

# **INVESTMENT REPORT**

## **TENNESSEE CONSOLIDATED RETIREMENT SYSTEM**

**Fourth Quarter  
Fiscal Year 2013 - 2014**

**April 1, 2014 – June 30, 2014**

**Prepared for:  
Board of Trustees**

**September 26, 2014**

## Investment Advisory Council

Pursuant to T.C.A. Section 8-37-108, the state treasurer shall appoint, with the advice and consent of the board of trustees, an investment advisory council, consisting of five (5) persons who, at the time of their appointment, shall have at least five (5) years' professional experience as portfolio manager, economist, or as investment advisor in any field for which investments of Tennessee consolidated retirement system funds are authorized. The state treasurer and the chief investment officer for the Tennessee consolidated retirement system shall be ex officio, non-voting members of the council.

The TCRS investment staff consults at least semi-annually with the Advisory Council on a formal basis for strategy and guidance, and on an informal basis as needed.

The current members are as follows:

<u>Council Member</u>	<u>Expiration of Term</u>	<u>Appointed Term</u>
<b>Frederick S. Crown, Jr., CFA</b> 124 Longwood Place Nashville, TN 37215 Phone: 615-347-0343 E-mail: <a href="mailto:crownfl@gmail.com">crownfl@gmail.com</a>	June 30, 2017	5 year
<b>Susan Logan Huffman, CFA</b> Managing Director Reliant Investment Management, LLC 1715 Aaron Brenner Drive, Suite 504 Memphis, TN 38120 Phone: 901-843-0600 / Fax: 901-843-0325 E-mail: <a href="mailto:shuffman@reliantllc.com">shuffman@reliantllc.com</a>	June 30, 2016	5 year
<b>George B. Stadler, CFA</b> 95 White Bridge Road, Suite 414 Nashville, TN 37205 Phone: 615-416-3455 cell E-mail: <a href="mailto:george@hmscm.com">george@hmscm.com</a>	June 30, 2015	5 year
<b>Carol Womack, Principal</b> Diversified Trust Company 3102 West End Avenue, Suite 600 Nashville, TN 37203 Phone: 615-386-7302 E-mail: <a href="mailto:cwomack@diversifiedtrust.com">cwomack@diversifiedtrust.com</a>	June 30, 2015	3 year

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Fourth Quarter  
Fiscal Year 2013-2014

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## **Minutes from the Investment Advisory Council Meeting June 5, 2014**

Mr. Michael Brakebill, Chief Investment Officer, convened the meeting at 10:00 a.m. CT in the 13<sup>th</sup> Floor conference room of the Andrew Jackson State Office Building. Investment Advisory Council (IAC) members present included Mr. Fred Crown, Ms. Susan Huffman, Mr. George Stadler and Ms. Carol Womack. Investment Staff members present included Michael Brakebill, Albert Chang, Derrick Dagnan, Carrie Green, Kushal Gupta, Matthew Haitas, Arthur Henderson, Roger Henry, Michael Keeler, Thomas Kim, Grant Leslie, Tim McClure, Matthew McGanity, Rhonda Myers, Andy Palmer, JP Rachmaninoff, Rachel Roberts, Jim Robinson, Jennifer Selliers, Whit Shofner, and Roy Wellington.

Mr. George Stadler, Chairperson of the IAC, called the meeting to order and began by proposing that the minutes from the previous IAC meeting on March 24, 2014 be adopted. There were no questions regarding the minutes and Ms. Susan Huffman made a motion to adopt. The motion was seconded by Mr. Crown and unanimously approved. Mr. Stadler turned the meeting over to Mr. Brakebill to discuss current initiatives and to provide a review of investment performance.

Mr. Brakebill began his discussion by providing a brief overview of Fund performance. He noted that the Fund continues to perform well, totaling \$42.2 billion at the end of May, up from \$41.1 billion at the end of March. As of March 2014, the Fund generated an absolute (relative) return of 2.5% (-0.1%) for the quarter, 10% (+0.2%) on a 1-year basis, 9.7% (+0.8%) on a 3-year basis, and 13.1% (0.0%) on a 5-year basis. From a tactical allocation standpoint, the Fund remains neutral given the recent run up in equities.

Mr. Brakebill noted that the Investment Division remains busy organizationally. From a personnel standpoint, a trader, fixed income and mid cap position are all currently open. Two summer interns recently began working in the department and Grant Leslie has been hired to work with Daniel Crews and Carrie Green in Private Equity.

Staff members have been active with due diligence activities in Private Equity, Securities Lending and Real Estate as well as various process improvement and compliance enhancements. The Investment Division has issued request for proposals (RFP) for both a Custodian and a Real Estate Consultant. Finally, the Group is working on the TN Promise Program. Mr. Brakebill then asked Michael Keeler to discuss equities.

The Equity team is looking to construct a tactical asset allocation model and is also investigating the prospects of an active micro-cap strategy. Michael Giggie is backing up Carrie Green and Derrick Dagnan on managing the S&P 500 and 600 index funds.

Mr. Keeler then moved the discussion to performance, noting that Domestic Equities outperformed the S&P 1500 Index, largely due to a mild overweight in small and mid-cap stocks

and good relative performance in the Sector Fund. The Group reduced its small and mid-cap exposure in the current quarter to accommodate funding for the strategic lending and private equity portfolios and is currently overweight large cap stocks. Mr. Keeler then asked Kushal Gupta to discuss Quant Fund performance.

Kushal Gupta indicated that the Quant Fund had underperformed 0.3% on a relative basis (+0.4% on an absolute basis) during the quarter, largely due to elevated geopolitical concerns and Janet Yellen's guidance stumble that hit high momentum names hard and boosted performance of low multiple stocks. Mr. Gupta ended his discussion saying that the team had increased its tracking error modestly for the Quant fund this quarter to better diversify and to increase the potential for excess returns. At that point, Mr. Keeler asked Mr. Wellington to discuss Sector Fund performance.

Mr. Wellington began his comments by pointing out that the Sector Fund continues to be positioned for the middle of economic expansion. During the first quarter, the Sector Fund outperformed its S&P 500 benchmark by 0.7% and saw particularly good stock picking in overweight sectors like Industrials and Information Technology. The team continues to build exposure to good stock ideas and avoid loading up on stocks that move together. Mr. Wellington then handed the discussion back to Mr. Keeler to discuss Mid-Cap Fund performance.

Mr. Keeler noted that the Mid Cap Fund outperformed the S&P Mid-Cap 400 return by 0.7% during the quarter with good stock selection in the Consumer Staples, Technology and Industrial sectors somewhat offset by stock selection difficulties in the Health Care and Materials sectors. Mr. Keeler then asked Mr. Wellington to discuss International Equity performance.

Mr. Wellington mentioned that International Equity managers as a group fell short of meeting their benchmarks for the quarter largely due to being underweight Europe and European financials in particular. European banks had good performance on signs of support from the European Central Bank and not due to any signs of actual loan or income growth. Mr. Wellington and Mr. Brakebill noted that TCRS staff has met and remain comfortable with all of the managers that have trailed in the past year. Mr. Keeler then passed the discussion to Andy Palmer to discuss fixed income.

Mr. Palmer began by discussing how the team is responding to changing markets and indicated that the Group is looking at ETF bond and emerging market strategies that could boost alpha. The Staff is also working to develop a model to analyze country-specific risk to help identify good return opportunities globally. Mr. Palmer mentioned that Albert Chang has been actively working on mortgage-backed securities and that the TIPS portfolio matched the benchmark during the quarter. At the conclusion of Mr. Palmer's comments, Mr. Brakebill asked JP Rachmaninoff to discuss the Real Estate portfolio.

Mr. Rachmaninoff began by reviewing portfolio performance, indicating that for the 1-year period the TCRS portfolio modestly underperformed the NCREIF Property Index, the Fund's

current benchmark. He also indicated that over the 3-year, 5-year and 10-year periods, the underperformance was wider, primarily due to three individual investments, one of which was 100% vacant due to the move out of the single tenant occupant. Mr. Brakebill then reminded the Committee members that he continues to have concerns about the potential for an inherent bias in the NPI as a benchmark. Mr. Rachmaninoff indicated that he hoped to devote more time evaluating alternative benchmarks once the new real estate consultant agreement was in place. Mr. Rachmaninoff concluded by mentioning that good progress continues to be made in moving towards the strategic diversification targets for the TCRS portfolio through both commingled fund investments and direct separate account investments. He indicated that three separate account investments were in the pipeline. In addition, two commingled fund commitments were closed in the second quarter; one being a NYC value add office strategy and the second a national value add multifamily strategy. Mr. Brakebill then asked Carrie Green to discuss the Private Equity portfolio.

Mrs. Green reviewed quarterly performance and expected performance for the Private Equity program, including an update on current funds in the pipeline for 2014. Mr. Brakebill noted that the Private Equity exposure remains small today but continues to build as commitments are made and drawn down. Mr. Leslie discussed private equity market conditions at a high level, addressing industry fundraising, investment and distribution statistics. Most notably, for calendar year 2013, the global private equity industry had its best fundraising year since 2008, and buyout sponsors distributed more capital than they invested. For the first quarter of 2014, venture capital fundraising in the U.S. accelerated meaningfully as domestic venture capitalists had a particularly strong quarter in generating liquidity for investors while domestic buyout sponsors generally decelerated their pace of fundraising, investing, and distributing capital to investors. Mr. Brakebill then asked Derrick Dagnan to provide an update on Strategic Lending.

Mr. Dagnan provided an update on the high yield bond and loan market and the status of several new relationships that have recently begun. In addition, Mr. Dagnan also discussed existing managers. Mr. Dagnan noted that the Strategic Lending group is now focused more on portfolio monitoring. Mr. Brakebill then asked Tim McClure to provide an update on Trading and Operations.

Mr. McClure gave an update on trading and operations for the quarter. Mr. McClure noted that a process is underway to recruit a new equity trader. Mr. McClure mentioned that there were several new projects underway for his group including, replacing the mainframe system for the LGIP program, developing a new compliance report for the cash trades, and developing a new system to automate the collateral pledge and release process for public deposits. Trade volume for the quarter was down slightly compared to the previous quarter. Mr. McClure then introduced Roger Henry to discuss Securities Lending.

Mr. Henry provided a brief summary covering the Securities Lending program, which began on January 30, 2014. As of May 12, 2014, TCRS Securities Lending earnings totaled \$4.2 million

and the average on loan balance since inception was \$2.2 billion with a spread of 66 bps. He then stated that emerging market equities have been the top earner at 44% of the total earnings followed by domestic equities at -26%, international equities at -17%, and fixed income at -13%. Mr. Henry noted that the top five borrowing counterparties were J.P. Morgan, Citigroup, Credit Suisse, Morgan Stanley, and Goldman Sachs. Mr. Henry completed his summary by stating that overall, the Securities Lending program was operating very well and running very smooth. He then gave an updated TCRS earnings total of \$5.6 million as of June 6, 2014. Mr. Henry stated that considering the updated earnings figure, TCRS is on track to hit the annual earnings projection of \$11 million.

At that point, Mr. Brakebill made concluding remarks. Members of the Investment Advisory Council had no additional questions and Chairman Stadler asked for a motion to adjourn. Mr. Fred Crown motioned to adjourn the meeting and the motion was seconded by George Stadler and unanimously approved. The meeting adjourned at 11:55 a.m. CT.

# Key Initiatives

## June 2014

- **People**
  - Equity trader joined July 2014
  - Domestic equity analyst joined June 2014
  - Recruiting for a fixed income portfolio manager or analyst
  - Recruiting for a real estate portfolio manager
  - Intern program
  
- **Process**
  - Brokerage and soft dollar allocation processes
  - Legal processes for PE, SL, RE
  - Custodial selection and transition
  - Real estate consultant selection
  
- **Portfolio**
  - Tactical allocation
  - Securities lending
  - Private equity fund additions
  - Strategic lending fund additions
  - Real estate property and fund additions

# Performance Review

## June 2014

### Absolute comparison

- 1 quarter return of 4.5%
- 1 year return of 16.7% (median fund did 16.4%)
- 3 year return of 10.6% (median fund did 9.6%)
- 5 year return of 12.3% (median fund did 12.7%)
- 7 year return of 5.9% (median fund did 5.2%)

### Benchmark (relative) comparison

- Qtr return matched allocation index
- 1 year return beat allocation index by 0.1%
- 3 year return beat allocation index by 0.6%
- 5 year return beat allocation index by 0.4%

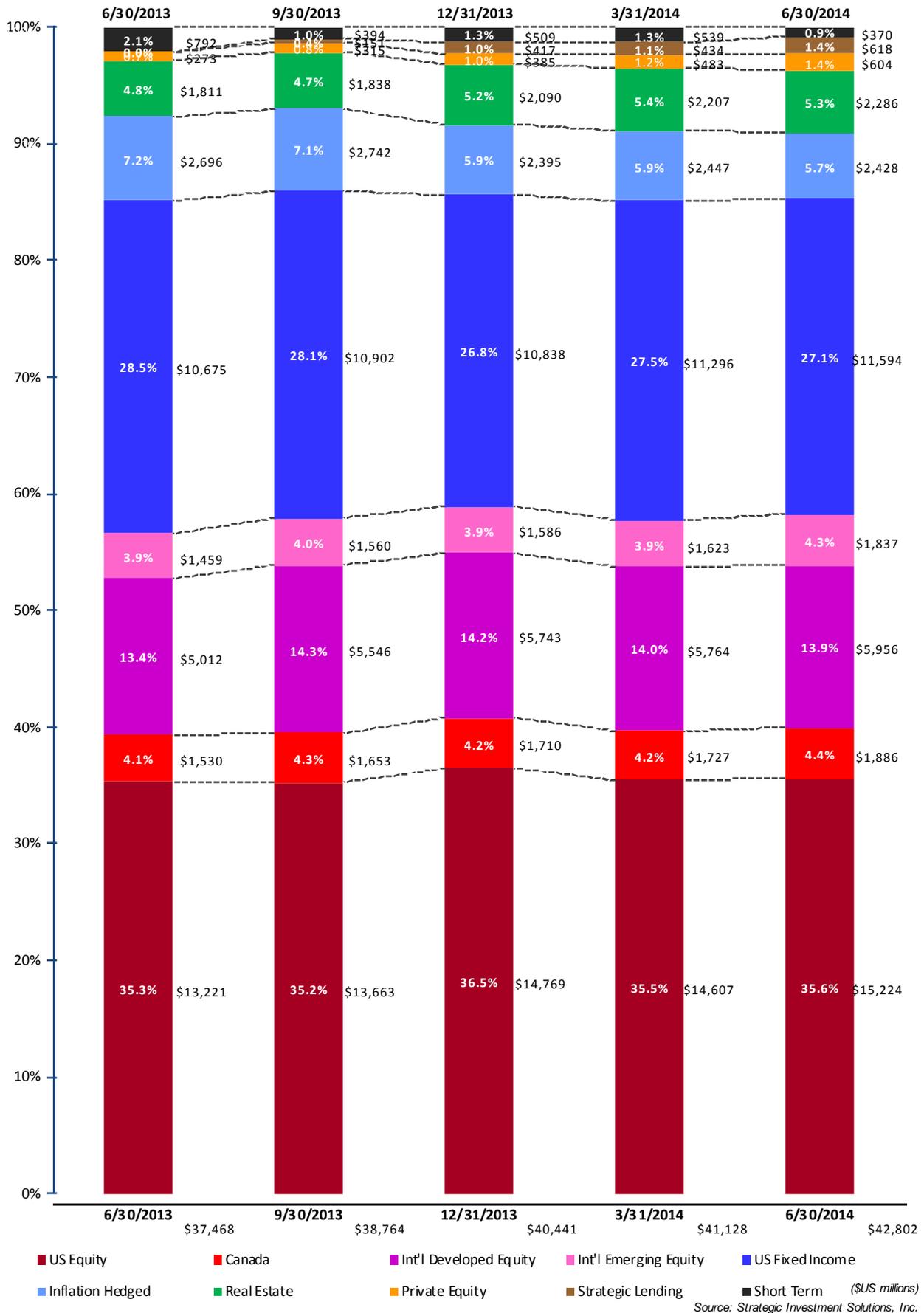
### Peer comparison

- 1 quarter return ranked at 4% (0% = best)
- 1 year return ranked at 48% (0% = best)
- 3 year return ranked at 22% (0% = best)
- 5 year return ranked at 69% (0% = best)
- 7 year return of 5.9% is 19% (0% = best) (median fund did 5.2%)

### Risk Adjusted Returns (Sharpe Ratio)

The Sharpe ratio measures the amount of return generated per unit of risk taken.

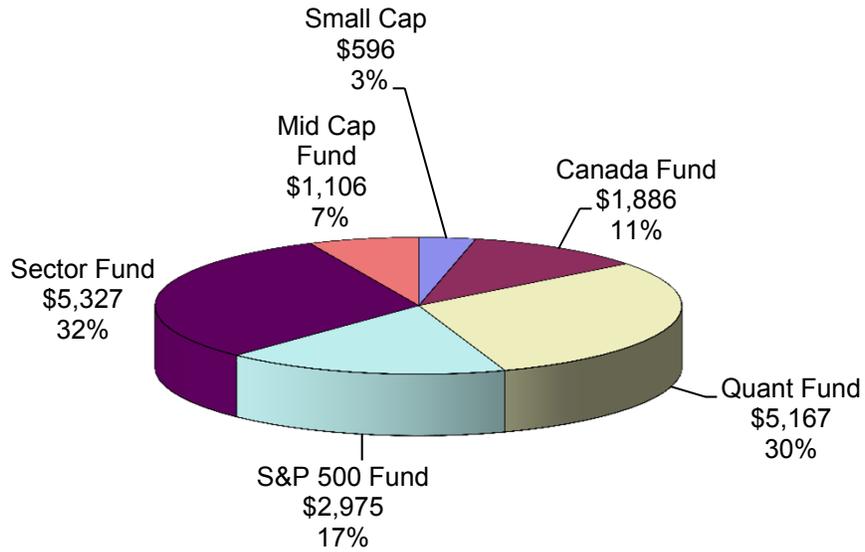
TCRS beat 89% of peers as measured via the Sharpe ratio for the trailing 3 year period and 85% for the trailing five year period.



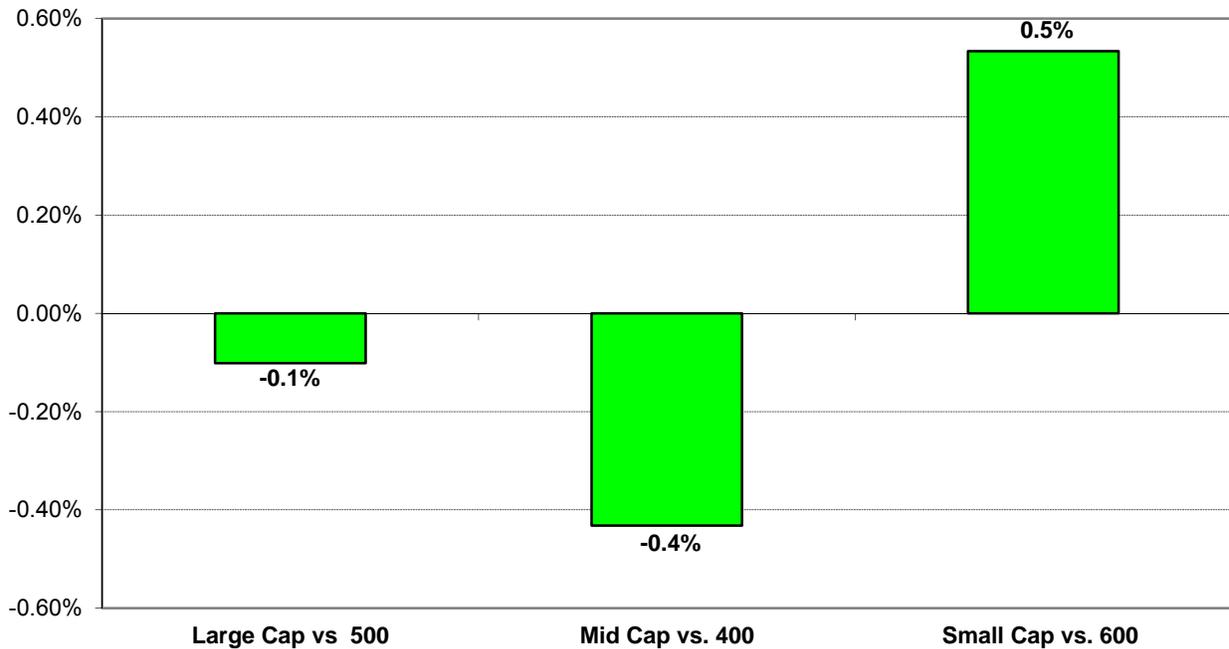
### Domestic Equity Portfolio Overview

Michael Keeler, CFA

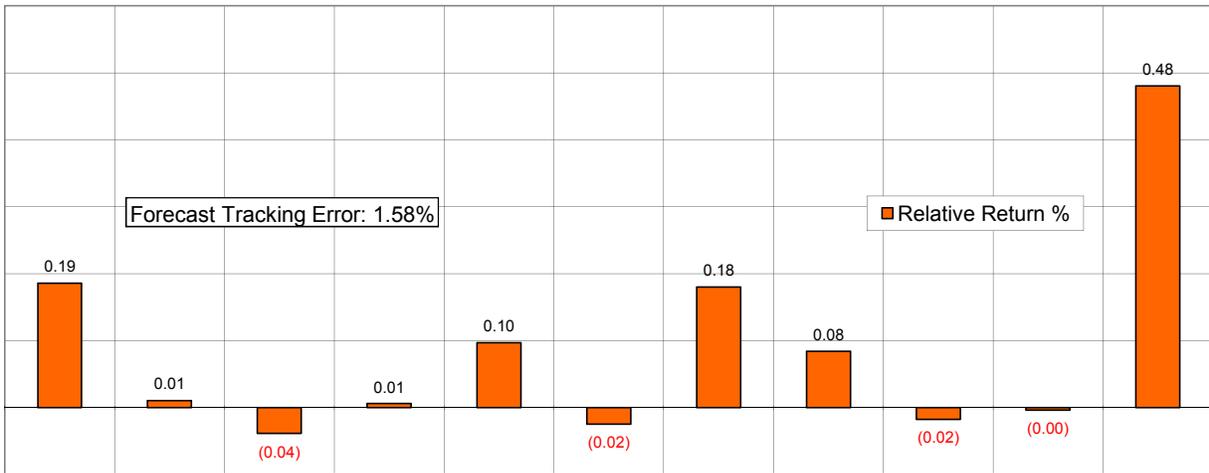
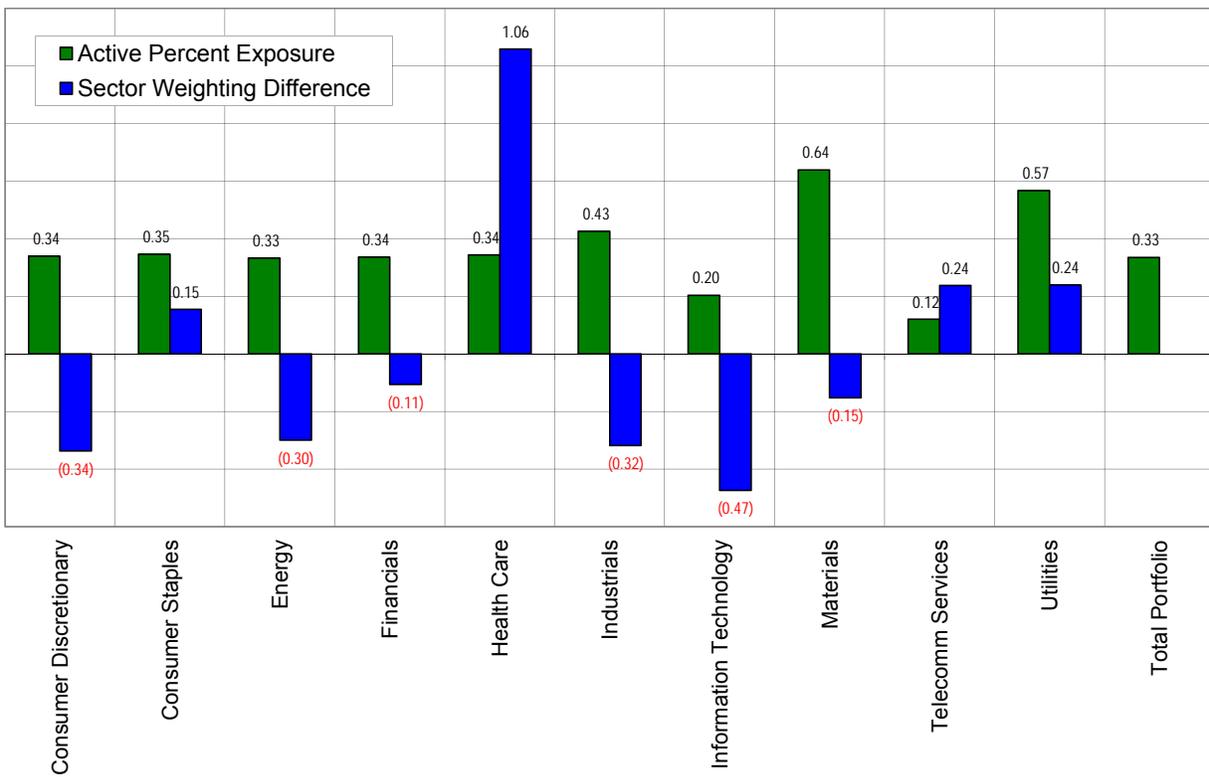
#### TCRS North American Equity Funds



#### TCRS Cap Weights vs. S & P 1500 Composite



Large Cap Quant Fund  
Kushal Gupta, CFA, CAIA & Jim Robinson, CFA

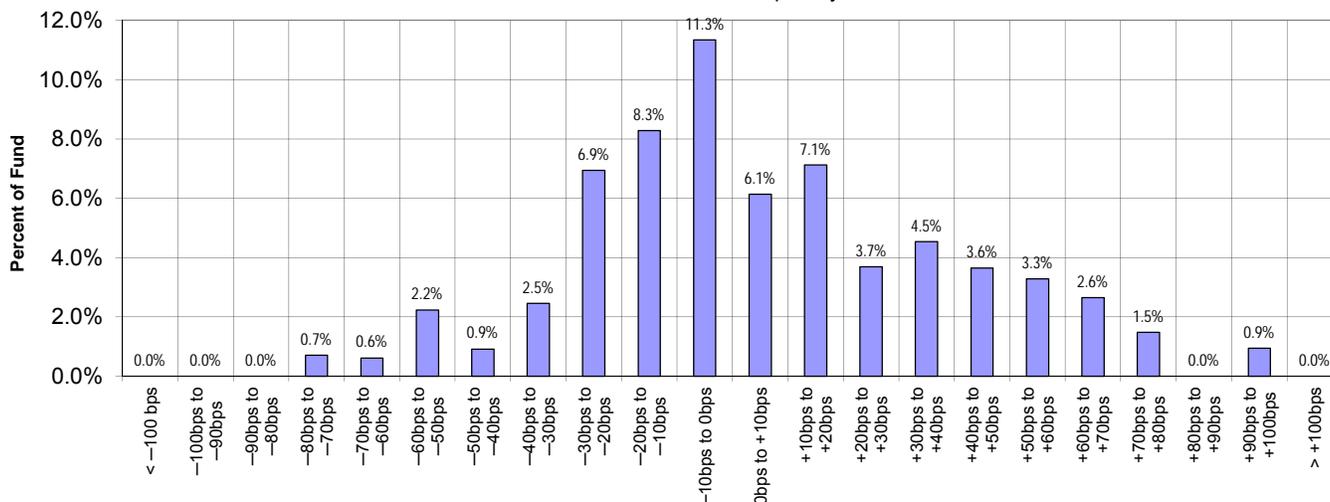


U.S. stocks continued their upward trajectory and posted gains in the second quarter of the year, with the S&P 500 up 5.23% for the quarter. Stocks advanced despite the troubling geo-political environment characterized by escalating violence in various corners of the globe, including Russia's seizure of Crimea; slowing growth and credit concerns in China; mixed U.S. economic data; and most recently, an eruption of sectarian violence in Iraq.

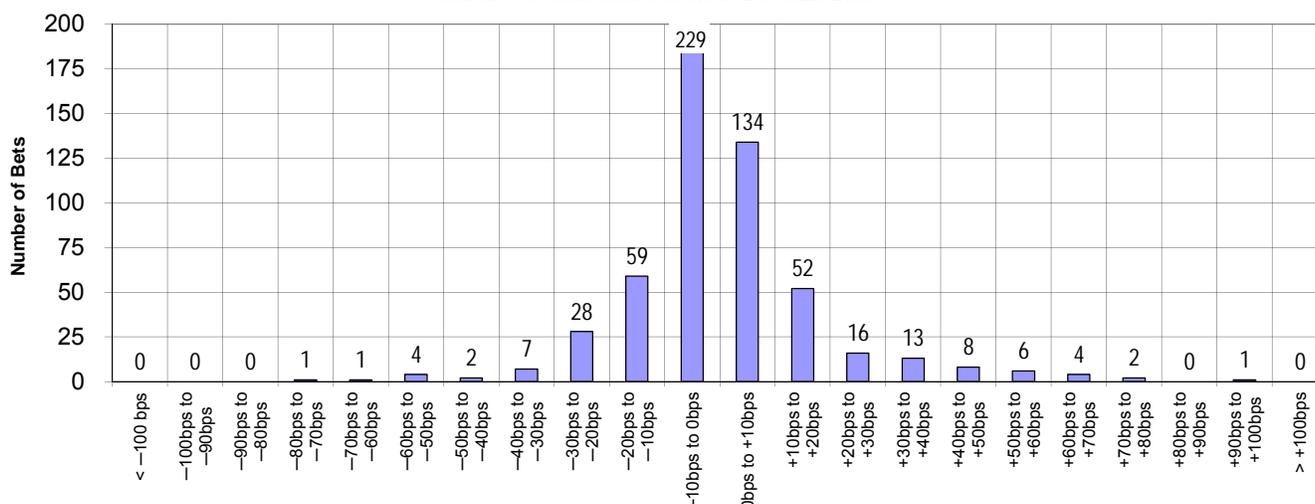
All market caps were higher for the quarter but larger and mid cap stocks outperformed the small caps. Stock performance was fairly uniform, with no clear leadership emerging among growth and value shares. Among the S&P 500 sectors, cyclicals were preferred over the defensives. Energy (+11.5%) was by far the strongest group, doubling the returns of most of the others in the index. Utilities also delivered impressive results as investors continued their search for income-producing securities in the low-rate environment. Information technology, Materials, Consumer staples, and Health care stocks all performed well. The laggard was the Financials sector with a return just over 2% for the period. An uptick in risk appetite was seen as low quality "B or Worse" rated stocks gained 4.8% in June, handily outperforming high quality "B+ or Better" names (+2.1%). Stocks that contributed most positively to S&P 500 index return in the second quarter were Williams Companies (WMB), Newfield Exploration Co. (NFX) and Micron Technology (MU); stocks which detracted most were Coach (COH), Whole Foods (WFM) and Teradata Corp (TDC).

The quant fund outperformed in the quarter and the portfolio had a 45 bps over-performance versus the benchmark. We still have the same provisions as the last quarter to neutralize the risks. The Quant Fund's tracking error is at 1.58%.

Active Bets in Fund vs. S&P500, Grouped by Bet Sizes



Number of Individual Stocks in Bet Size Bins

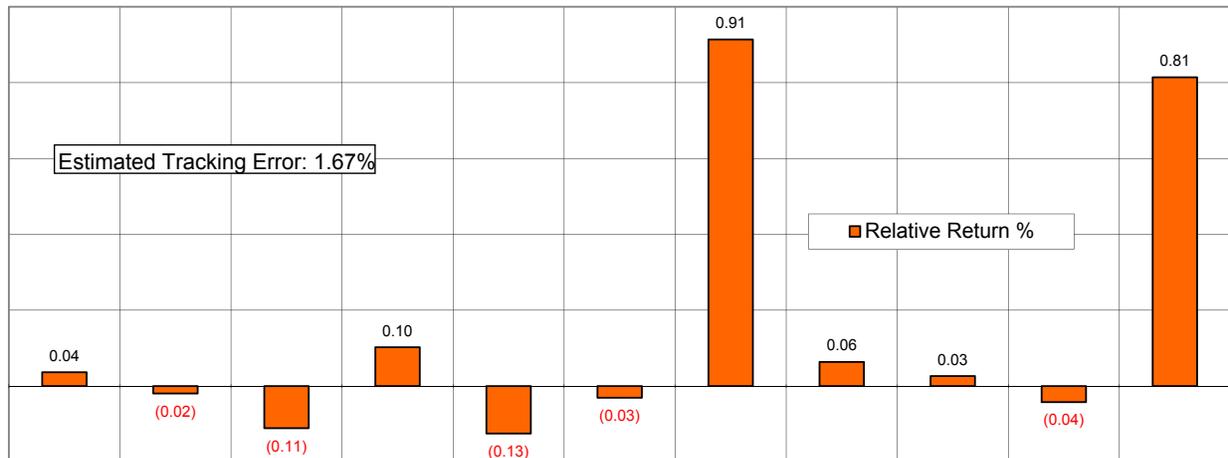
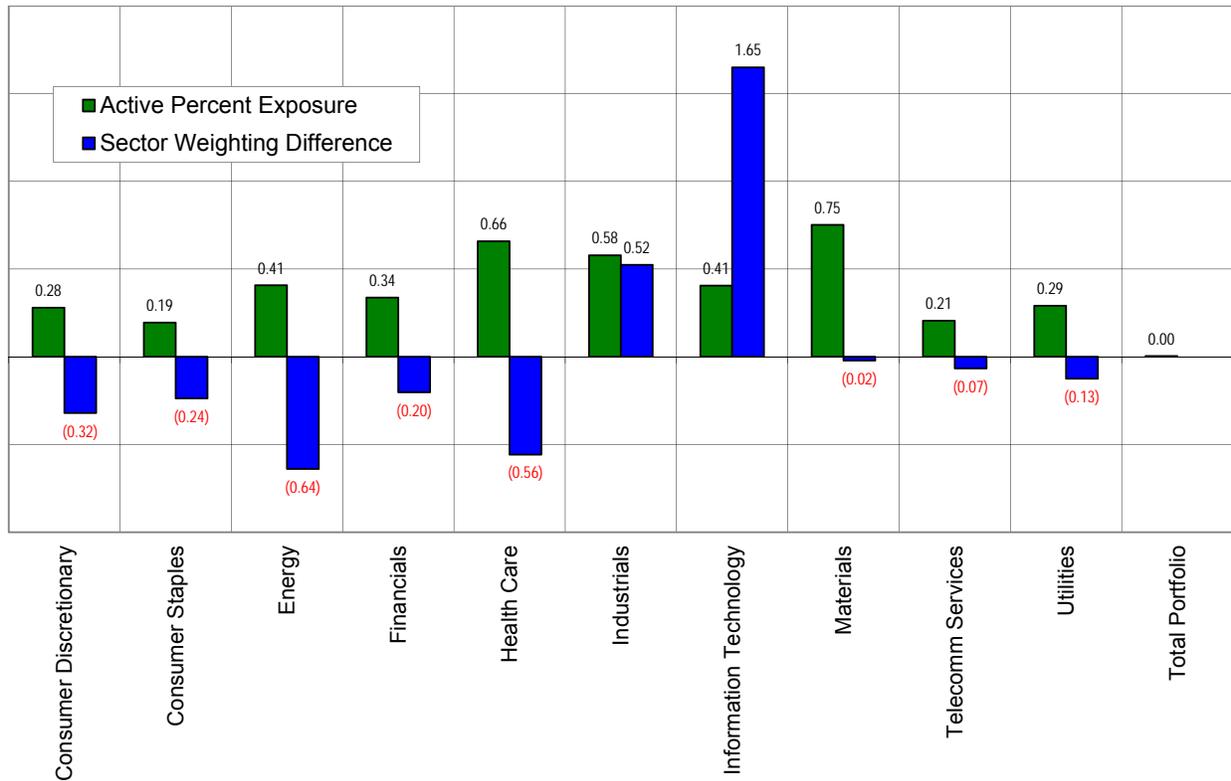


Largest Overweights by Stock in Fund

Ticker	Description	Bps Over
TSLA	Tesla Motors, Inc.	95
AAPL	Apple Inc.	78
COV	Covidien Plc	71
MO	Altria Group, Inc.	70
WLP	WellPoint, Inc.	68
DFS	Discover Financial Services	64
LYB	LyondellBasell Industries NV	64
SHPG	Shire PLC Sponsored ADR	60
ANET	Arista Networks, Inc.	59
WFT	Weatherford International plc	54
UNP	Union Pacific Corporation	54
AMP	Ameriprise Financial, Inc.	51
BEN	Franklin Resources, Inc.	51
CI	Cigna Corporation	50
WFC	Wells Fargo & Company	49
DVN	Devon Energy Corporation	47
PSX	Phillips 66	47
LO	Lorillard, Inc.	45
AXP	American Express Company	45
HAL	Halliburton Company	42

Largest Underweights by Stock in Fund

Ticker	Description	Bps Under
KO	Coca-Cola Company	-72
PM	Philip Morris International Inc.	-62
GE	General Electric Company	-57
MCD	McDonald's Corporation	-57
UTX	United Technologies Corporation	-56
CVX	Chevron Corporation	-53
BMJ	Bristol-Myers Squibb Company	-46
XOM	Exxon Mobil Corporation	-46
IBM	International Business Machines Co	-40
MON	Monsanto Company	-38
ABT	Abbott Laboratories	-35
LLY	Eli Lilly and Company	-35
DD	E. I. du Pont de Nemours and Comp	-35
EBAY	eBay Inc.	-33
GS	Goldman Sachs Group, Inc.	-31
PG	Procter & Gamble Company	-30
SPG	Simon Property Group, Inc.	-30
COST	Costco Wholesale Corporation	-29
CSCO	Cisco Systems, Inc.	-29
AGN	Allergan, Inc.	-29



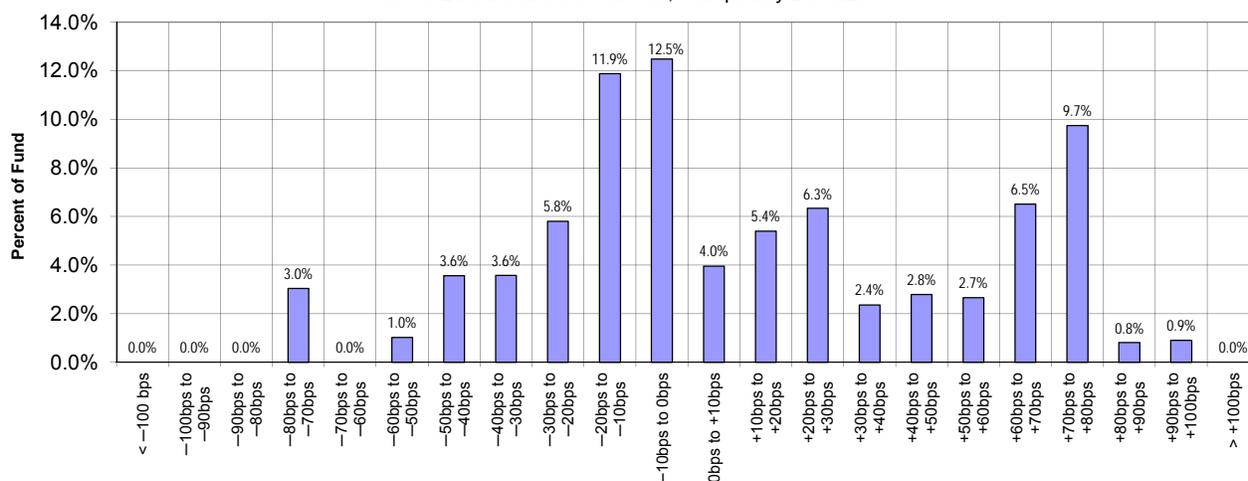
Another solid quarter in the equity market has stretched valuations fueled by the Fed's easy money policies and forward progress on the economy. The Sector Fund maintained an overweight to Information Technology and Industrials throughout the quarter missing the spike in Energy stocks.

This quarter was all about Information Technology. The Sector fund is exposed to several of the innovators in smartphones which rebounded from weather worries and headed for the next iPhone product launch. Fingerprint reader and touchpad leader Synaptics advanced by half and memory manufacturer Micron Technology was also a big winner.

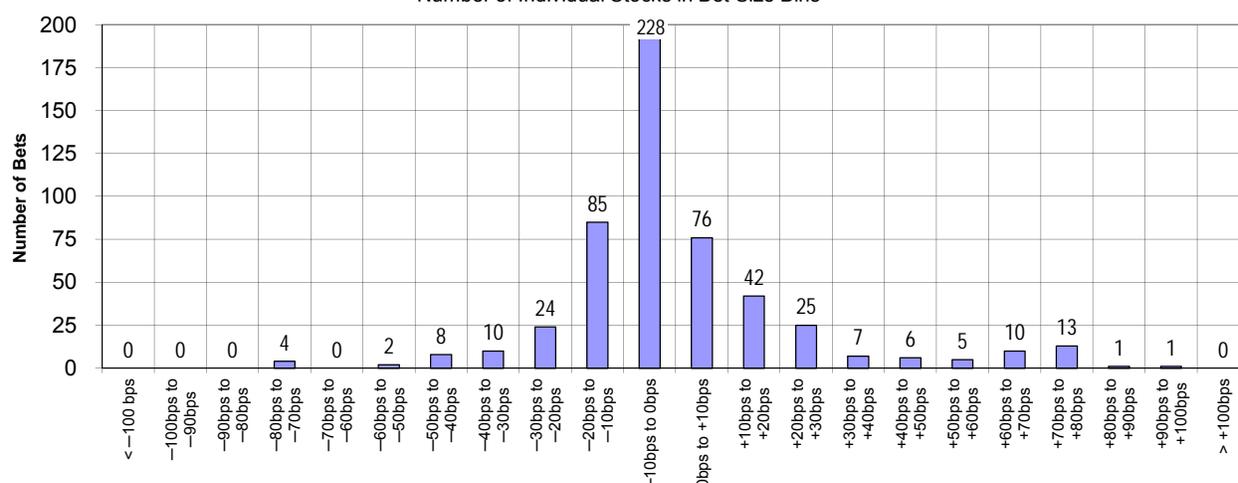
The Energy sector was not positioned for the rise in oil prices during the quarter and which have since fallen nearly every day as the Islamic State's advance on Baghdad was finally halted. More damaging were tax driven restructurings at Williams Companies and Allergan as they pursued activist driven strategies designed to reduce their federal tax bill. These events are difficult to anticipate before announcement and not really investible after the announcement. A restructured corporate tax code would turn investor interest away from REITs, MLPs and tax inversions and back to strategies centered on innovation and marketing.

The Sector Fund has since made a temporary tactical shift out of Industrials in favor of Health Care but is otherwise positioned for the middle of an economic expansion.

Active Bets in Fund vs. S&P500, Grouped by Bet Sizes



Number of Individual Stocks in Bet Size Bins



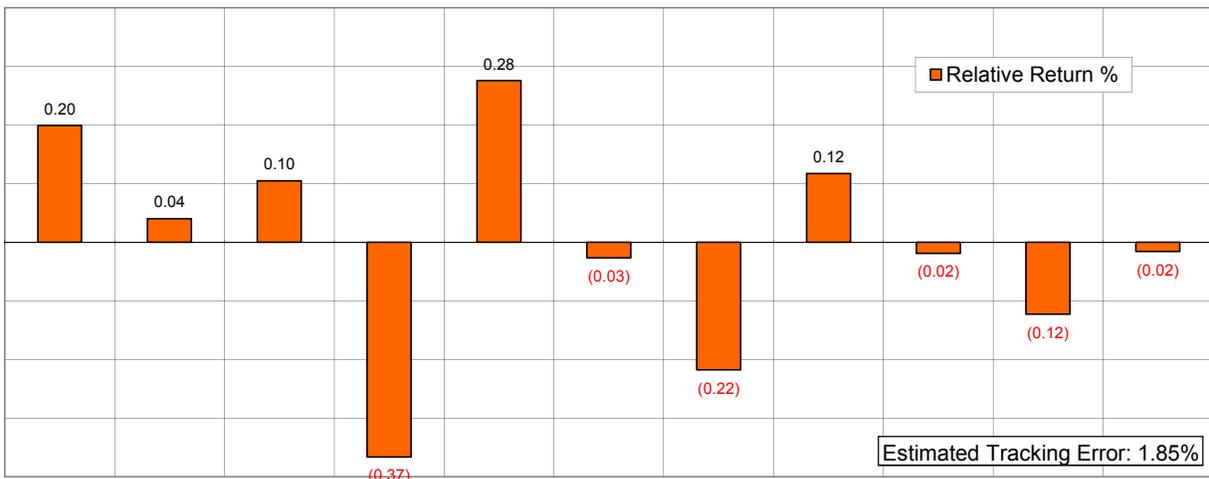
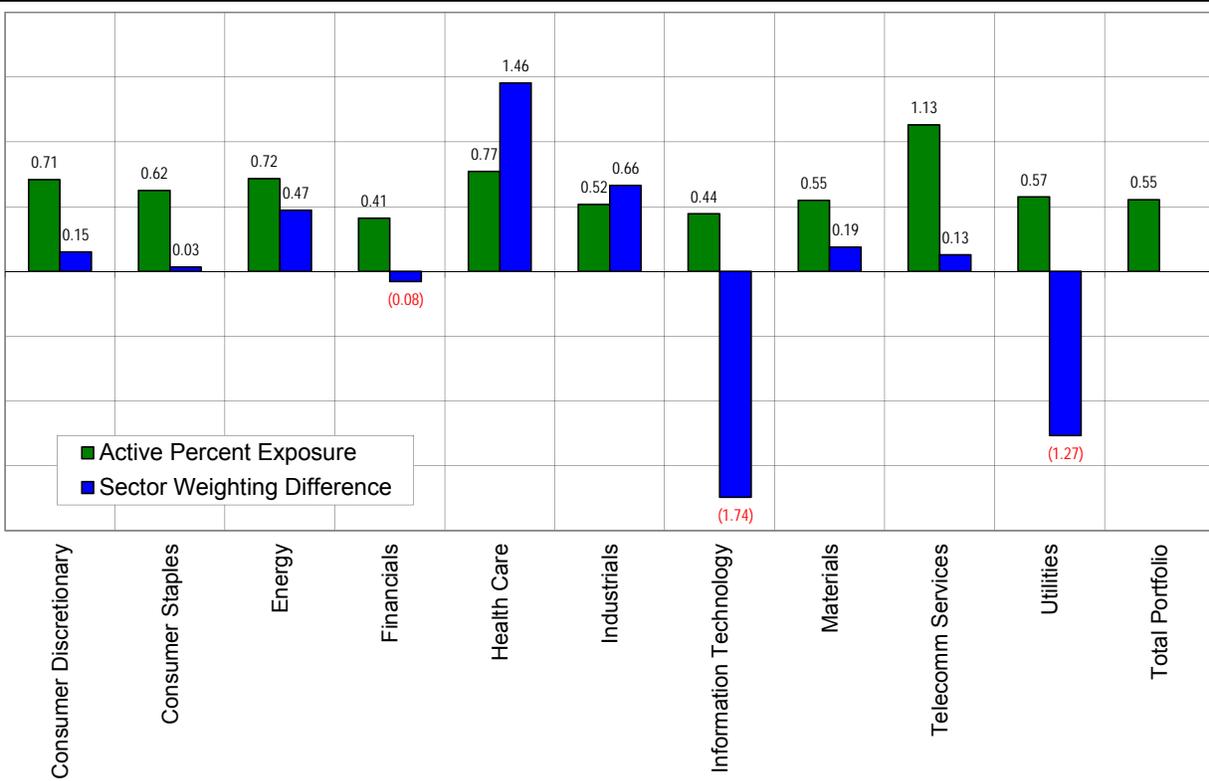
Largest Overweights by Stock in Fund

Ticker	Description	Bps Over Index Wt
SYNA	Synaptics Incorporated	90
AAPL	Apple Inc.	81
NXPI	NXP Semiconductors NV	80
TEVA	Teva Pharmaceutical Industries Limi	78
MU	Micron Technology, Inc.	78
AVGO	Avago Technologies Limited	76
ISRG	Intuitive Surgical, Inc.	76
EOG	EOG Resources, Inc.	76
BMY	Bristol-Myers Squibb Company	74
DAL	Delta Air Lines, Inc.	73
MRK	Merck & Co., Inc.	73
TMO	Thermo Fisher Scientific Inc.	73
LYB	LyondellBasell Industries NV	73
SNDK	SanDisk Corporation	72
BSX	Boston Scientific Corporation	72
CERN	Cerner Corporation	70
PSX	Phillips 66	67
BAX	Baxter International Inc.	66
AAL	American Airlines Group, Inc.	66
EW	Edwards Lifesciences Corporation	66

Largest Underweights by Stock in Fund

Ticker	Description	Bps Under
MSFT	Microsoft Corporation	-78
CVX	Chevron Corporation	-77
JNJ	Johnson & Johnson	-76
GILD	Gilead Sciences, Inc.	-73
ABBV	AbbVie, Inc.	-52
AMGN	Amgen Inc.	-51
PFE	Pfizer Inc.	-47
OXY	Occidental Petroleum Corporation	-46
UNH	UnitedHealth Group Incorporated	-46
ORCL	Oracle Corporation	-45
T	AT&T Inc.	-44
CSCO	Cisco Systems, Inc.	-44
BIIB	Biogen Idec Inc.	-43
INTC	Intel Corporation	-42
CELG	Celgene Corporation	-40
CAT	Caterpillar Inc.	-39
MON	Monsanto Company	-38
MDT	Medtronic, Inc.	-37
HPQ	Hewlett-Packard Company	-36
ABT	Abbott Laboratories	-35

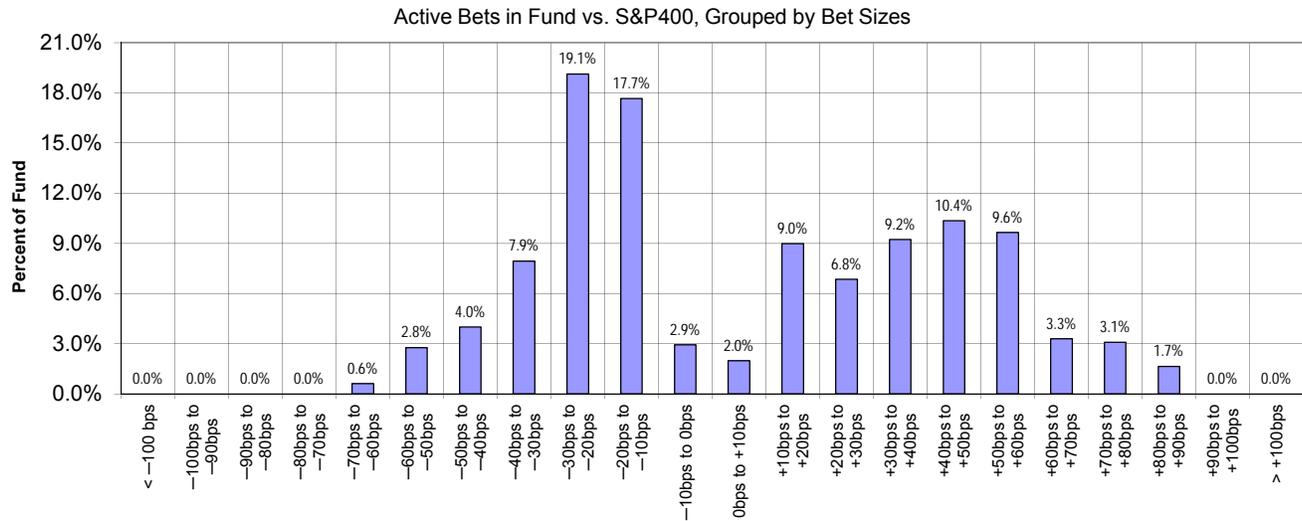
Mid Cap Fund  
Mike Keeler, CFA



The Mid Cap team's business cycle analysis currently indicates we're in a mid to late expansion, primarily characterized by rising inflation expectations and the Fed moving to neutral from expansive. The slow but reasonably steady improving economic trend appeared to stall midway through the 1<sup>st</sup> quarter as a wide array of data disappointed forecasters and investors. The weak data appeared to be primarily the result of unusually harsh winter weather across most of the country, as signs of life appear in the employment data and some measures of industrial activity.

In spite of this and at least for the time being, we remain positive on stocks although conditions are increasingly vulnerable to earnings and top line growth disappointments as well as a geopolitical flare-up as valuations, while not exorbitant, seem to be pricing in a decent amount of growth.

The Mid Cap Fund essentially matched the S&P Mid Cap 400 return during the quarter. Good stock selection in the Pharmaceutical and Apparel industries as well as the Energy Sector was somewhat offset by poor stock selection in the Insurance and Computer Software industries and the Utility Sector. Stock selection accounted for all of the slight variation in return against the benchmark.



**Largest Overweights by Stock in Fund**

Ticker	Description	Bps Over
AFG	American Financial Group, Inc.	85
RBC	Regal Beloit Corporation	81
GPN	Global Payments Inc.	80
CNC	Centene Corporation	77
CSC	Computer Sciences Corporation	76
R	Ryder System, Inc.	75
BR	Broadridge Financial Solutions, Inc.	69
EVR	Evercore Partners Inc. Class A	69
BLL	Ball Corporation	66
SPW	SPX Corporation	66
IEX	IDEX Corporation	60
EW	Edwards Lifesciences Corporation	58
WDR	Waddell & Reed Financial, Inc. Clas	58
CRZO	Carrizo Oil & Gas, Inc.	56
PWR	Quanta Services, Inc.	56
KEX	Kirby Corporation	55
CMA	Comerica Incorporated	55
HP	Helmerich & Payne, Inc.	55
WCG	WellCare Health Plans, Inc.	54
WTFC	Wintrust Financial Corporation	54

**Largest Underweights by Stock in Fund**

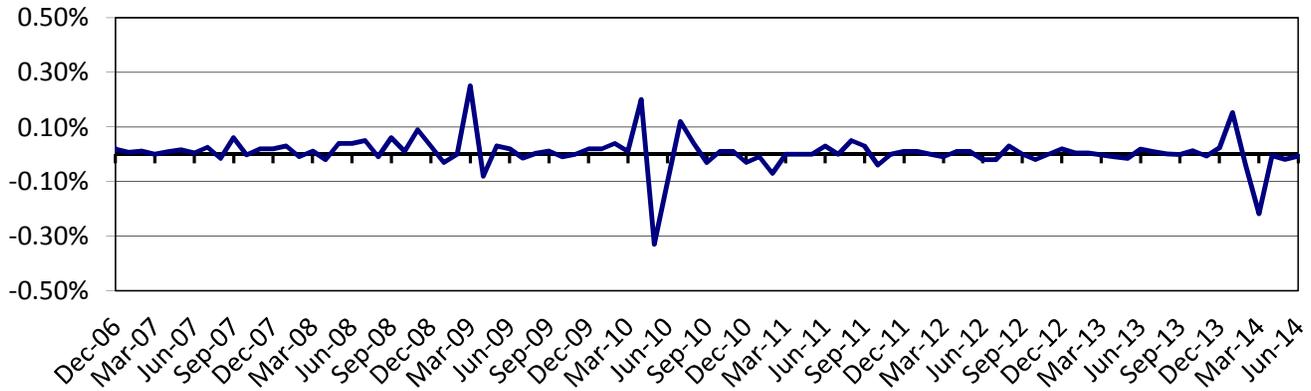
Ticker	Description	Bps Under
HSIC	American Financial Group, Inc.	-62
ENDP	Endo International Plc	-60
CHD	Church & Dwight Co., Inc.	-58
SIG	Signet Jewelers Limited	-54
PII	Polaris Industries Inc.	-52
OII	Oceaneering International, Inc.	-52
LKQ	LKQ Corporation	-49
SLXP	Salix Pharmaceuticals, Ltd.	-48
HSH	Hillshire Brands Company	-47
MTD	Mettler-Toledo International Inc.	-45
JAH	Jarden Corporation	-44
RMD	ResMed Inc.	-43
HOLX	Hologic, Inc.	-43
TRMB	Trimble Navigation Limited	-41
URI	United Rentals, Inc.	-41
COO	Cooper Companies, Inc.	-40
EGN	Energen Corporation	-40
RPM	RPM International Inc.	-38
AVT	Avnet, Inc.	-38
MLM	Martin Marietta Materials, Inc.	-37

Passive Domestic Equity Funds  
Derrick Dagnan, CFA & Michael Giggie

Index Fund vs. S&P 500

Assets as of June 2014: \$3.0B

Monthly Excess Returns

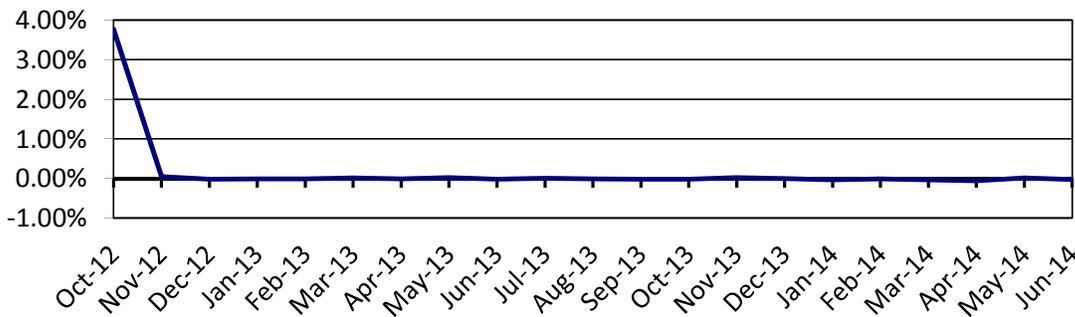


	1 Quarter	1 Year	3 Years	Since Inception
Index Fund	5.2%	24.5%	16.6%	7.4%
S&P 500	5.2%	24.6%	16.6%	7.4%
Excess Return	0.0%	-0.1%	0.0%	0.1%
Tracking Error	0.03%	0.28%	0.17%	0.22%

Small Cap Fund vs. S&P 600

Assets as of June 2014: \$750M

Monthly Excess Returns

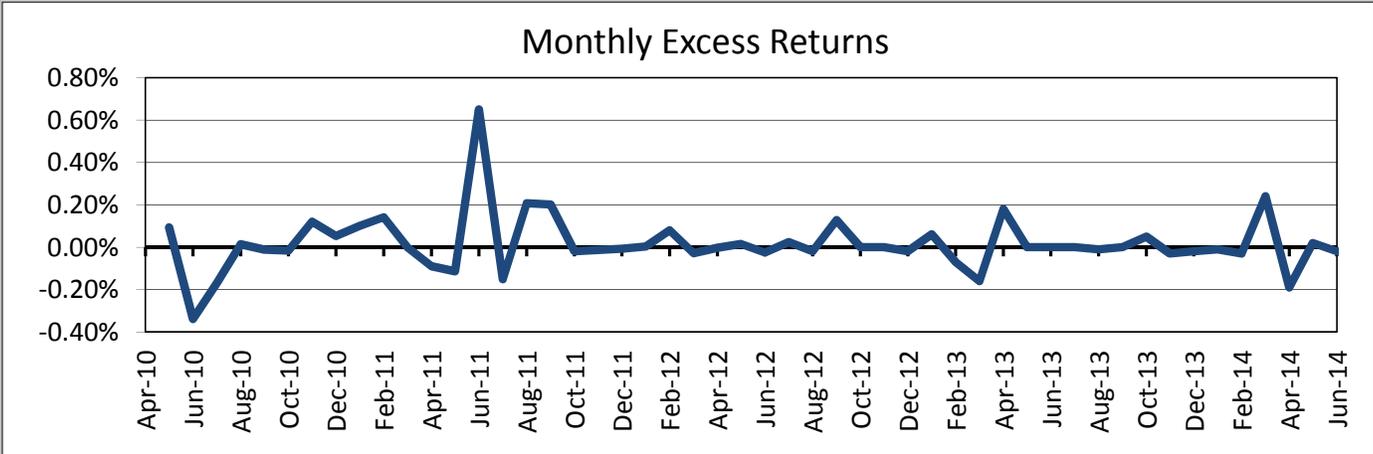


	1 Quarter	1 Year	3 Years	Since Inception
Small Cap Fund	2.00%	25.3%	N/A	28.28%
S&P 600	2.07%	25.5%	N/A	25.64%
Excess Return	-0.07%	-0.2%	N/A	2.64%
Tracking Error	0.14%	0.08%	N/A	2.86%

Canada Fund  
Kushal Gupta, CFA, CAIA

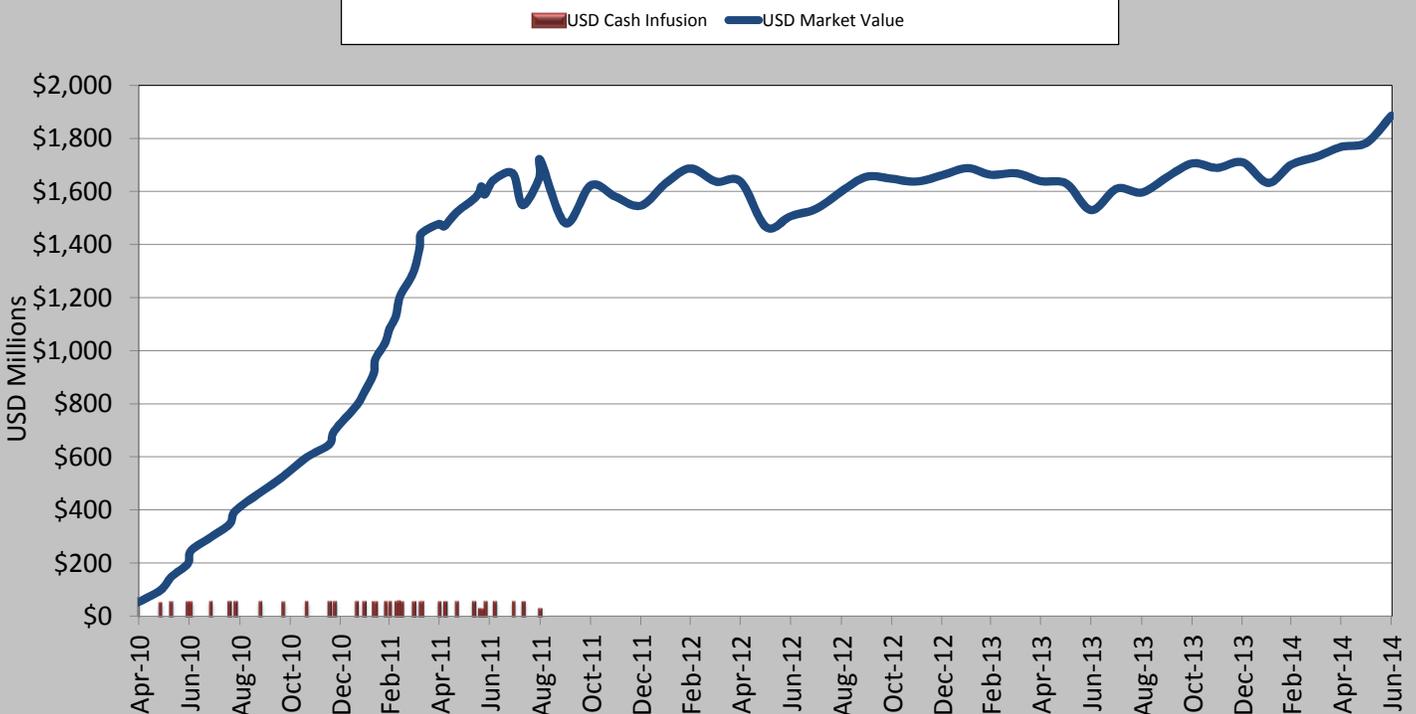
Canada Fund vs. SPTSX60 Index

Assets as of June 30, 2014: \$1.88B



	1 Quarter	1 Year	3 Years	Since Inception
Canada Fund	9.98%	27.10%	4.24%	6.75%
SPTSX60 Index	10.18%	27.09%	4.10%	6.53%
Excess Return	-0.20%	0.00%	0.14%	0.22%
Tracking Error	0.39%	0.33%	0.32%	0.48%

Market Value & Cash Inflows for the Canada Fund



Manager Performance Comparison - International Equity

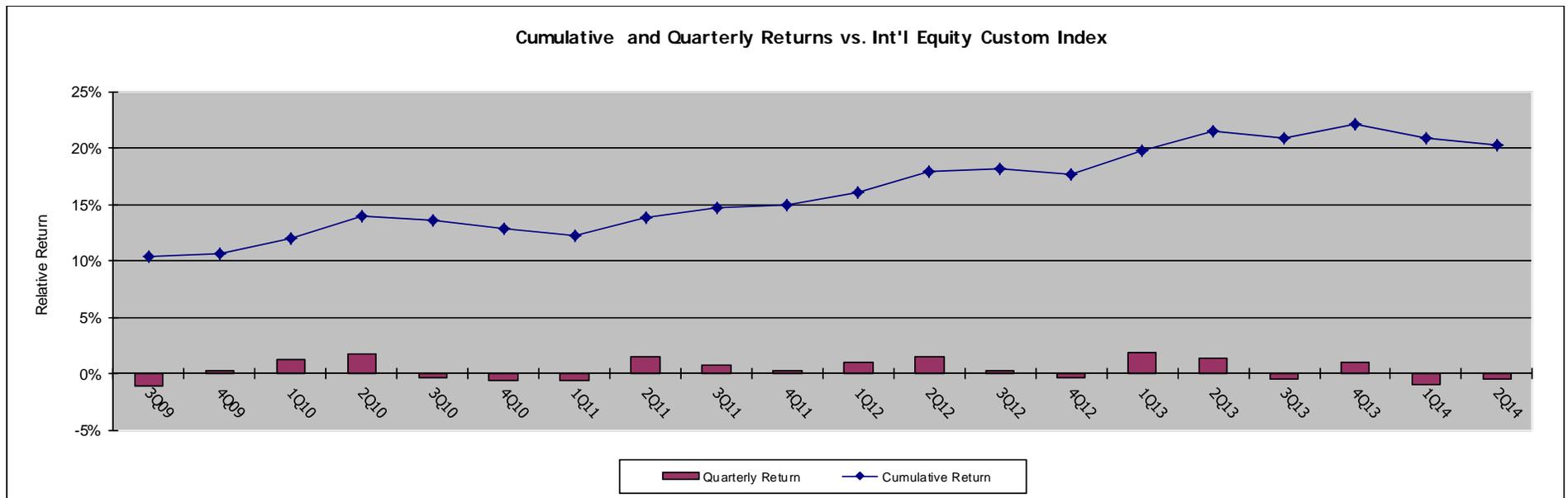
As of June 30, 2014

Manager Returns For The Quarter Ending June 30, 2014

Manager	Manager Return	Benchmark	Benchmark Return
American Century	-0.58	MSCI EAFE Small Cap	2.08
Baring Asset Mgmt	3.71	MSCI EAFE	4.09
Emerging Market ETF	6.89	MSCI Emg Mkts Net Custom	6.62
GE Asset Mgmt	0.41	MSCI Europe	3.30
Marathon	3.85	MSCI EAFE net	4.09
Pacific Indexed Portfolio <sup>1</sup>	4.76	MSCI Pacific net	5.77
PanAgora Asset Mgmt	4.32	MSCI EAFE	4.09
Pyramis Global	2.64	MSCI EAFE Small Cap	2.08
TT International	3.61	MSCI EAFE	4.09
Walter Scott	4.76	MSCI EAFE net <sup>2</sup>	4.09
International Equity	4.10	Int'l Equity Custom <sup>3</sup>	4.61

Manager Returns For Five Years Ending June 30, 2014

Manager	Manager Return	Benchmark	Benchmark Return
American Century	19.50	MSCI EAFE Small Cap	15.21
Baring Asset Mgmt	13.33	MSCI EAFE	11.77
Emerging Market ETF		MSCI Emg Mkts Net Custom	
GE Asset Mgmt	12.67	MSCI Europe	13.03
Marathon	14.65	MSCI EAFE net	11.77
Pacific Indexed Portfolio <sup>1</sup>	8.94	MSCI Pacific net	9.58
PanAgora Asset Mgmt	14.06	MSCI EAFE	11.77
Pyramis Global	16.52	MSCI EAFE Small Cap	15.21
TT International	13.03	MSCI EAFE	11.77
Walter Scott	13.51	MSCI EAFE net <sup>2</sup>	11.77
International Equity	13.09	Int'l Equity Custom <sup>3</sup>	10.83



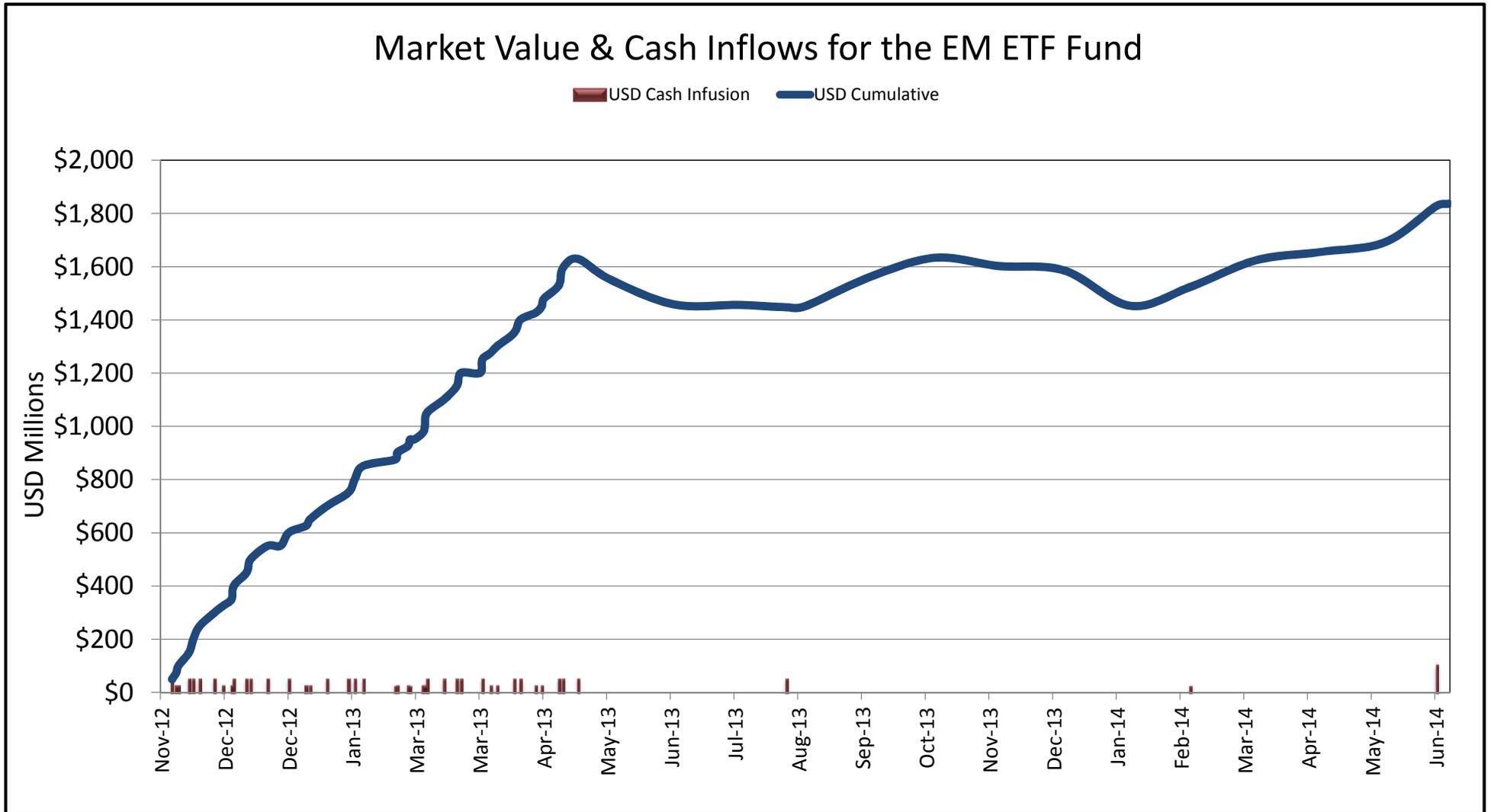
<sup>1</sup> Effective as of 9/4/10, internally managed by TCRS staff. Amundi Pacific terminated.

<sup>2</sup> Effective 3/1/09. Benchmark is linked to MSCI Europe Index.

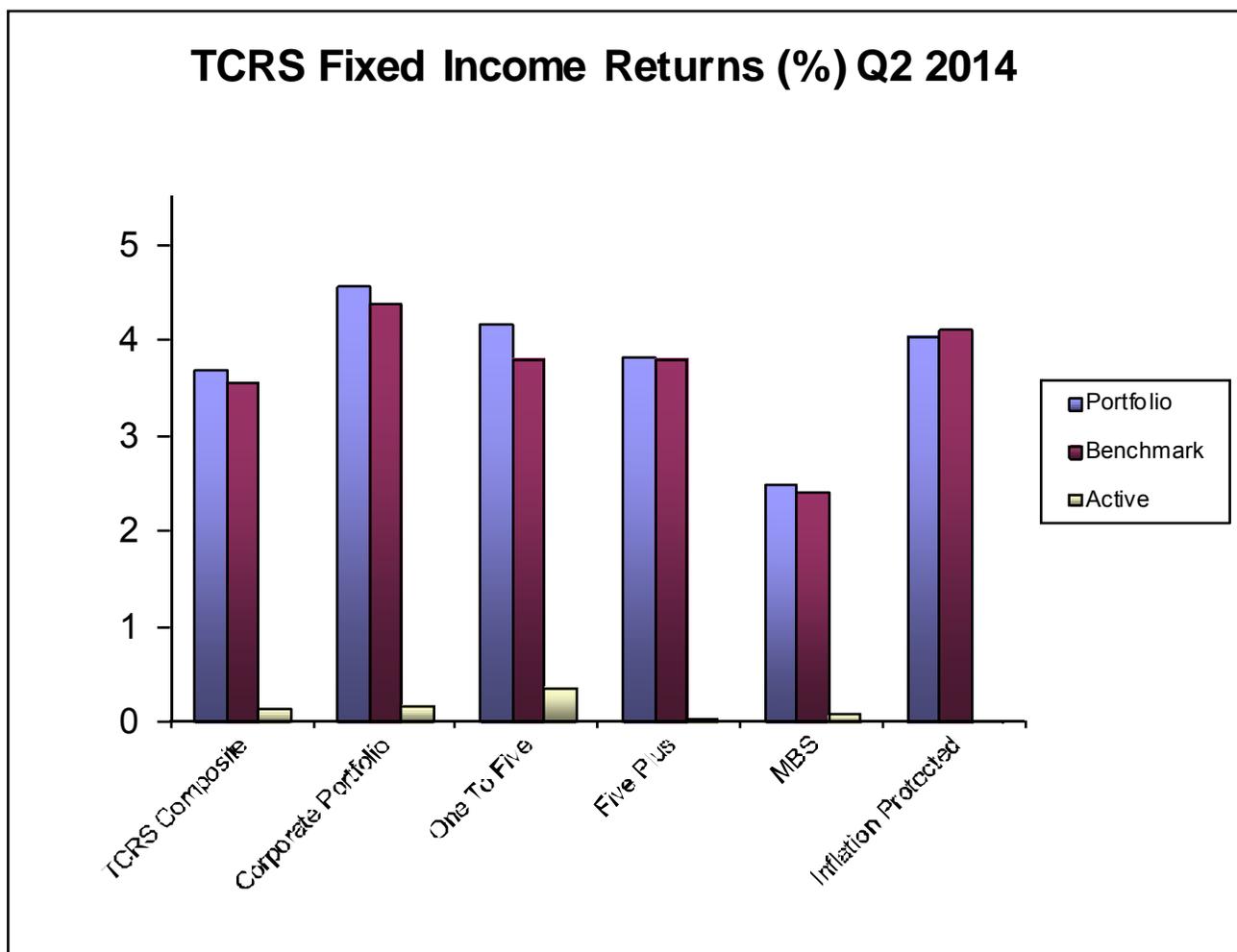
<sup>3</sup> Effective 1/1/13, benchmark is 72.22% MSCI EAFE IMI net/ 27.78% MSCI Emerging Mkts net; linked to 100% MSCI IMI net.

Emerging Markets ETF Fund  
Kushal Gupta, CFA, CAIA

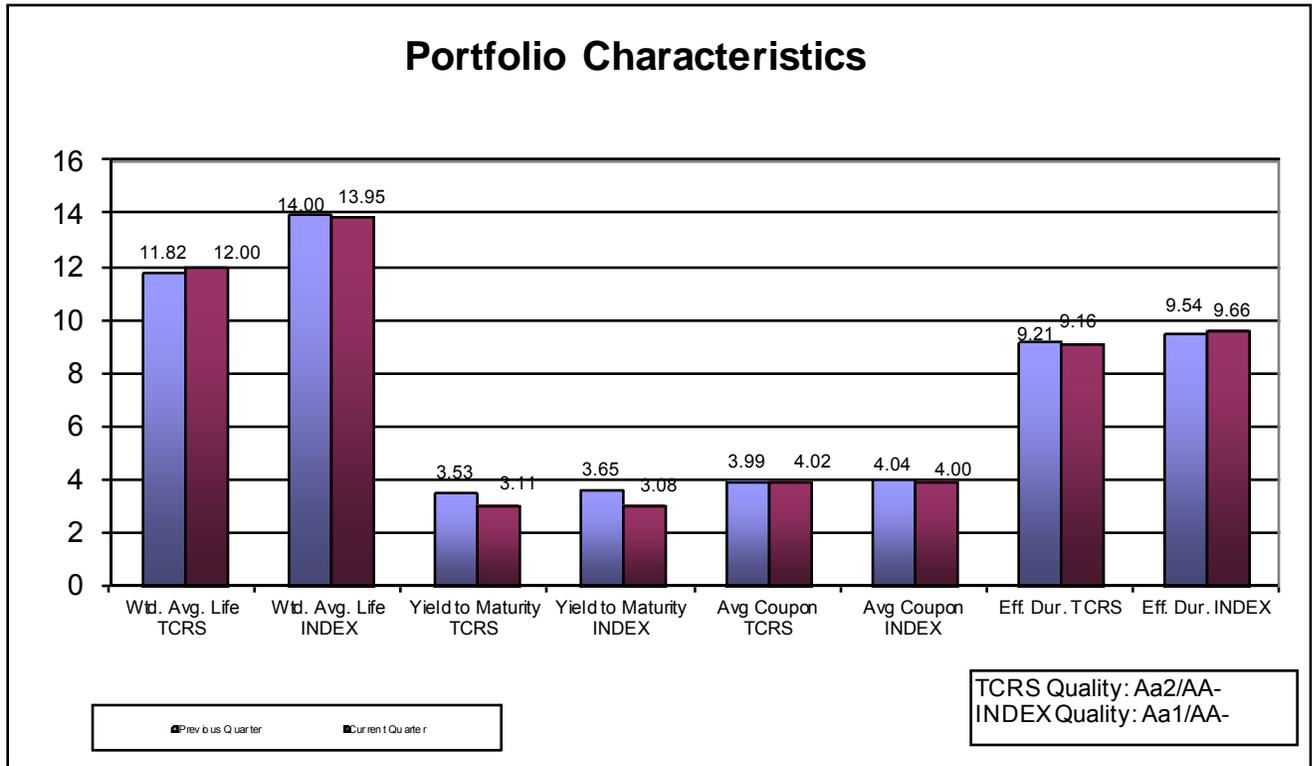
Assets as of June 30, 2014: \$1.83B



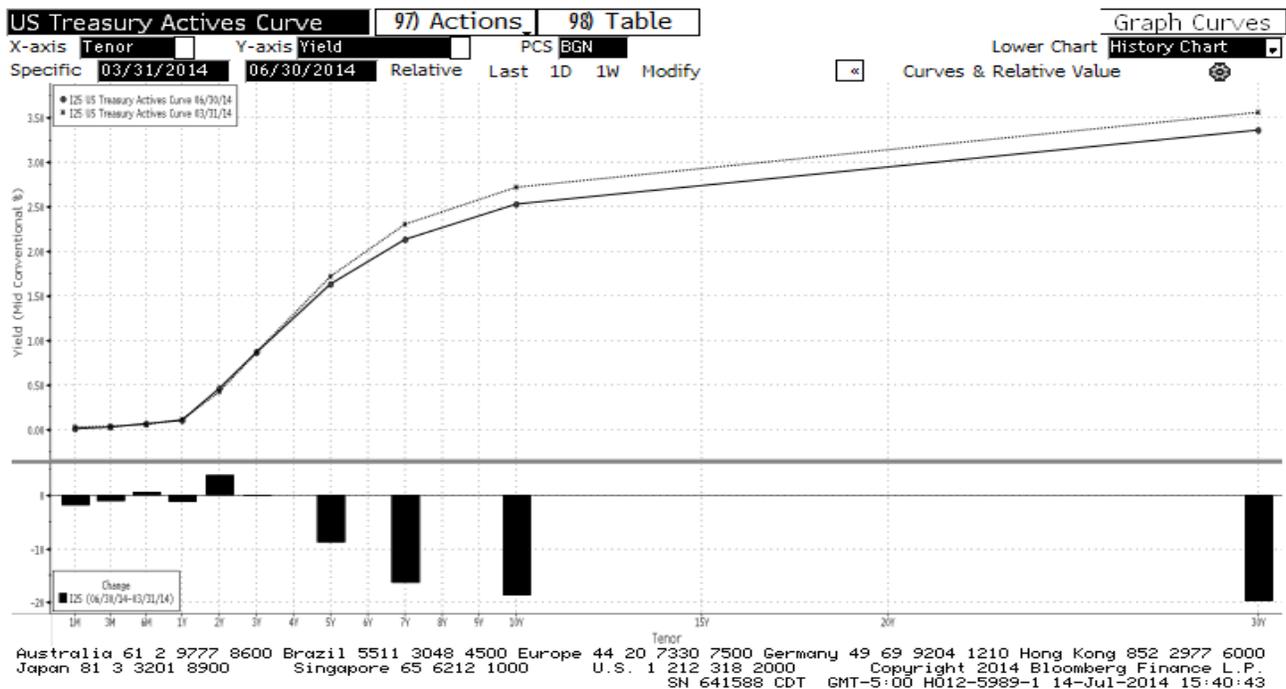
Portfolio	Value (Yield Book) (\$MMs)	Portfolio Return	Benchmark Return	Active Return
TCRS Domestic Fixed Income Composite	\$11,551	3.70	3.56	0.14
Corporate Portfolio	\$3,683	4.57	4.39	0.18
Government One To Five Years	\$2,033	4.18	3.81	0.37
Government Five Plus Years	\$2,087	3.83	3.81	0.02
Mortgage Portfolio	\$3,749	2.49	2.41	0.08
TCRS Inflation Protected Securities	\$2,428	4.05	4.12	(0.07)



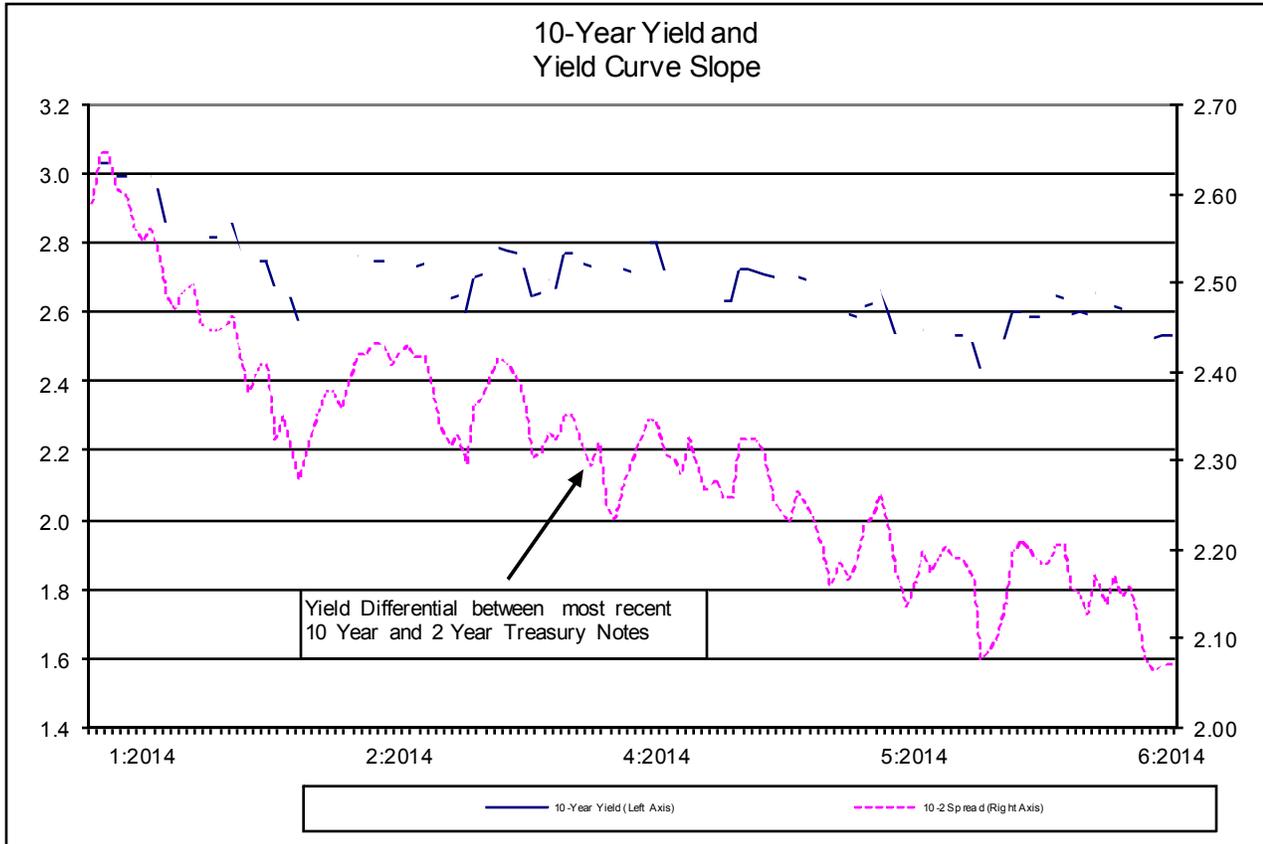
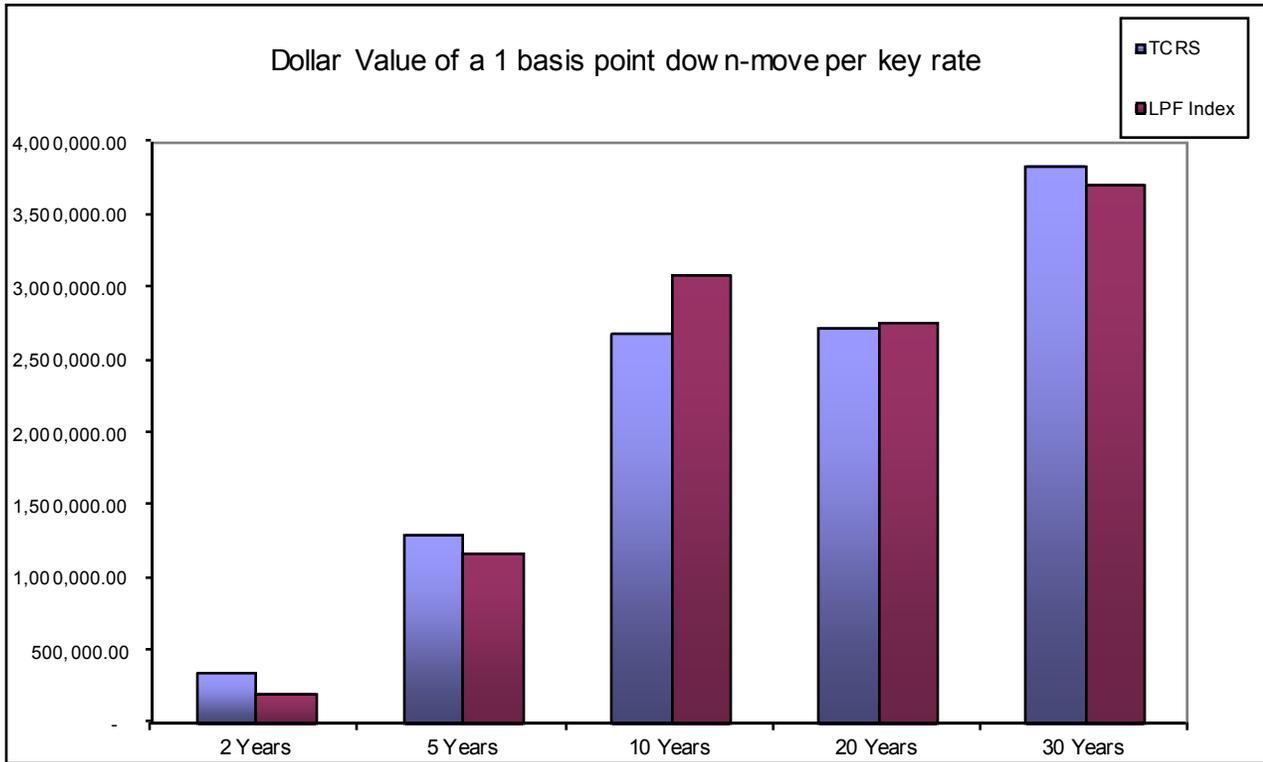
*Characteristics were stable from quarter to quarter*



*Yields fell and the curve flattened*



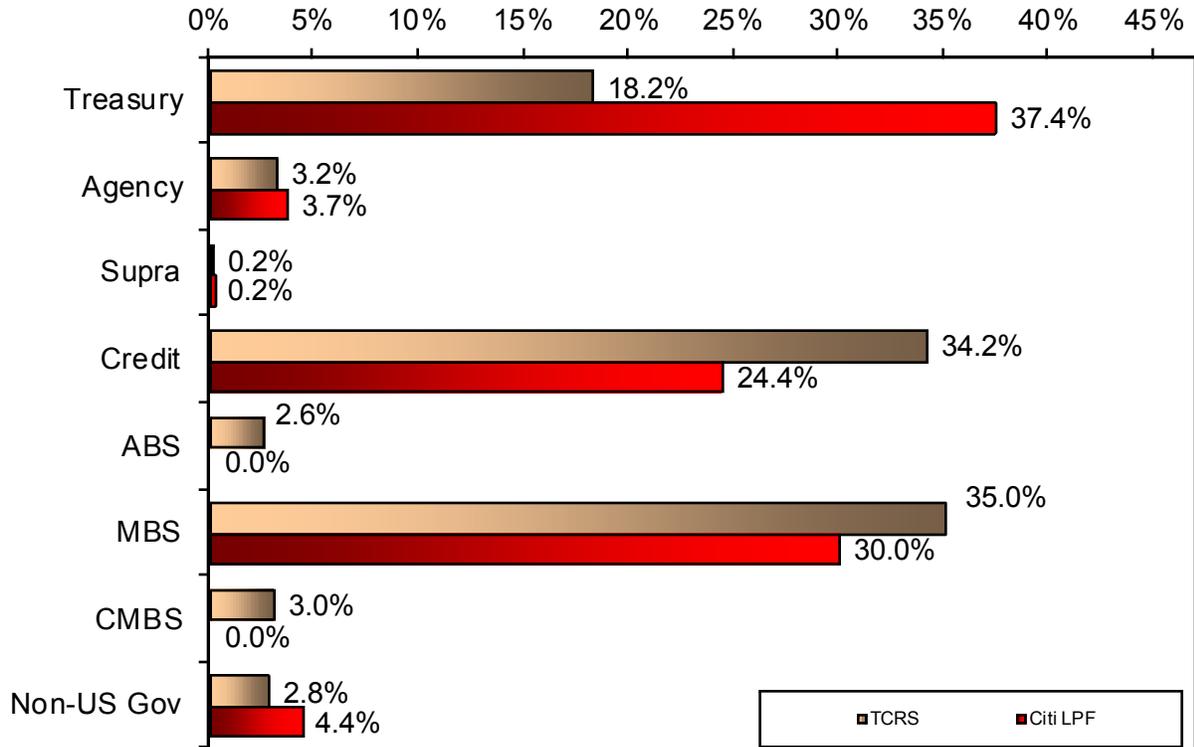
*Curve positioning reflects our view that the Federal Reserve will begin to raise overnight interest rates in 2015*



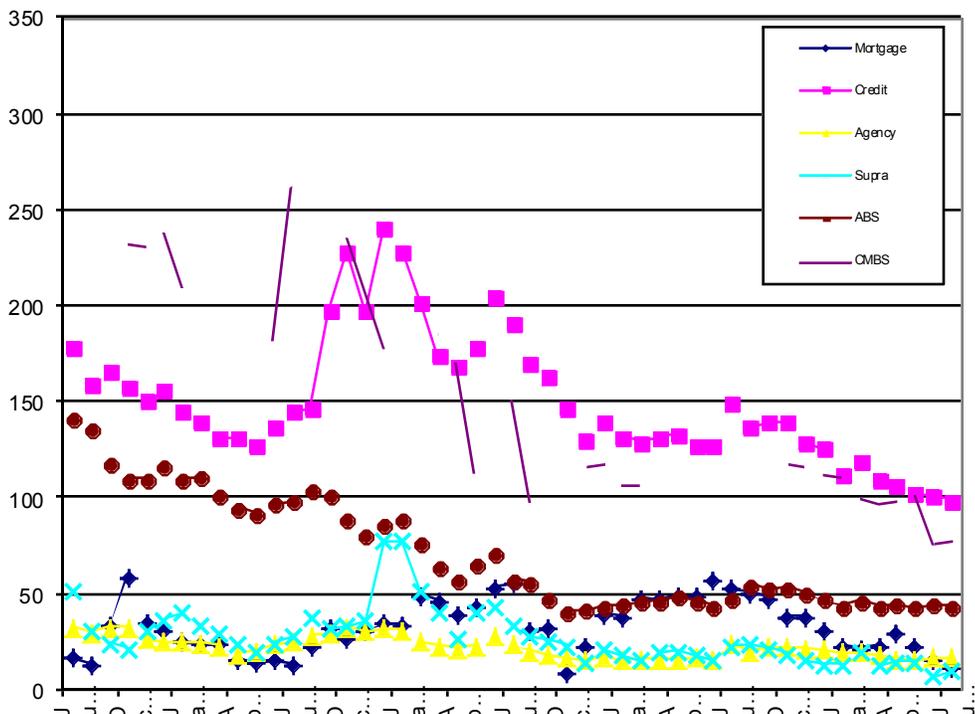
source: Bloomberg

*Spreads tightened during the quarter. Exposure reflects a slight preference for credit risk over MBS risk as the Fed tapers MBS purchases.*

Sector Allocation v. Index  
(% market value)



Spread to Treasuries by Asset Class  
(in basis points, index data)



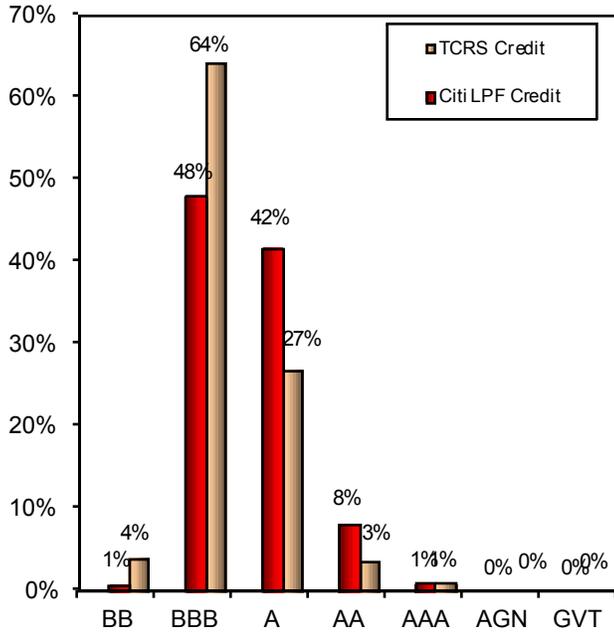
source: Yield Book

*Spreads tightened during the quarter.*

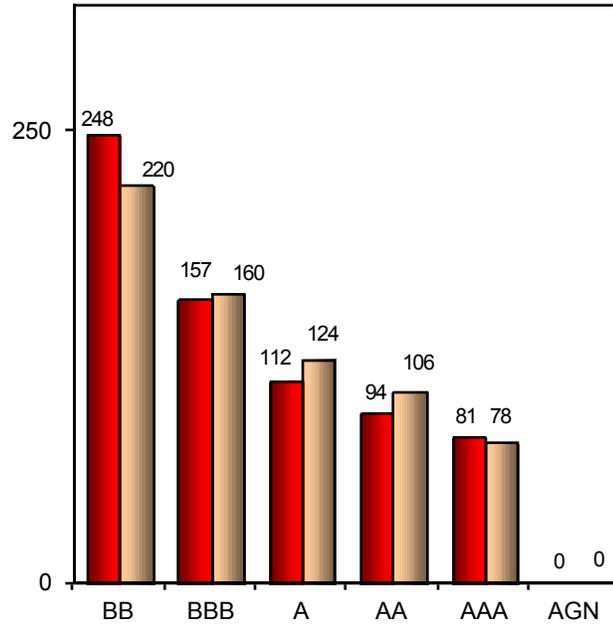
*While weightings reveal a lower quality bias,*

*TCRS relative spreads are lower in risky sectors and higher in safe sectors*

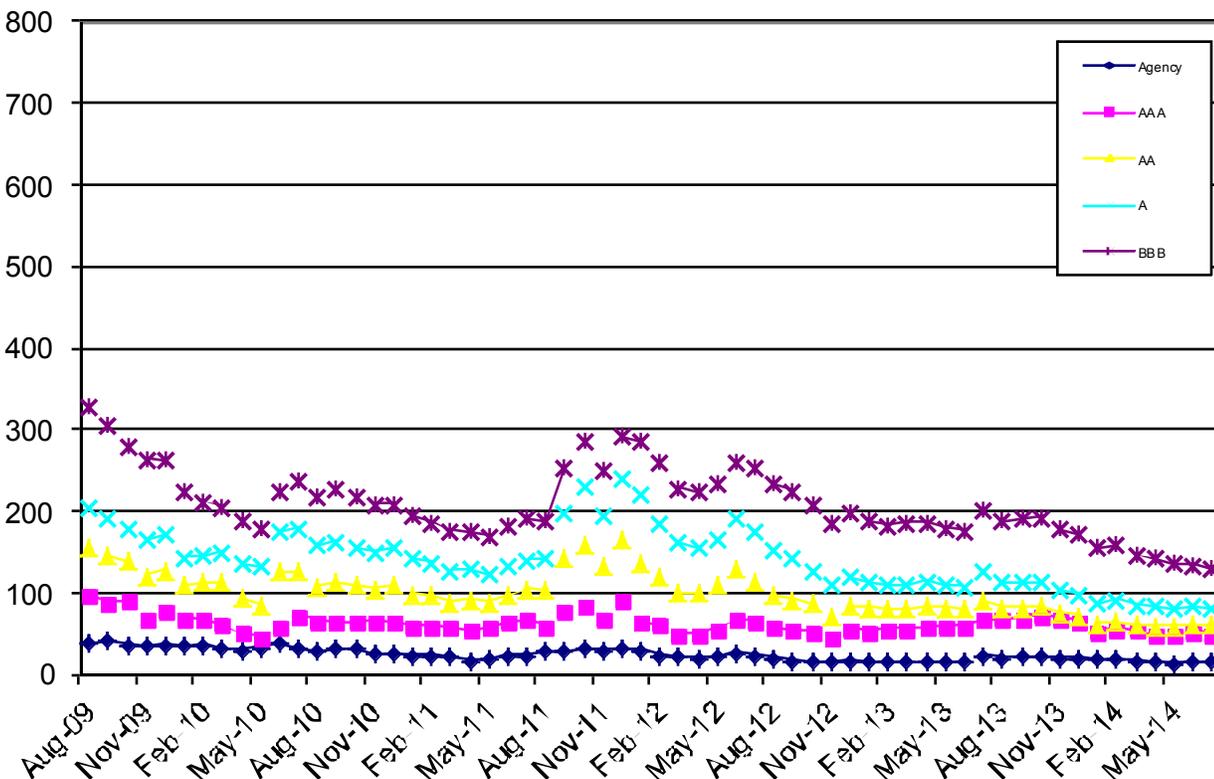
Credit Allocation v. Index  
(% market value)



OAS by Credit Allocation



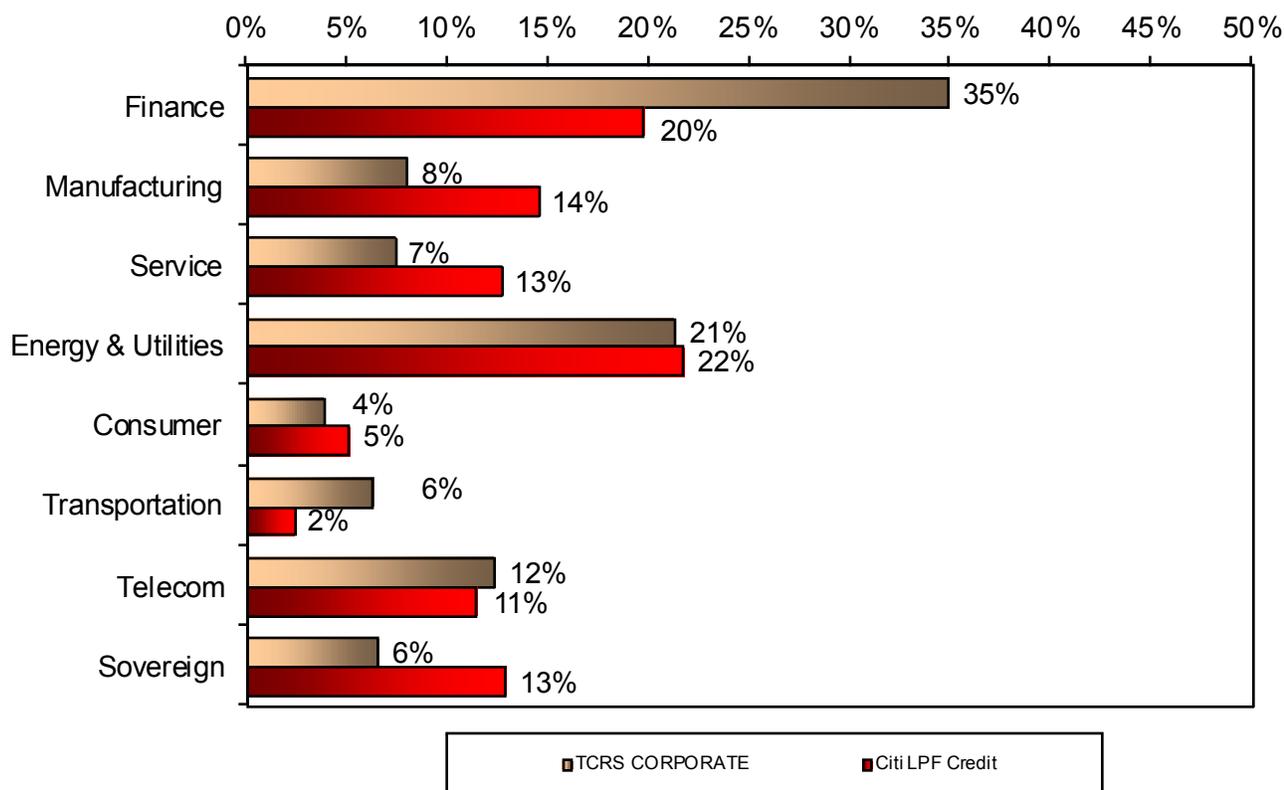
Spread to Treasury by Credit Rating  
(in basis points, index data)



<b>Top 5 Credit Holdings (by Market Value)</b>	MktVal	% MktVal
VERIZON COMMUNICATIONS INC	40,255	1.5
CITIGROUP INC	26,060	1.0
LLOYDS BANKING GROUP PLC	25,758	0.5
GOLDMAN SACHS GROUP INC	24,989	0.8
AMERICAN INTERNATIONAL GROUP INC	23,359	0.8

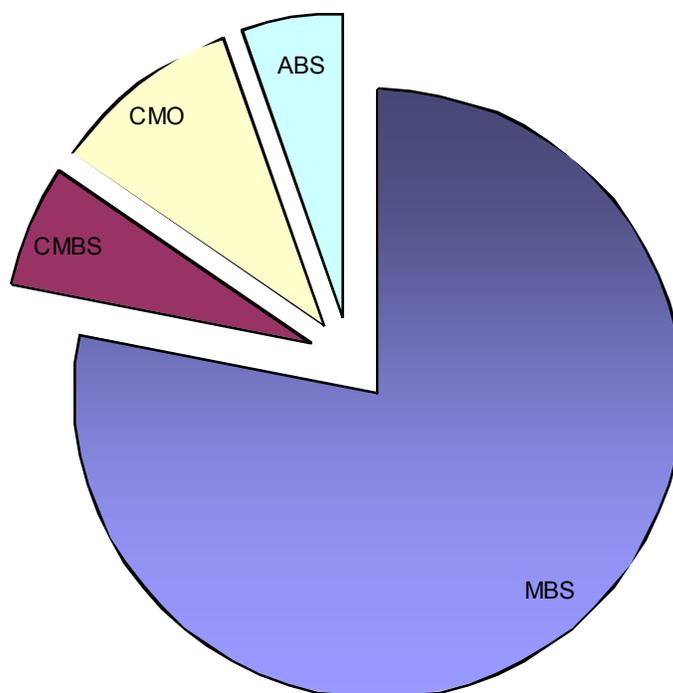
<b>Top 5 Credit Holdings (by Dollar Duration)</b>	\$ Duration	% \$ Duration
VERIZON COMMUNICATIONS INC	160.9	1.5
CITIGROUP INC	106.6	1.0
GOLDMAN SACHS GROUP INC	89.6	0.8
AT&T INC	83.6	0.8
BERKSHIRE HATHAWAY INC	82.5	0.8

**Sector Allocation v. Index**  
(% market value)



	Market Value (\$MM - Yield Book)	TCRS % of portfolio	CITI	Differenc
<b>Agency Mortgage Backed Securities</b>	\$3,737,094	32.2	29.9	2.3
<b>GNMA</b>				
15-Yr	\$24,839	0.2	0.1	0.1
30-Yr	\$752,580	6.5	8.0	-1.5
<b>FNMA</b>				
10-, 15- & 20-Yr	\$425,743	3.7	2.8	0.9
30-Yr	\$1,659,924	14.3	11.3	3.0
<b>FHLM</b>				
15-Yr	\$93,839	0.8	1.6	-0.8
30-Yr	\$714,471	6.2	6.1	0.0
<b>Agency Hybrid</b>	\$65,698	0.6	0.0	0.6
<b>Commercial Mortgage Backed Securities</b>	\$308,546	2.7	0.0	2.7
<b>CMO and Non Agency Passthroughs</b>	\$481,599	4.1	0.0	4.1
<b>Asset Backed Securities</b>	\$257,240	2.2	0.0	2.2
<b>Total Securitized Product</b>	<b>\$4,784,479</b>	<b>41.2</b>	<b>29.9</b>	<b>11.3</b>

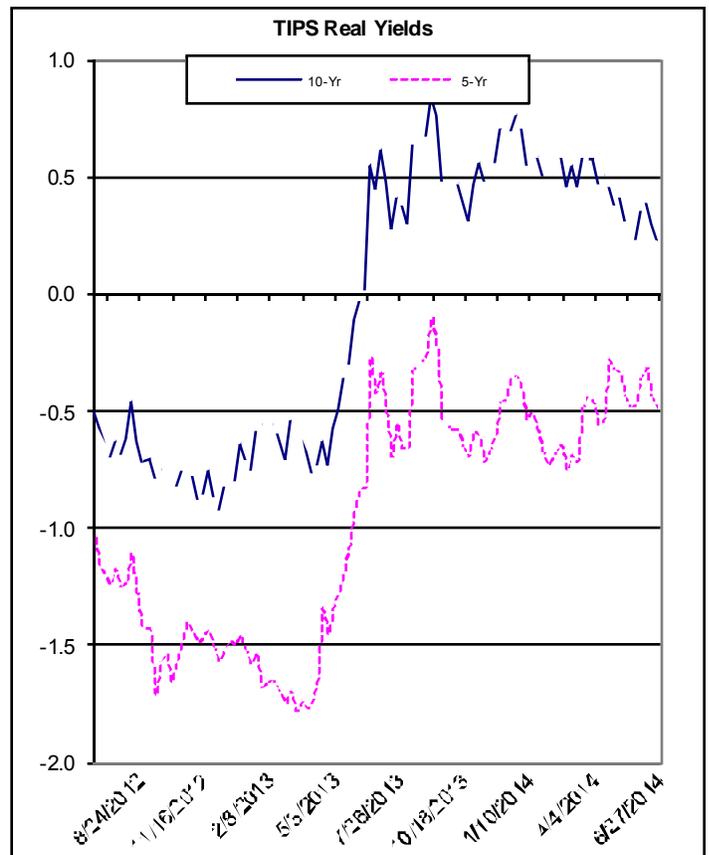
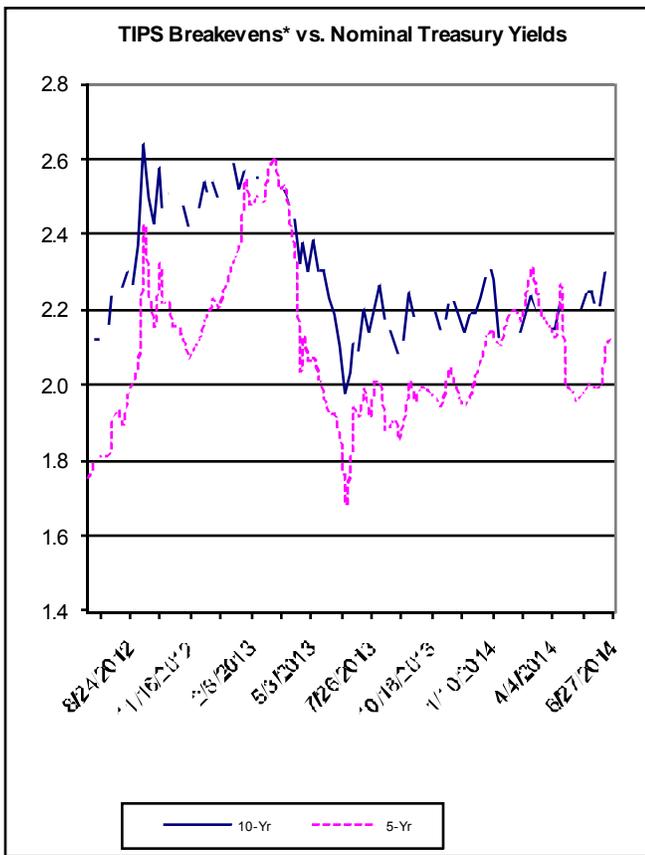
Percent of Securitized Product



Portfolio Value (Yield Book): \$2,427,953,888  
 Portfolio Return: 4.05%  
 Citigroup ILSI Index: 4.12%  
**Active Return: -0.07%**

**% Market Value by Duration**

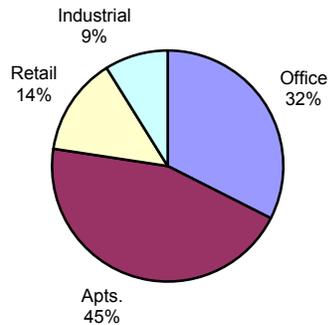
	TCRS	CITI	Difference
0-2	0.0%	0.0%	0.0%
2-4	2.2%	2.2%	0.0%
4-6	3.4%	3.5%	-0.1%
6-8	6.0%	5.9%	0.1%
8-10	7.1%	7.1%	-0.1%
10+	12.1%	11.1%	1.0%



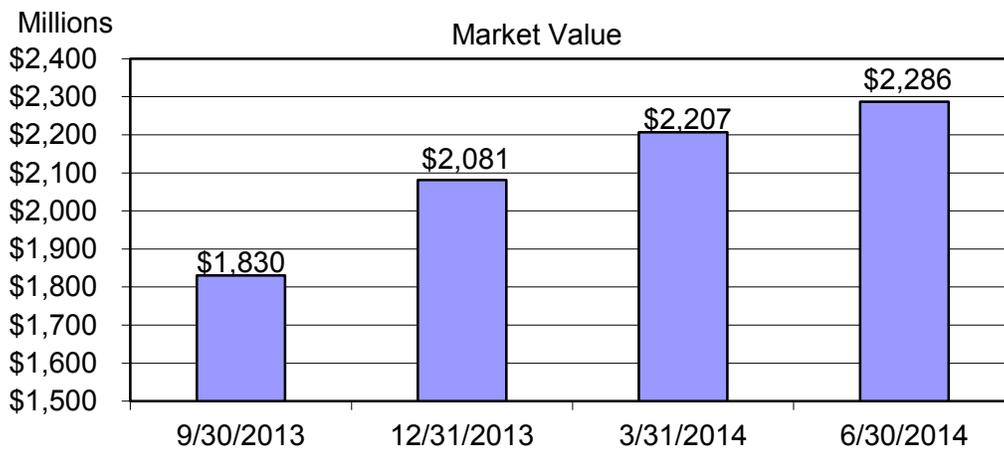
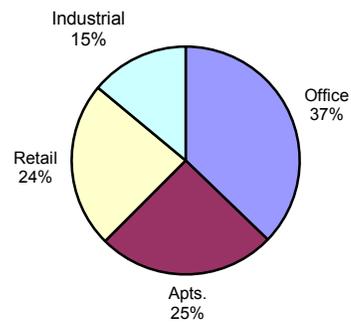
\* The "breakeven" rate is the expected rate of inflation at which investment in TIPS yield the same return as investment in Treasuries

Source: Bloomberg

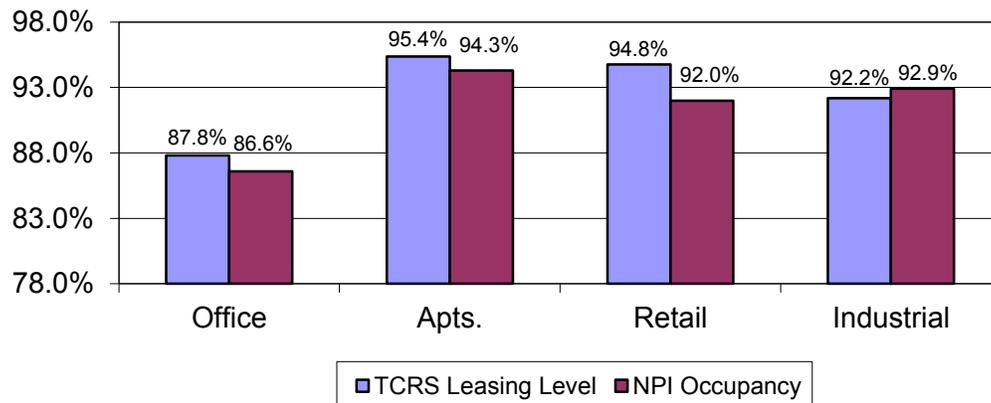
**TCRS By Property Type**



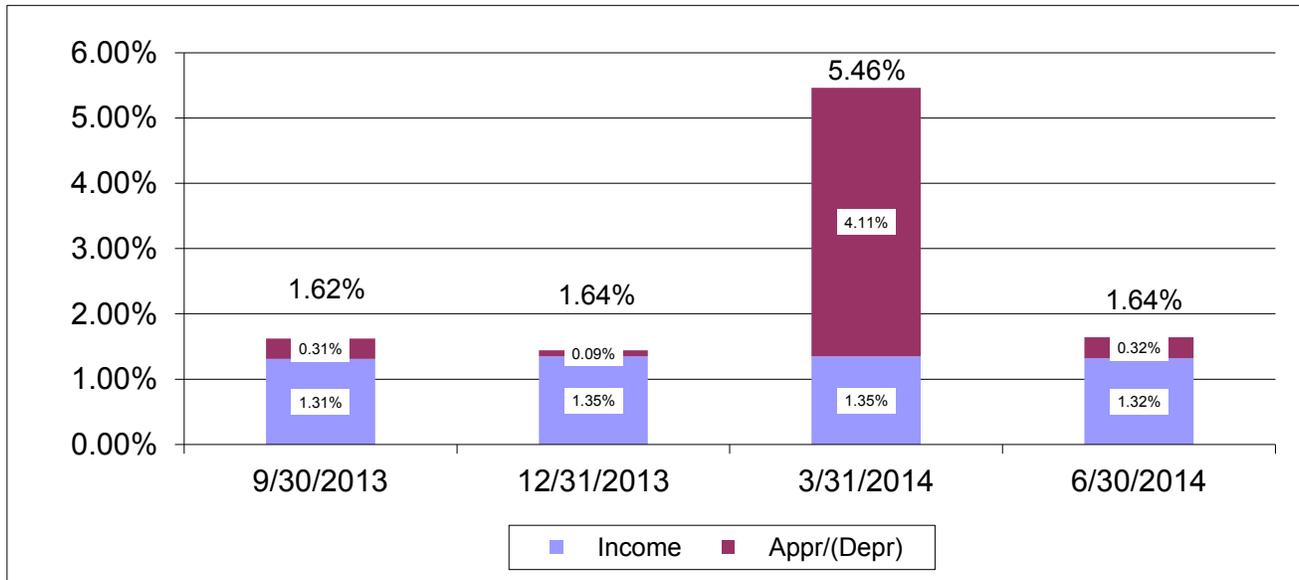
**NPI By Property Type**



**Occupancy**



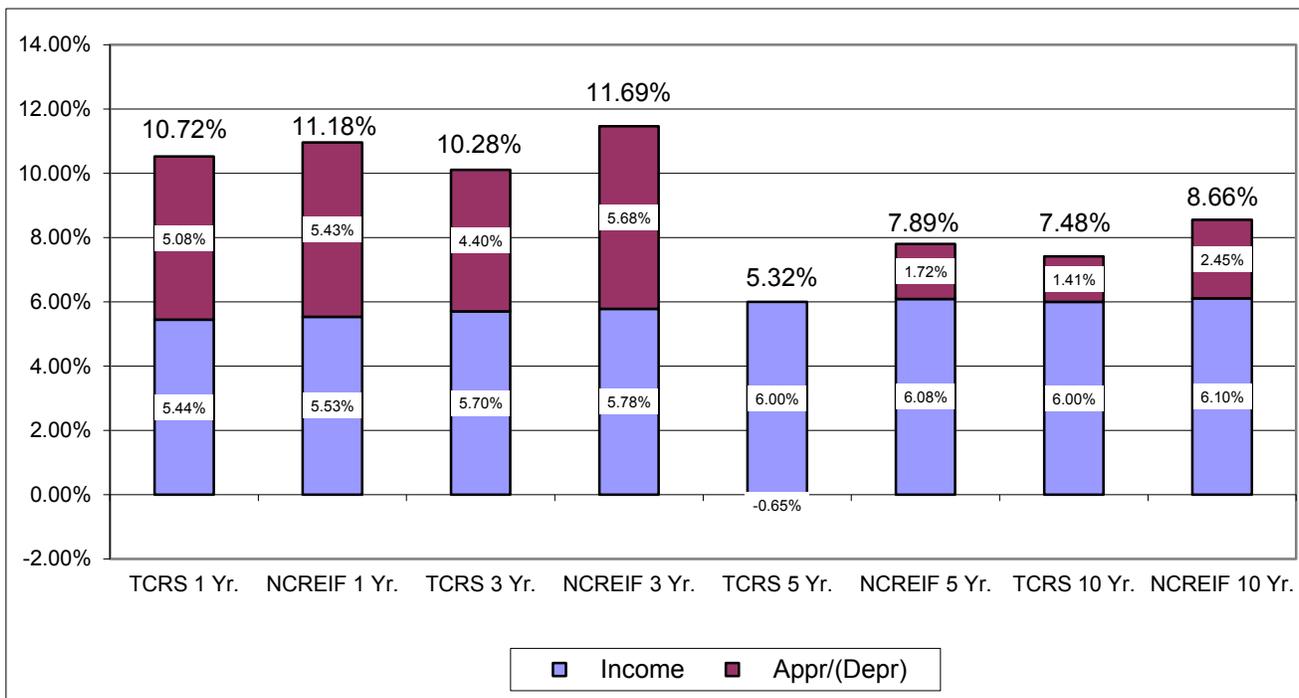
The NPI is the National Property Index of the National Council of Real Estate Investment Fiduciaries (the index used for US core properties).



All returns shown above are reported one quarter in arrears

Budgeted Annual Income Return for calendar year 2014 (excluding funds)

5.34%



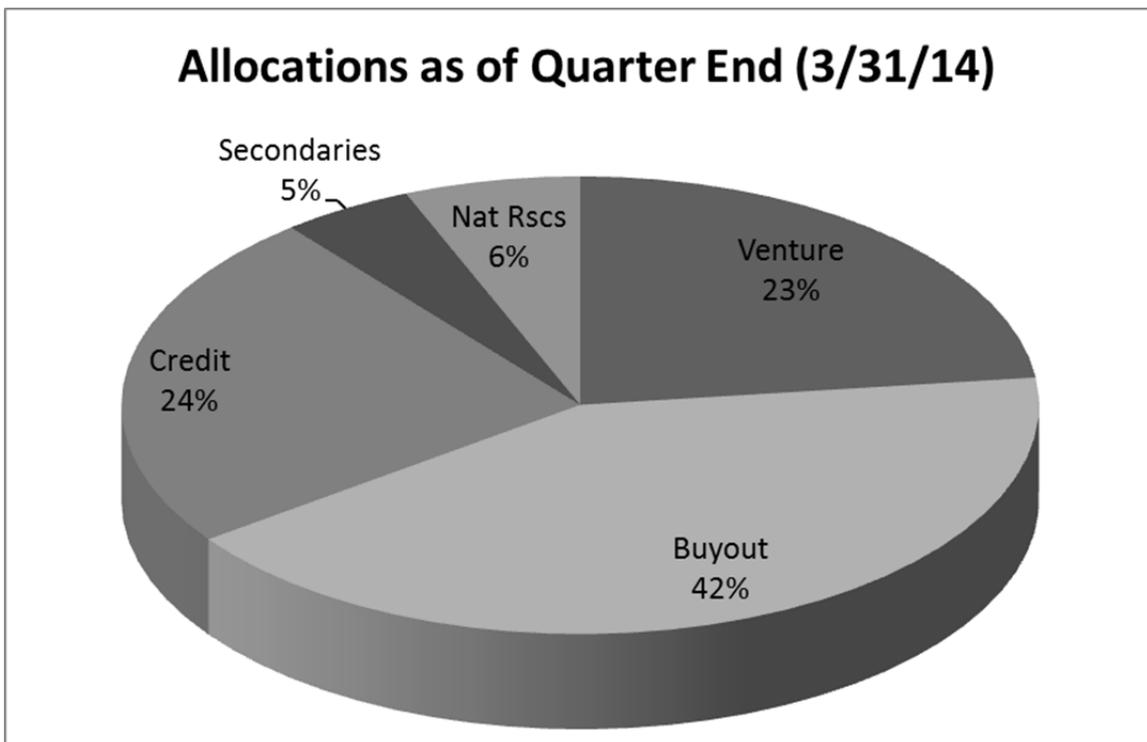
All returns shown above are reported one quarter in arrears

**Tennessee Consolidated Retirement System**  
Private Equity Program  
Fiscal 4Q 2014 Update  
Daniel Crews, CFA CAIA

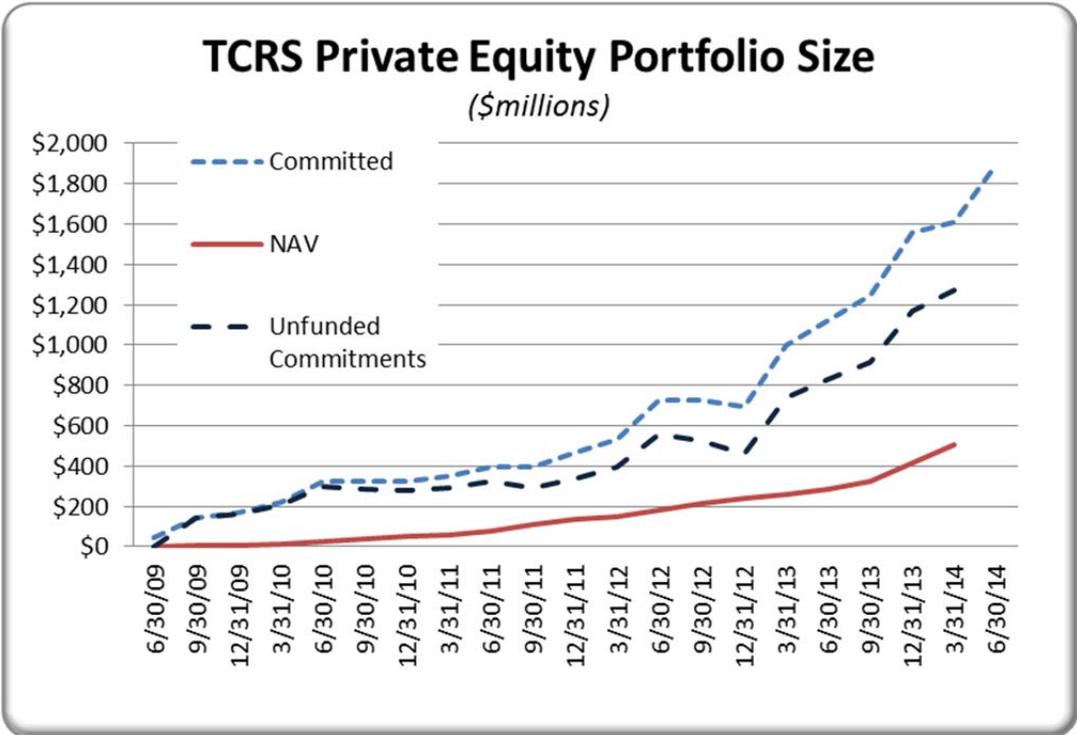
We have finalized our fiscal 3Q2014 results (the period ending 3/31/14), and are pleased to report that the program continues to demonstrate positive momentum. The steep j-curve in the Natural Resources allocation is improving dramatically and gains across all categories contributed to strong gains in the quarter.

<i>Trailing IRR</i>	<b>Quarter</b>	<b>Trailing 1 Year</b>	<b>Since Inception</b>
Buyout	3.8%	27.0%	14.7%
Credit	4.3%	15.1%	14.0%
Venture	8.2%	27.1%	17.7%
Natural Resources	<u>18.9%</u>	<u>24.8%</u>	<u>11.7%</u>
<b>TCRS PE Overall</b>	<b>6.3%</b>	<b>23.8%</b>	<b>15.5%</b>
<i>S&amp;P 500 + 3%</i>	2.5%	24.8%	22.3%

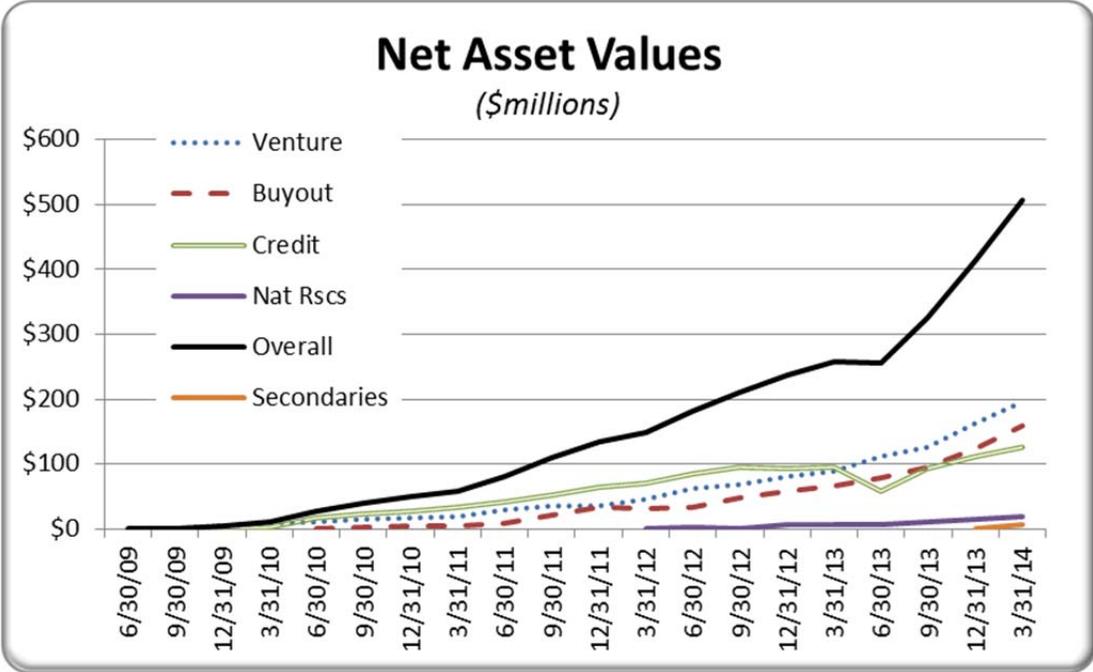
The following chart shows the allocations to the sub-asset classes based on commitments through the end of March 2014. As of now, the portfolio is very close to its neutral target weights for each segment of the portfolio.



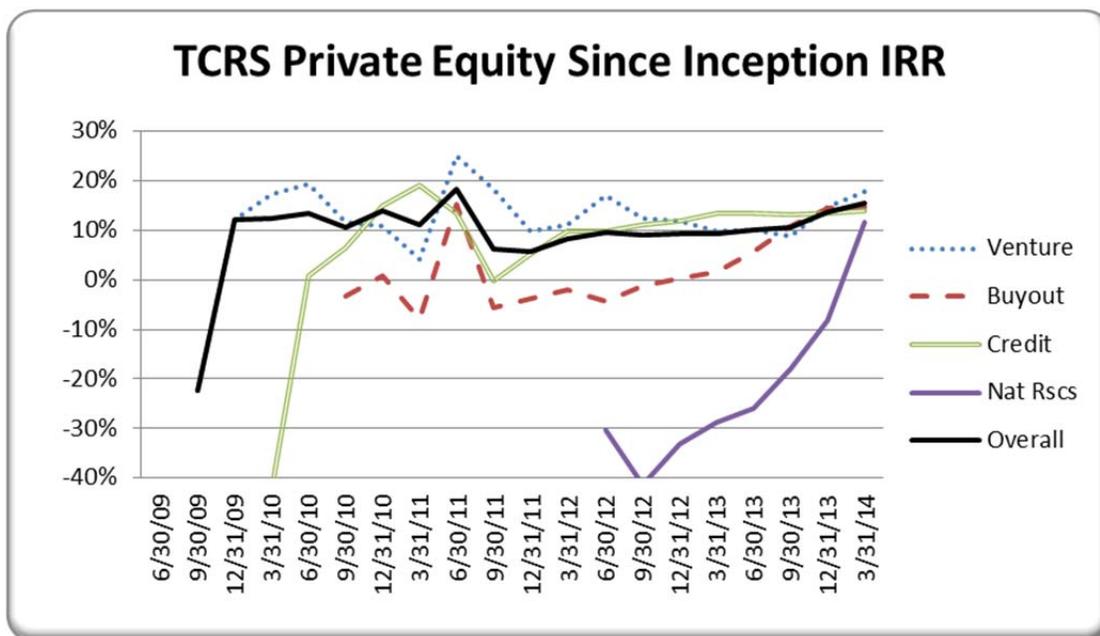
The next chart shows the overall size and growth of the TCRS portfolio in terms of commitments, unfunded commitments, and net asset value.



The chart below illustrates the net asset value of each subcategory since the program’s inception. As expected, NAVs have accelerated significantly as the portfolio begins to reflect gains from early commitments.



As shown in the chart below, the overall since-inception IRR continues to rise in tandem with the overall private markets. Of note, Natural Resources is showing signs of a recovery following an initially steep j-curve.



## Recent developments

The private equity team has recently undertaken a series of projects to improve our internal processes:

1. Developed an in-house model to forecast cash flows, commitments, portfolio value, and exposures;
2. Created checklists to guide due diligence processes on prospective investment managers; and,
3. Undertaken a survey of available alternative investment portfolio management software applications.

## Looking Forward

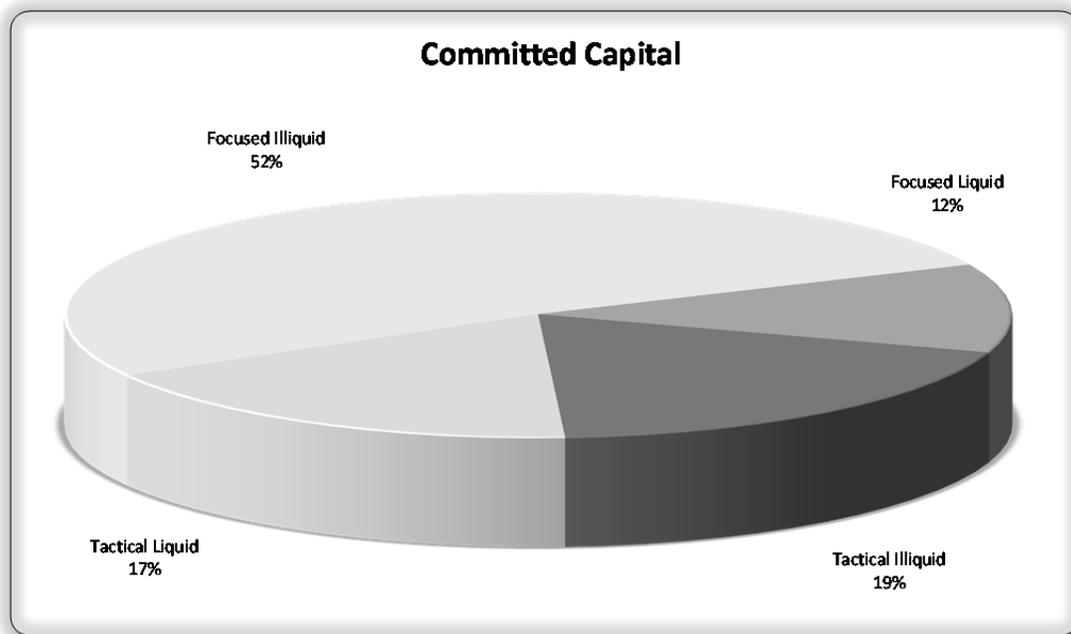
In calendar 2H2014, we expect to issue an RFP for CRM/portfolio management software, complete a study on appropriate benchmarks for the program, and streamline and optimize our legal processes, and evaluate the costs associated with the program.

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**Tennessee Consolidated Retirement System**  
Strategic Lending Portfolio  
Fiscal Q4 2014 Update  
Andrew Palmer, CFA

During fiscal 2014, Staff made significant progress in establishing the Strategic Lending Portfolio. The portfolio aims to opportunistically invest in both liquid and illiquid below-investment grade strategies focused on high yield bonds, leveraged loans, private debt, structured products and other unique cash flow-producing investments. Conceptually, Staff aims to capture market inefficiencies by balancing investments between focused and tactical managers that primarily specialize in liquid or illiquid investments.

As of June, TCRS had committed \$1.6 billion with \$630 million being invested in seven larger separate accounts and three co-mingled funds. Currently, TCRS has committed approximately \$1.7 billion with \$650 million being invested.



**Market Outlook**

During the fiscal fourth quarter of 2014, the liquid U.S. below-investment grade market continued to perform well, posting total returns of 2.4% in the bond market and 1.4% for the loan market. Credit availability remains high, as the pace of new

issuance mirrored the robust 2013 experience. Default rates have ticked up as expected, driven by the TXU bankruptcy. It is important to note that the issuance of covenant light loans now represent over 50% of new loan issues and CCC bond issuance now mirrors the rate of issuance in 2007. Likewise, in the private debt market, leverage ratios have begun to increase and larger private borrowers are demanding covenant light deals. Recently, investors removed capital from the high yield market and bonds sold off -1.3% in July. In response, fund managers quickly tightened underwriting standards on new issues. This illustrates that much of the excessive credit has been driven by investor's demand for yield.

While the liquid below-investment grade market is frothy in the U.S. and Europe, the U.S. private debt and European debt markets appear promising. Banking regulations aimed at reducing systemic risk have limited capital availability for below-investment grade middle market companies. In calendar 2014 through 2015, Staff believes investors can earn an illiquidity premium and more attractive risk-adjusted returns by investing in U.S. and EU middle market private debt.

### **Recent Developments**

During the fourth quarter of the fiscal year, TCRS committed just over \$1 billion to four separately managed accounts. These investments are focused on U.S. liquid leveraged loans, U.S. illiquid private direct lending, global illiquid stressed credit, and illiquid developed market real estate debt. Since the end of the quarter, TCRS committed \$75 million to a co-mingled fund focused on mining project finance.

### **Future Activity**

Recently, Staff has focused more on portfolio monitoring, process, procedures, and other operating tasks. During fiscal 2015, the pace of new commitment will be significantly slower than in 2014.

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# TCRS Equity Derivative Report

## Domestic Stock Index Futures Roy Wellington, CFA

No Activity

# Domestic Fixed Income Derivatives Report

Andrew C. Palmer, CFA

## Domestic Fixed Income Derivatives Transaction Log

ACCT	SOLD	BOUGHT	NET	EXPIRATION	CONTRACT	TYPE	STRIKE
<b>Begin</b>							
			2150		CBOT 10 T-NOTE	14 Jun 0	
			-2310		CBOT 5YR TNOTE	14 Jun 0	
			3955		CBOT ULTRABOND	14 Jun 0	
			3994		CBOT T-BONDS	14 Jun 0	
<b>TRADE SUMSepY BY ACCOUNT</b>							
<b>5+ Gov't (1381)</b>							
	-	-	-		CBOT 10 T-NOTE	14 Jun 0	
	-	-	-		CBOT 10 T-NOTE	14 Sep 0	
	-	-	-		CBOT 5YR TNOTE	14 Jun 0	
	-	-	-		CBOT 5YR TNOTE	14 Sep 0	
	375	-	(375)		CBOT T-BONDS	14 Jun 0	
	-	375	375		CBOT T-BONDS	14 Sep 0	
	1,240	-	(1,240)		CBOT ULTRABOND	14 Jun 0	
	-	1,320	1,320		CBOT ULTRABOND	14 Sep 0	
<b>1-5 Gov't (1368)</b>							
	2,150	-	(2,150)		CBOT 10 T-NOTE	14 Jun 0	
	-	2,150	2,150		CBOT 10 T-NOTE	14 Sep 0	
	-	2,310	2,310		CBOT 5YR TNOTE	14 Jun 0	
	2,310	-	(2,310)		CBOT 5YR TNOTE	14 Sep 0	
	2,830	-	(2,830)		CBOT T-BONDS	14 Jun 0	
	-	2,000	2,000		CBOT T-BONDS	14 Sep 0	
	3,169	515	(2,654)		CBOT ULTRABOND	14 Jun 0	
	-	3,169	3,169		CBOT ULTRABOND	14 Sep 0	
<b>Overlay (1371)</b>							
	-	-	-		CBOT 10 T-NOTE	14 Jun 0	
	-	-	-		CBOT 10 T-NOTE	14 Sep 0	
	-	-	-		CBOT 5YR TNOTE	14 Jun 0	
	-	-	-		CBOT 5YR TNOTE	14 Sep 0	
	750	-	(750)		CBOT T-BONDS	14 Jun 0	
	750	750	-		CBOT T-BONDS	14 Sep 0	
	-	-	-		CBOT ULTRABOND	14 Jun 0	
	-	-	-		CBOT ULTRABOND	14 Sep 0	
<b>Corporate (1365)</b>							
	-	-	-		CBOT 10 T-NOTE	14 Jun 0	
	-	-	-		CBOT 10 T-NOTE	14 Sep 0	
	-	-	-		CBOT 5YR TNOTE	14 Jun 0	
	-	-	-		CBOT 5YR TNOTE	14 Sep 0	
	-	-	-		CBOT T-BONDS	14 Jun 0	
	100	-	(100)		CBOT T-BONDS	14 Sep 0	
	260	160	(100)		CBOT ULTRABOND	14 Jun 0	
	320	-	(320)		CBOT ULTRABOND	14 Sep 0	
<b>End</b>							
			-2150		CBOT 10 T-NOTE	14 Sep 0	
			2310		CBOT 5YR TNOTE	14 Sep 0	
			2275		CBOT T-BONDS	14 Sep 0	
			4169		CBOT ULTRABOND	14 Sep 0	

# Domestic Fixed Income Derivatives Report

Andrew C. Palmer, CFA

## Domestic Fixed Income Derivatives Transaction Log

### **SUMMARY OF LAST QUARTER'S ACTIVITY:**

#### **CONTRACTS IN USE:**

- 10-year Futures
- Long Bond Futures
- Ultra-Long Futures
- 5-year Futures

#### **STRATEGIES:**

- Used Ultra-Long, Long Bond, Ten-Year Futures and Five-Year Futures to manage interest rate exposures in the 1-5 Gov't portfolio and the Corporate portfolio.
- Employed Thirty-Year and Ultra Futures contracts in 5+ Gov't portfolio to replicate the duration profile of the index without using physical Treasury notes.
- Used Long Bond Futures to offset the duration impact of a strategic overweight to the MBS portfolio and Credit Portfolios.

#### **EFFICACY:**

- Futures positions performed as expected. The replication strategy produced returns similar to the LPF Government Index and the duration adjustment transactions produced the expected impact on interest rate sensitivity.

### **PROPOSED STRATEGIES FOR CURRENT QUARTER:**

- Use Ultra-Long, Long Bond, Ten-Year Futures and Five-Year Futures to manage interest rate exposures in the 1-5 Gov't portfolio, the 5+ Government Portfolio and the Corporate portfolio.
- Use Ultra-Long Bond Futures, Bond Futures, Five-Year Futures and Ten-Year Futures to offset the duration impact of a strategic overweight to the MBS portfolio and Credit portfolios.
- Use Ultra-Long, Long Bond and Ten-Year Futures along with cash equivalents to replicate the duration profile of the LPF Government Index without using physical Treasury notes.
- Employ Ultra-Long, Long Bond, Ten-Year and Five-Year Futures in the Corporate portfolio to offset the duration impact of timing differences in individual corporate bond trades.
- Buying out-of-the-money calls or puts on long and intermediate Treasuries to hedge big movements in rates.

# TCRS Currency Derivative Report

## Currency Forwards Activity Albert Chang

2014 2nd Quarter Activity

**NO ACTIVITY**

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## Tennessee Consolidated Retirement System

Operations Update  
Fiscal Q4 2014 Update  
Tim McClure, CTP

TCRS continues to move forward with changes to the Operations area. As TCRS looks for ways to add value to the Fund, this is an area that offers some opportunity for efficiencies and technology upgrades.

*Trading* – Trade volume for the quarter ended June 30 was down slightly when compared to the previous quarter. There were 1,489 purchases totaling over 67.3 million shares with a market value of \$3.3 billion, and 2,381 sales totaling over 59.3 million shares with a market value of \$2.9 billion.

Near the end of June, Justin Denery accepted an offer to fill the vacant equity trader position at TCRS. Justin is a Certified Market Technician and has over fifteen years of experience on both the buy-side and sell-side of the equity markets, including eight years at Goldman Sachs. Justin relocated to Nashville from New Jersey and began at TCRS on the 21<sup>st</sup> of July.

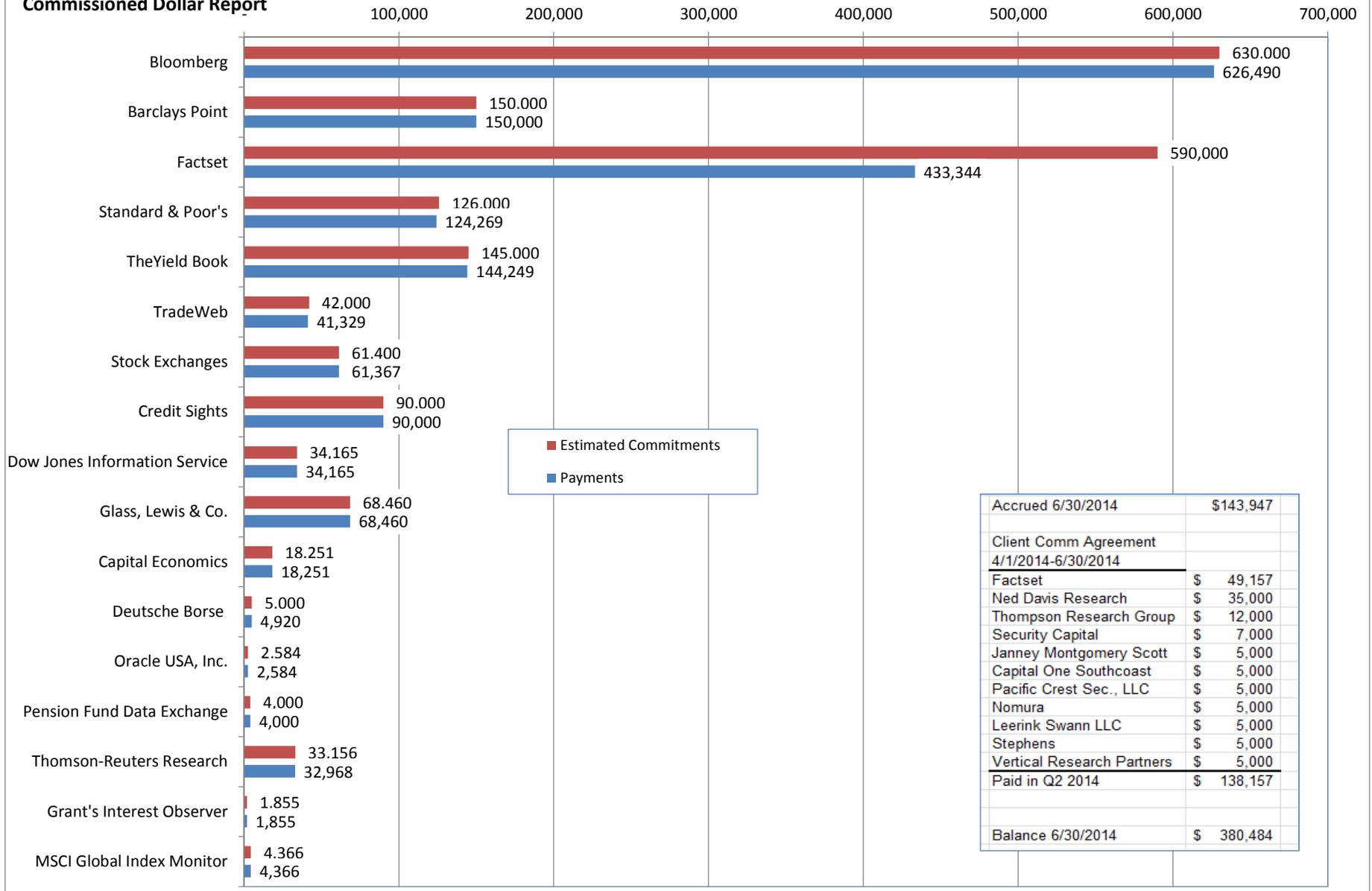
*Securities Lending* – The TCRS securities lending program continues to operate smoothly while exceeding expected earnings. As of June 30, 2014, TCRS earnings since inception totaled \$6.9 million (\$4.8 million of that was earned fourth quarter 2014). All cash collateral continues to be invested in indemnified repurchase agreements.

The average on loan balance since inception was \$2.8 billion with a spread of 66 bps (average for fourth quarter was \$3.2 billion with spread of 66 bps as well). Emerging Market Equities attributed the most to overall earnings, making up 42% of the total (39% fourth quarter), followed by Domestic Equities at 25% (23% fourth quarter), International Equities at 20% (24% fourth quarter), and Fixed Income at 13% (14% fourth quarter).

The top earners for the fourth quarter were ETF's: iShares MSCI Indonesia (EIDO), iShares MSCI Brazil (EWZ), iShares MSCI South Africa (EZA) and iShares MSCI Turkey (TUR). These securities attributed \$1.3 million or 28% of overall earnings of the fourth quarter.

The top 5 borrowing counterparties are JP Morgan (representing 13% of the total on loan balance), Citigroup (10%), Credit Suisse (10%), Morgan Stanley (9%) and Goldman Sachs (9%).

### Commissioned Dollar Report



Accrued 6/30/2014	\$143,947
Client Comm Agreement 4/1/2014-6/30/2014	
Factset	\$ 49,157
Ned Davis Research	\$ 35,000
Thompson Research Group	\$ 12,000
Security Capital	\$ 7,000
Janney Montgomery Scott	\$ 5,000
Capital One Southcoast	\$ 5,000
Pacific Crest Sec., LLC	\$ 5,000
Nomura	\$ 5,000
Leerink Swann LLC	\$ 5,000
Stephens	\$ 5,000
Vertical Research Partners	\$ 5,000
Paid in Q2 2014	\$ 138,157
Balance 6/30/2014	\$ 380,484