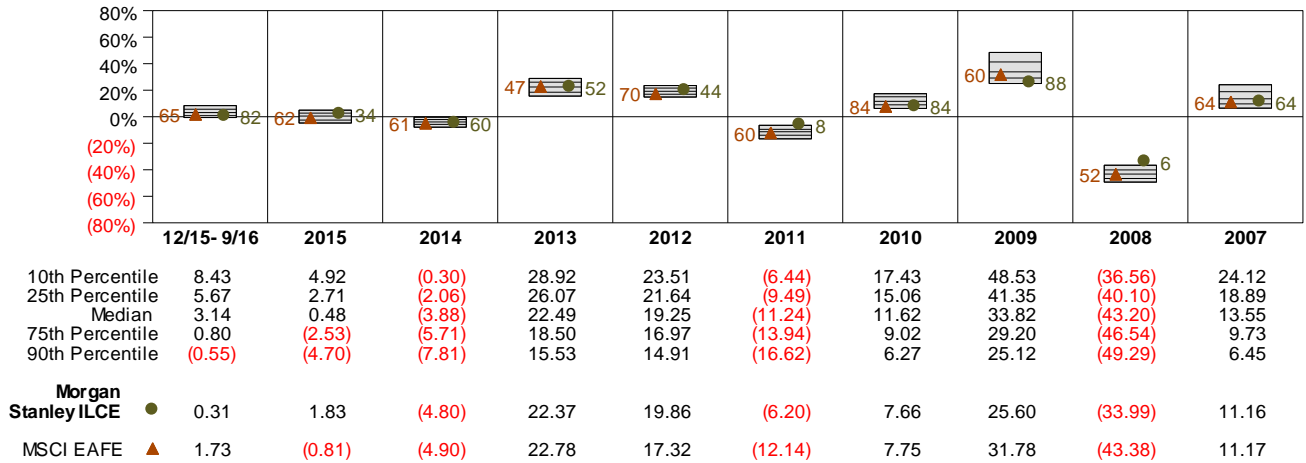
Cumulative and Quarterly Relative Return vs Russell 1000 Growth Index



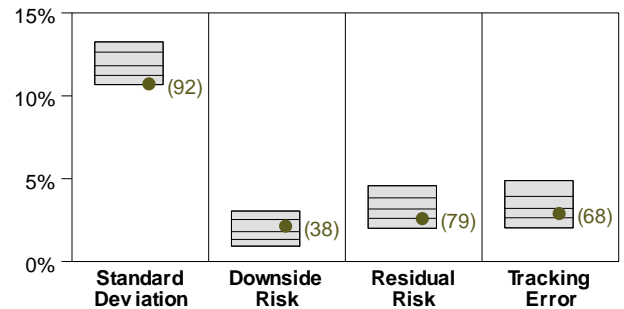
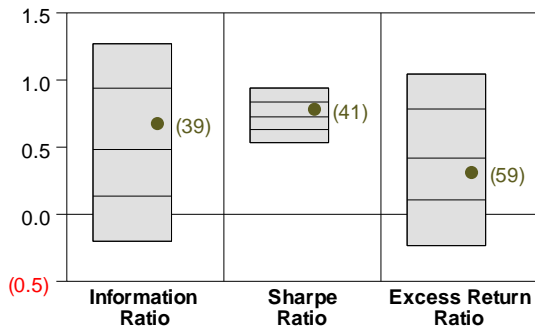
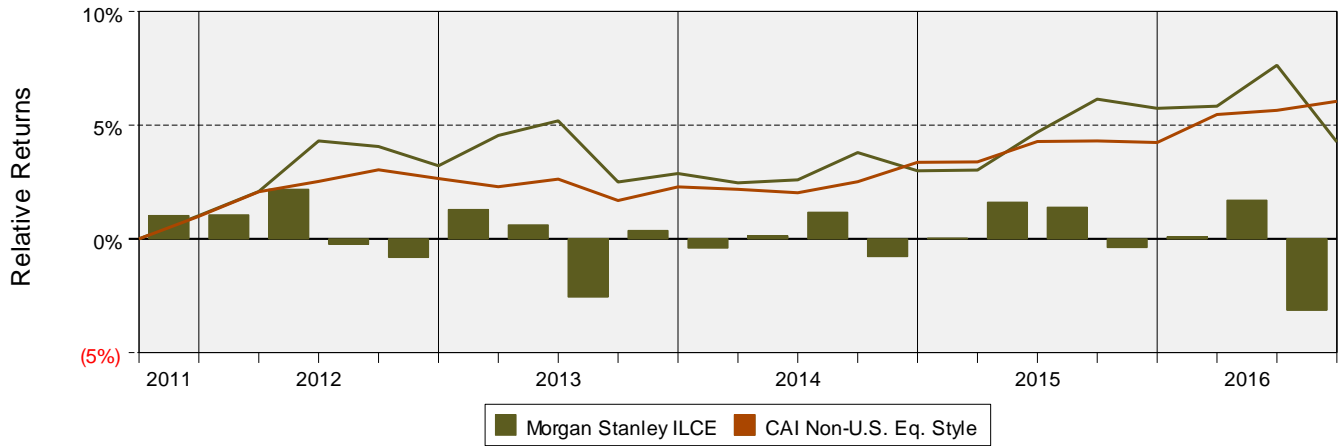
**Public School Teachers' Pension and Retirement Fund of Chicago
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Manager Watch List: Morgan Stanley

Performance vs CAI Non-U.S. Equity Style (Gross)



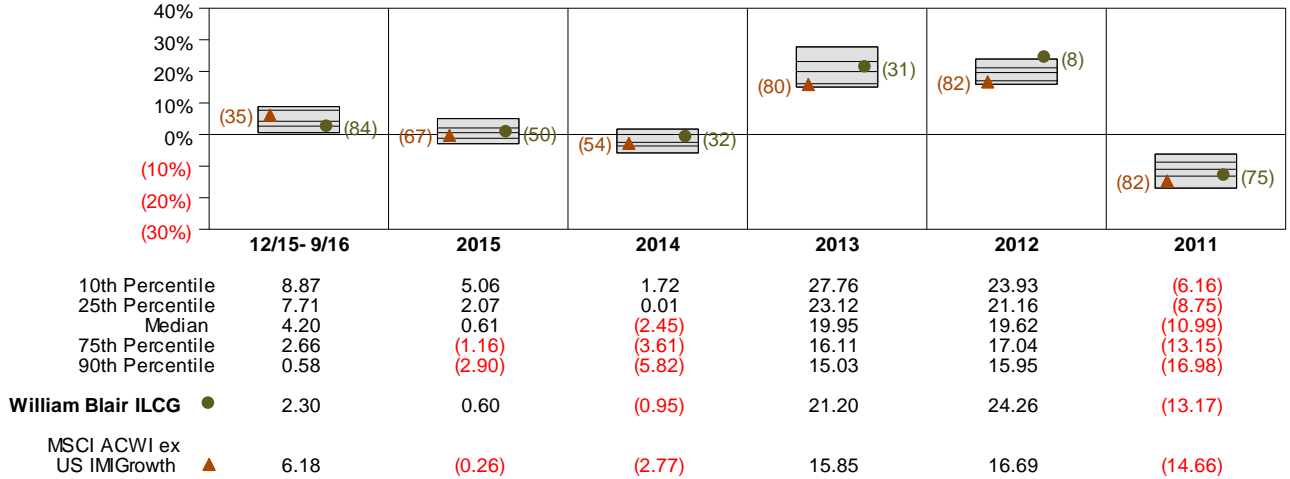
Cumulative and Quarterly Relative Return vs MSCI EAFE



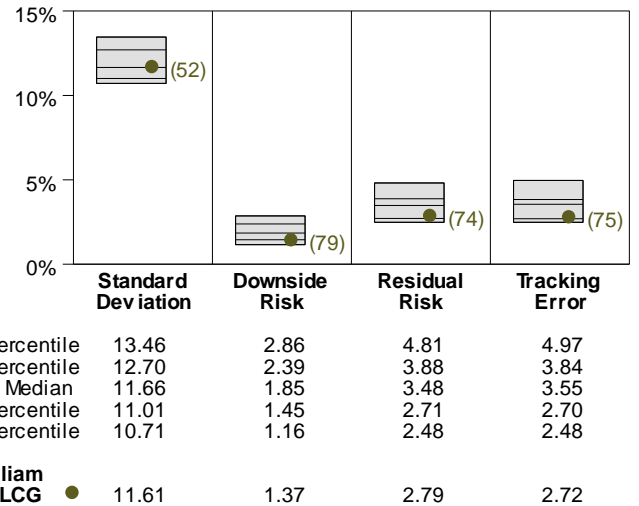
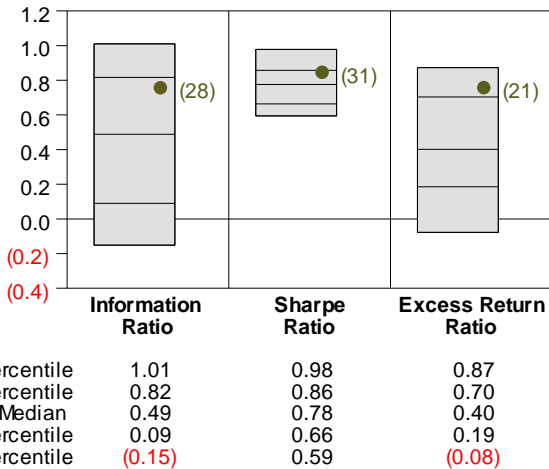
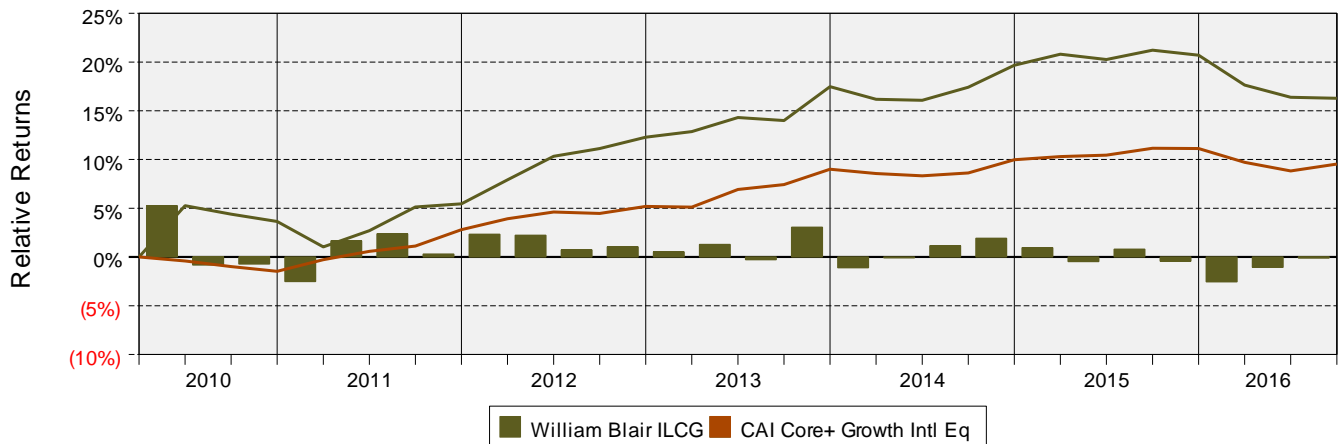
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Manager Watch List: William Blair ILCG

Performance vs CAI Core+ Growth Int'l Eq Style (Gross)



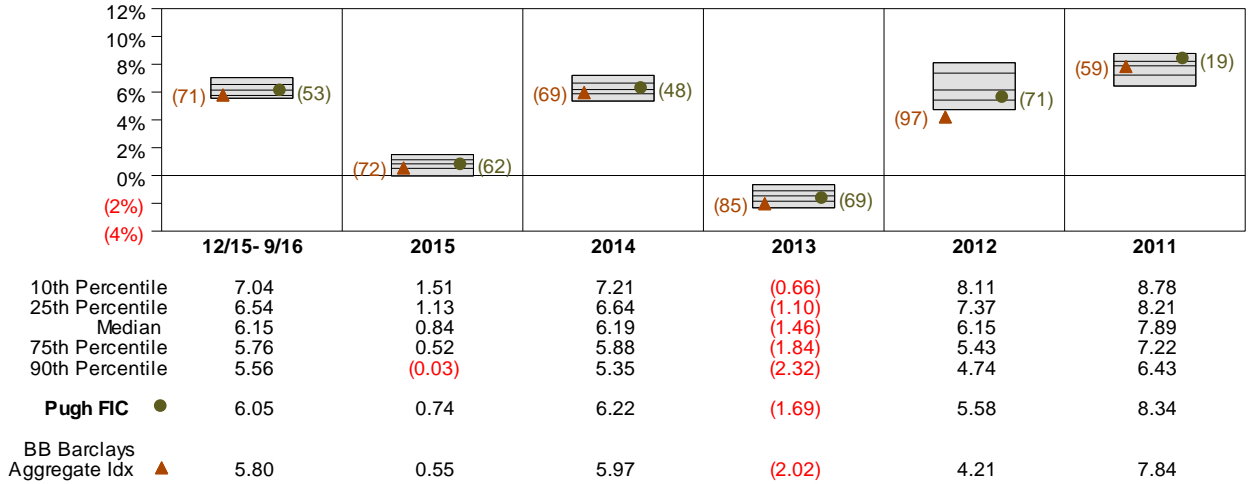
Cumulative and Quarterly Relative Return vs MSCI ACWI ex US IMIGrowth



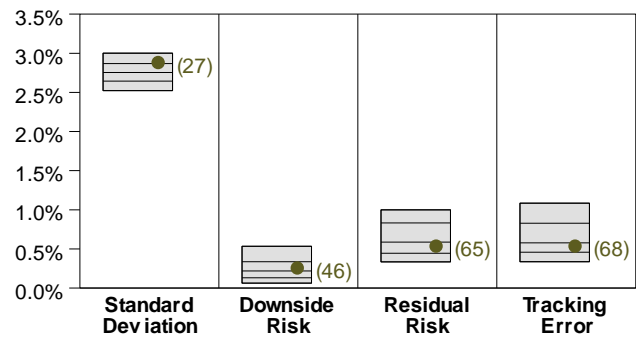
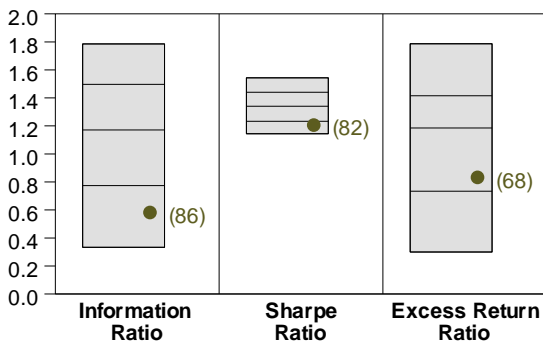
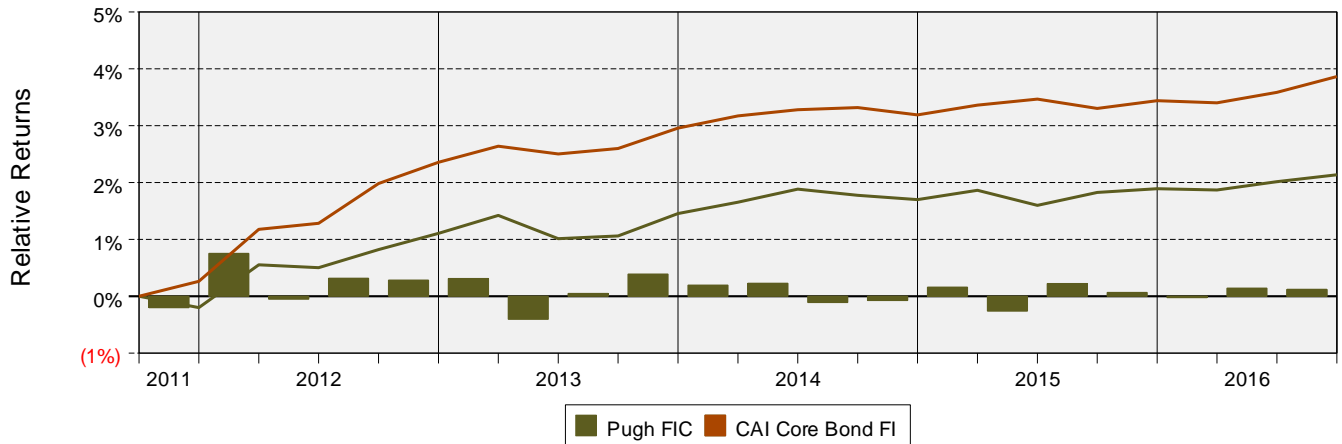
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Manager Watch List: Pugh Capital

Performance vs CAI Core Bond Fixed Income (Gross)



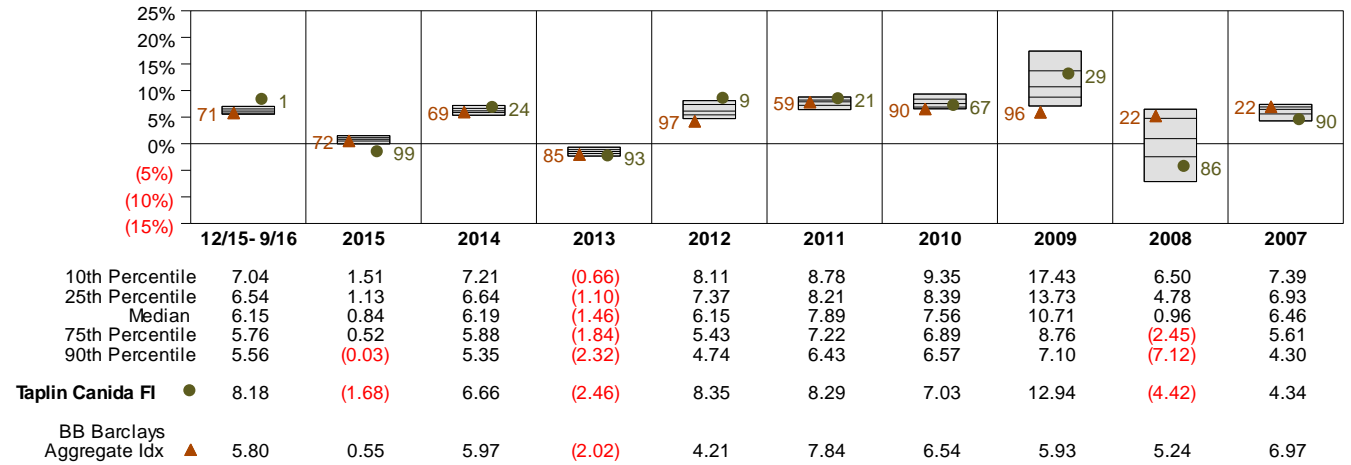
Cumulative and Quarterly Relative Return vs BB Barclays Aggregate Idx



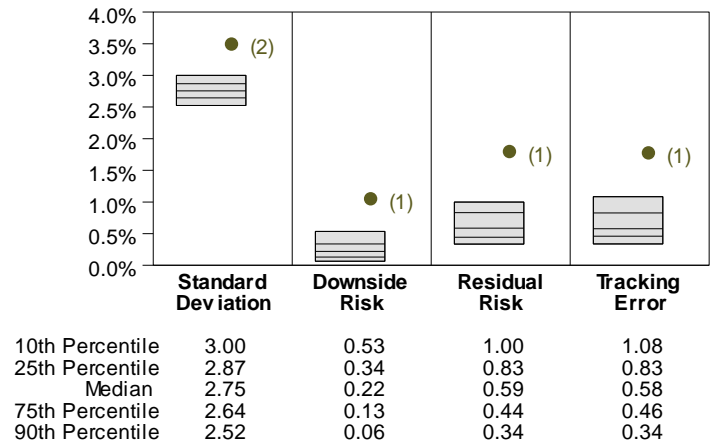
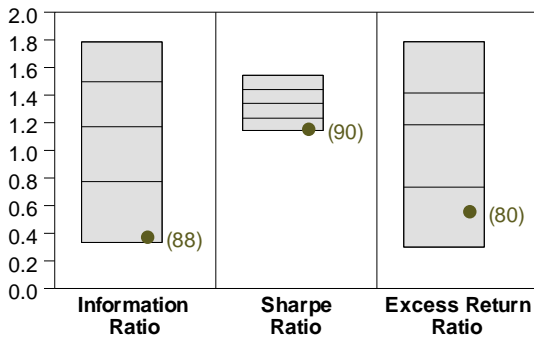
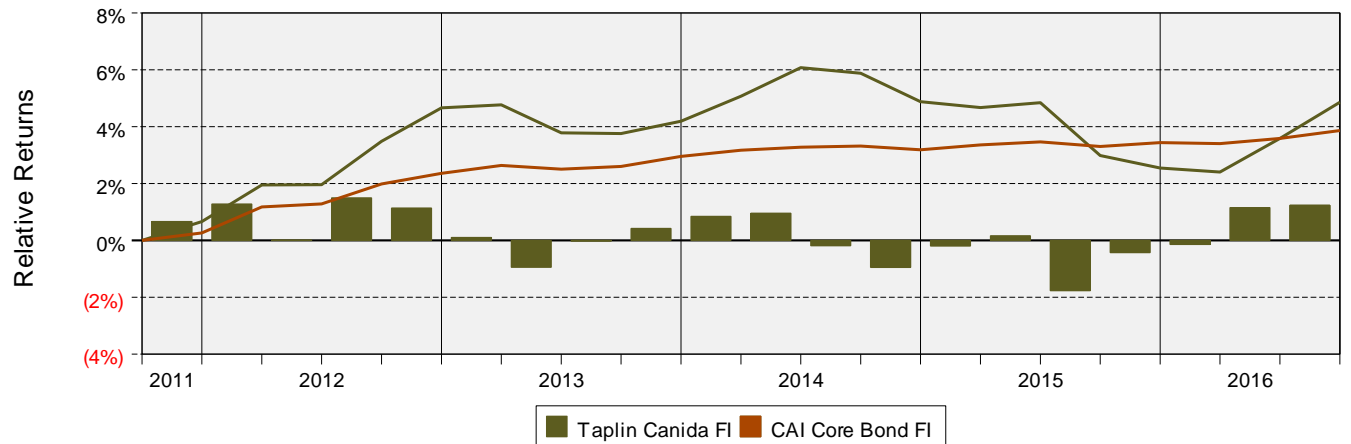
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Manager Watch List: Taplin, Canida & Habacht

Performance vs CAI Core Bond Fixed Income (Gross)



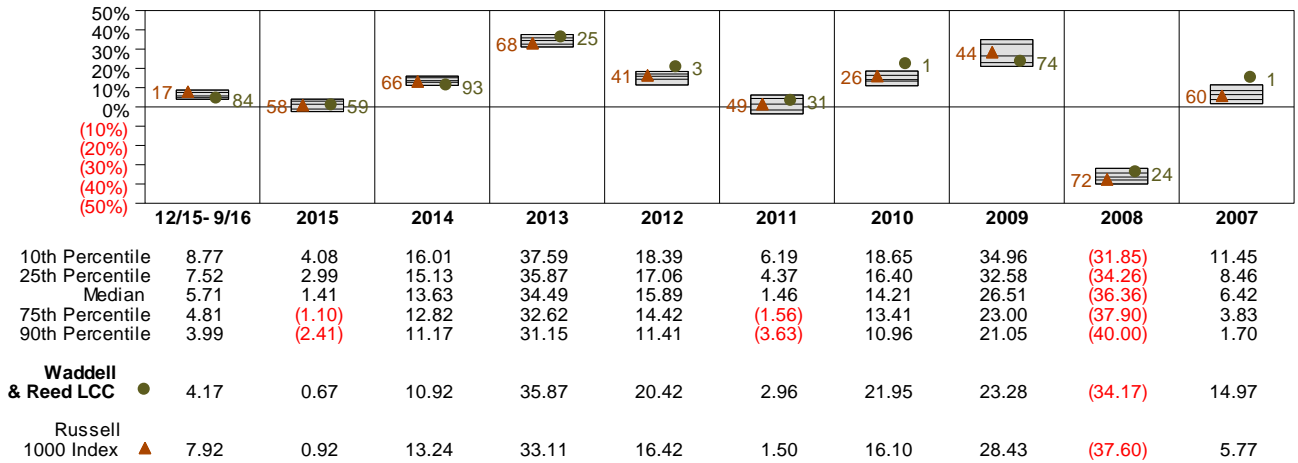
Cumulative and Quarterly Relative Return vs BB Barclays Aggregate Idx



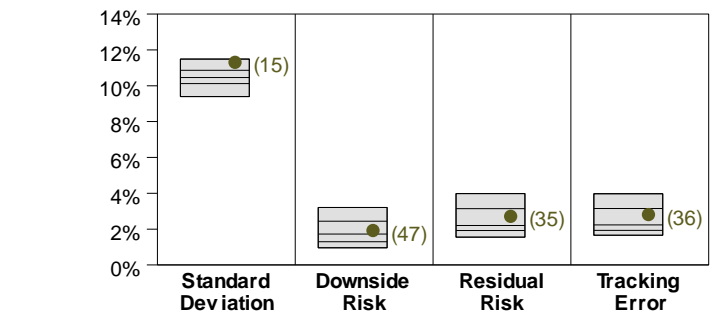
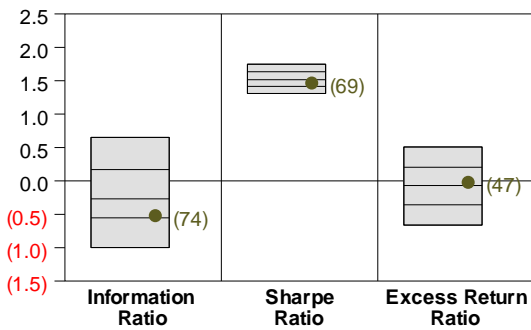
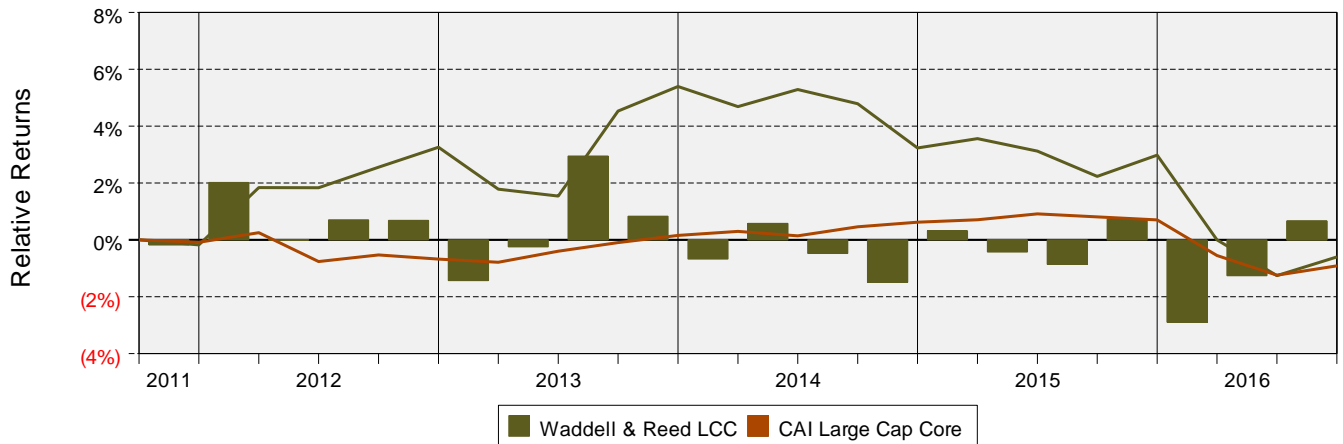
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Manager Watch List: Waddell & Reed

Performance vs CAI Large Cap Core (Gross)



Cumulative and Quarterly Relative Return vs Russell 1000 Index



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General Market and Economic Conditions

The Fed continued to stay the course, leaving the fed funds rate unchanged at a target range of 0.25% - 0.50%, but the number of dissenting votes at the September meeting marked a shift in sentiment for the Board. Three of the Federal Reserve officials voted to hike rates; the most since December 2014. As of quarter-end, the markets were pricing in a roughly 50% likelihood of a rate hike before year-end. Fed policymakers now expect growth for all of 2016 to be 1.8%, down from the June expectation of 2.0%. Longer term, the Fed expects the Fed Funds rate to be close to 2% in 2018 while markets are far more dovish. Markets are pricing in a Fed Funds rate of less than 1% in 2018.

Real GDP grew a surprisingly strong 2.9% in the third quarter, the best rate in two years. Personal consumption has been driving growth in the U.S. for the past several years, but while consumption accounted for half of the growth in the third quarter, its influence weakened. Other third-quarter surprises included: a reversal in nonresidential fixed investment; continued growth in software and information processing; an uptick in federal government spending; strength in exports; and a return to inventory investment. Drags came from a decline in residential investment and weakness in state and local government spending, along with an increase in imports, which are a negative in the calculation of GDP.

The average price of a single family home (\$274,000) is now just shy of the high hit in October of 2005. Unemployment slightly increased to 5.0% but wages showed signs of improvement, rising 2.8% over the last twelve months; up from August's 2.4%. CPI remained muted, +1.5% for the trailing one year period, but Core CPI was up 2.2% year-over-year. The Fed's favored measure, the core Personal Consumption Expenditures Index, rose 0.5% over the past year, short of the Fed's 2% target. Consumer confidence jumped to its highest level since August 2007, according to the Conference Board's Consumer Confidence Index.

In the euro area, fears around Brexit faded though economic growth remained weak. Third quarter GDP came in at 0.3%, unchanged from the rate registered in the second quarter. Unemployment remained stubbornly high at 10% but down from the high of 12% in July 2013. The range is highly divergent among countries, with Spain's unemployment nearly 20% and Germany anchoring the low end at 4.1%. Inflation remained well short of the 2% goal but has stopped falling; the latest print for eurozone core inflation was +0.8% (headline +0.5%). The European Central Bank left interest rates unchanged and as the quarter ended, there was speculation that it may taper its bond buying program sooner than the markets expected. While it committed to the €80 billion monthly program through March, 2017, the markets were expecting an extension through September. Also late in the quarter, the Bank of Japan announced a shift in policy and while it is maintaining asset purchases, it has added a new tool to its quantitative easing kit – "yield curve control." The Bank intends to adjust its purchases to target a yield of 0% for the 10-year JGB while maintaining negative short rates with a goal to steepen the yield curve and thus help increase profitability for banks.

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Third Quarter 2016 Market Performance

Reduced fears of slowing global growth, particularly in China, optimism about the U.S. economy, and further delays in rate hike contributed to a rebound in domestic equity in the 3rd quarter. The S&P 500 climbed to its all-time high of 2,193 on August 15 and closed up 3.9% for the quarter. Small capitalization stocks outperformed by a large margin for the quarter as the Russell 2000 rose 9.1% and the Russell Mid Cap posted a 4.5% result. Growth outperformed Value modestly across market capitalizations with the largest difference seen in large caps. The Russell 1000 Growth outperformed its Value counterpart by 1.1% (4.6% vs 3.5%). Year-to-date, investors have shown a strong preference for income. The top performing sector based upon MSCI's factor indices was High Dividend Yield, with a 13.2% return y-t-d. At the bottom of the pack, Quality is up 6% for the year. The largest growth sector, Technology (+12.9%) posted the strongest return among all sectors and contributed to the excess return of growth over value. Utilities (-5.9%) and Telecom (-5.6%) were the worst performing sectors, hurt by the prospect of rising short-term rates.

In a new development, REITs and other listed real estate companies were extracted from the Financials Sector and elevated to a new Real Estate sector in the Global Industry Classification Standard (GICS). The new Real Estate sector, representing 3.1% of the S&P 500, finished the quarter with a -2.1% return.

Foreign developed market indices outperformed the S&P 500 and, consistent with the quarter's risk-on theme, emerging markets were the top performers. The MSCI ACWI ex-US posted a 6.9% return, modestly above the MSCI EAFE's 6.4% result. Currency fluctuations were modest and thus had a relatively muted impact on results. In developed markets, Germany (+10%) and Austria (+17%) were top performers while Denmark (-6%) was the laggard. The MSCI EM Index surged 9.0% for the quarter. Among emerging markets, Brazil continued to post lofty results (+11%) and the country is up nearly 63% year-to-date. Russia (+8%) and China (+14%) were also top performers while Turkey (-5%) and Mexico (-2%) were laggards.

Yields in the US moved modestly higher during the 3rd quarter with the 10-year US Treasury yield rising 11 bps to close at 1.60%. However, the Treasury note did hit a record low of 1.37% on July 8th at the height of the Brexit-induced worries before trending higher through the remainder of the quarter. July was the only positive return month during the quarter for the broad investment grade market. The curve continued its flattening trend in anticipation of eventual Fed rate hikes. The spread between the 2-year US Treasury note and the 30-year US Treasury bond shrank from 171 bps to 154 bps. Spread sectors outperformed US Treasuries with corporates, and especially high yield, being the strongest.

The Bloomberg Barclays US Aggregate returned +0.5% for the quarter and is up 5.8% year-to-date. The Credit sector rose 1.2% even with record issuance in the month of August. (Note that Bloomberg acquired the Barclays indices and rebranded the names in August). Lower quality bonds outperformed, consistent with the resurgence in risk appetite, and high yield performed the best. The BB Barclays High Yield Index gained 5.6% and is up over 15% year-to-date. At the same time, the default rate for the trailing twelve months ticked up to 4.9%, according to Fitch Ratings;

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with defaults in the energy sector approaching 16% thus far this year (58 companies through September 13th).

Robust supply overwhelmed demand for municipal bonds, and the sector lagged Treasuries for the quarter. The Bloomberg Barclays 1-10 Year Municipal Bond Index returned -0.1% in the 3rd quarter.

Overseas, yields were generally lower with Mexico and Japan being exceptions. There is now over \$12 trillion of negative yielding debt globally with Japan accounting for nearly half of that amount and Western Europe the other half; namely France, Germany, and the Netherlands. Currency fluctuations were relatively muted over the course of the quarter; the yen and euro both gained just over 1% versus the dollar while the pound lost nearly 3%. The Bloomberg Barclays Global Aggregate ex-US Index returned 1.0% for the quarter; up 0.5% on a hedged basis. Emerging markets debt, like its equity counterpart, outperformed developed markets. The JP Morgan EMBI Global Diversified Index gained 4.0% for the quarter and the local currency GBI-EM Global Diversified was up 2.7%.

In a sharp turnaround from the top notch 2nd quarter results, commodities were the worst performing asset class in the 3rd quarter. In spite of a late quarter rally, the S&P GSCI Commodity Index sank 4.2% for the quarter. MLPs were fairly flat (Alerian MLP Index +1.1%) but the Index remains up nearly 16% year-to-date.

Closing Thoughts

The quarter ended with OPEC surprising markets with an announcement that it would curtail production and worries over the financial health of Deutsche Bank, (whose assets total one-half of Germany's GDP) which is facing a large fine for its mortgage-related dealings during the crisis. The focus in coming weeks will likely be on the US election as well as more speculation as to when the Fed decides to lift rates. Volatility, which has been subdued amidst investor complacency, is likely to pick up and we would further caution clients to temper expectations for returns from the robust gains we have seen thus far in 2016. As always, prudent asset allocation with appropriate levels of diversification and a long-term perspective remain Callan's recommended course.

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Appendix

Appendix																																
Five Year Rankings Above Median (Net of Fees)																																
Manager																																
Large Cap Core Equity																																
9/30/08	12/31/08	3/31/09	6/30/09	9/30/09	12/31/09	3/31/10	6/30/10	9/30/10	12/31/10	3/31/11	6/30/11	9/30/11	12/31/11	03/31/12	06/30/12	09/30/12	12/31/12	03/31/13	06/30/13	09/30/13	12/31/13	03/31/14	06/30/14	09/30/14	12/31/14	03/31/15	06/30/15	09/30/15	12/31/15	03/31/16	06/30/16	09/30/16
Waddell & Reed																																
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	
Large Cap Growth Equity																																
Holland																																
No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	No	No	No		
Large Cap Value Equity																																
Harris																																
Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Small Cap Equity																																
NTGI Structured Small Cap																																
													No	No	Yes	No	No	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
All Cap Growth Equity																																
Zevenbergen																																
Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes		
All Cap Value Equity																																
Channing																																
														NA	NA	NA	NA	NA	NA	NA	NA	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
International Equity																																
EARNEST Partners																																
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Lazard																																
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Morgan Stanley																																
No	Yes	Yes	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes		
Leading Edge																																
William Blair																																
						Hired	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Yes	No	No	No		
International Small Cap																																
William Blair																																
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No		
DFA																																
Emerging Market Equity																																
EARNEST Partners																																
																				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Active Core Fixed Income																																
Taplin, Canids & Habacht																																
NA	NA	NA	NA	NA	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Pugh																																
						Hired	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	No	No	No	No	
Garcia Hamilton Jackson																																
Active Core Plus Fixed Income																																
LM Capital																																
NA	NA	NA	NA	NA	No	No	No	No	No	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Active Opportunistic Fixed Income																																
WAMCO																																
No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		

*LM mandate changed from Core Bond to Core Plus Bond as of 7/1/13. Peer group rankings are not applicable to the full track record given the change in mandates.

