

# **INVESTMENT REPORT**

## **TENNESSEE CONSOLIDATED RETIREMENT SYSTEM**

**Second Quarter  
Fiscal Year 2013 - 2014**

**October 1, 2013 – December 31, 2013**

**Prepared for:  
Board of Trustees**

**March 28, 2014**

## Investment Advisory Council

Pursuant to T.C.A. Section 8-37-108, the State Treasurer shall nominate, with the advice and consent of the Board of Trustees, the Investment Advisory Council, comprised of five senior investment professionals in the Tennessee investment community, who shall have at least five years professional experience as a portfolio manager, economist or an investment advisor in any field of which investments of TCRS funds are authorized. The term of appointment is for five years. Also, the treasurer may nominate two (2) additional members for three year terms.

The TCRS investment staff consults quarterly 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 6077 Primacy Parkway, Suite 130 Memphis, TN 38119 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

# TENNESSEE CONSOLIDATED RETIREMENT SYSTEM

Second Quarter  
Fiscal Year 2013-2014

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## **Minutes from the Investment Advisory Council Meeting December 10, 2013**

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. George Stadler. Ms. Susan Huffman and Mr. Fred Crown participated by conference call. Ms. Carol Womack was unable to attend. Investment Staff members present included Crisman Boggan, Michael Brakebill, Daniel Crews, Michael Giggie, Carrie Green, Matthew Haitas, Arthur Henderson, Michael Keeler, Tim McClure, Rhonda Myers, Andrew Palmer, Rachel Roberts, Jennifer Selliers and Roy Wellington. Mr. Bill Abney was also in attendance.

George Stadler, Chairperson of the IAC, called the meeting to order and read the following statement:

Tenn. Code Ann. §8-44-108(b)(2) provides that in the event that a governing body does not have a physical quorum of the members present at the location of the meeting, then a quorum of members can participate by electronic or other means as long as the governing body makes a determination that a necessity exists for the teleconference participation. The necessity determination and a recitation of the facts and circumstances on which it is based, must be included in the minutes of the meeting. The Council determined that it was necessary to meet by teleconference so that it could consider investment policy changes for the Tennessee Consolidated Retirement System in a timely manner. In order to meet the established time frames to complete these changes, the Council determined that there was not enough time to convene a physical quorum of the Council for the expedition consideration of policy changes, necessitating that the Council meet by electronic or other means of participation through a teleconference.

Mr. Stadler motioned that the IAC find the telephone participation in this meeting by some members necessary. The motion was seconded by Mr. Fred Crown and unanimously approved.

Next, Mr. Stadler proposed that the minutes from the previous IAC meeting on September 5, 2013 be adopted. There were no questions regarding the minutes and Ms. Susan Huffman motioned to adopt the minutes. The motion was seconded by Mr. Crown and unanimously approved. The Chairperson turned the meeting over to Mr. Brakebill to discuss current initiatives and give a review of investment performance.

Mr. Brakebill introduced the first item, which was an amendment to the investment policy clarifying the use of exchanged traded funds (ETF). The IAC discussed the need to address ETF risk considerations, such as the maximum amount that should be invested in one exchange traded fund. Mr. Crown made a motion to accept the amendment on the condition that the IAC review

these issues and submit a report at the next IAC meeting. The motion was seconded by Ms. Huffman and unanimously approved.

Next, Mr. Brakebill reviewed the fund's investment performance, which was illustrated in the Investment Report and in the Strategic Investment Solutions (SIS) quarterly performance report. He noted that the size of the fund is now \$38.8 billion and that the fund returned 4.1% for the quarter. The fund outperformed its benchmark by 0.5% for 1-year returns and 0.7% for 3-year returns. Mr. Brakebill also noted that the 3-year performance of 10.2% beat 57% of peers.

Mr. Brakebill then provided an update on key initiatives. He indicated that the investments department had successfully moved into its new office space without any disruption. Additionally, he mentioned that, from an asset allocation standpoint, the department had made progress with initiatives related to emerging market equities, strategic lending and real estate. He specifically noted that the strategic lending group made additional investments during the quarter and that the due diligence and funding of private equity and real estate investments is progressing on schedule. Mr. Brakebill indicated that tactical allocation remained neutral as the group implements strategic changes. He concluded his presentation by giving an update on personnel. He noted that Sarah Angus and Peter Latseff had left the department and that a search is currently underway for new Director of Real Estate and a Director of Private Equity. Matt Haitas is currently acting as Interim Director of Real Estate while Daniel Crews is acting as Interim Director of Private Equity. Mr. Brakebill then introduced Mike Keeler.

Mr. Keeler moved the discussion to domestic equities and commented that the stock market was jostled throughout the September quarter by speculation and consternation regarding central bank policy essentially resulting in a strong beginning and ending with a weak middle. He also commented that an ugly budget/debt ceiling battle marred the very end of the quarter.

Mr. Keeler noted that domestic equities slightly lagged the S&P 1500 benchmark return for the quarter as excess return derived from an overweight commitment to the mid and small cap funds relative to the S&P 1500 was offset by our large cap funds underperforming the S&P 500. In addition, the Canadian Index fund added substantial value as the Toronto Stock Exchange outperformed all of the S&P indices except the Small Cap 600. Growth factors tended to outperform during the quarter particularly among smaller stocks. In addition, smaller caps outperformed larger caps and low quality did better than high quality in general. Mr. Keeler noted that the quant equity fund had slightly underperformed during the quarter while Jim Robinson was on leave. Now that he has returned, he noted that Mr. Robinson has made some new changes to the model to drive improved performance. Mr. Keeler then asked Roy Wellington to comment on the performance of the Sector Fund.

Mr. Wellington next commented that the Sector Fund remains positioned for economic recovery while the market is mostly concerned with the Fed delaying the tapering of its bond purchases. Favored sectors for this point in the cycle are Consumer Discretionary, Information Technology

and Industrials at the expense of Financials. The team also considers the Health Care sector to be a secular outperformer. A program of weekly portfolio reviews was instituted to catch turning points and portfolio drags. The international managers underperformed, hindered by cash drag, low exposure to the most volatile stocks and, in many cases, an emphasis on Japan. After the end of the quarter TCRS removed \$150 million from international equities in October to fund other asset classes. Mr. Wellington passed the discussions back to Mr. Keeler.

Mike Keeler then moved the discussion to the Mid Cap Fund, which outperformed the S&P Mid Cap 400 return during the quarter. Continued good stock selection in the Health Care Sector as well as an overweight commitment to the Energy Sector and an underweight to Financials was somewhat offset by poor stock selection in the Consumer Staples and the Technology sector. Once again this quarter, all of our excess return came from industry sector allocation. Mr. Keeler then passed the discussion to Mr. Andrew Palmer.

Mr. Palmer reviewed the performance of the fixed income portfolios. He indicated the domestic fixed income portfolio generated a positive return of 14 basis points during the quarter and outperformed its benchmark by 24 basis points. The primary factors influencing this performance included reduced anxiety around the timing of the Fed's decision to scale back the size of bond buying program. Mr. Palmer commented that the corporate fixed income portfolio increased by 19 basis points but underperformed its benchmark by 10 basis points. Both government portfolios – 1-5 years and 5+ years – outperformed their benchmarks by 100 basis points and 9 basis points respectively. The mortgage portfolio generated a positive return of 101 basis points during the quarter, but modestly underperformed its benchmark by 5 basis points. TCRS Inflation Protected Securities increased 65 basis points during the quarter and exceeded the benchmark return by 11 basis points.

Mr. Palmer commented that the team has made some changes to the overall portfolio including lowering duration, harvesting outperforming investments and rotating into investments that have underperformed but look attractive. He also mentioned that he is taking risk down in mortgage backed securities (MBS), particularly in light of higher risks associated with Fed tapering. Mr. Palmer commented that the group is using fixed income derivative to looking to manage interest rate exposures in the 1-5 year government portfolio, to offset the duration impact of a strategic overweight to the MBS and credit portfolios, to offset the duration impact of timing differences in individual corporate bond trades and to hedge large movements in Treasury rates.

Mr. Palmer concluded his remarks with commentary around the department's strategic lending efforts. He noted that Derrick Dagnan, who had joined the fixed income group in the spring, had been helpful in getting this new program up and running. Mr. Palmer mentioned that, during the quarter, approval had been received for investments in strategic lending funds run by Blackstone and Oaktree Capital Management. Mr. Palmer then passed the discussion to Mr. Matthew Haitas.

Mr. Haitas provided an update on the Real Estate portfolio. He began by providing an update on the separate account program. He noted that the procurement process for hiring separate account external advisors on a five-year contract was nearly complete. Seven advisors had signed contracts pending the approval of the TCRS Board of Trustees. Five of the seven advisors were existing advisors and two advisors were new additions.

Mr. Haitas next provided an update on the two recently closed separate account transactions as well as the activity in the non-core commingled fund program. He stated that the portfolio continues to increase in value due to new investments and appreciation within the existing portfolio.

Mr. Haitas concluded by providing a brief update on the real estate market. He specifically noted that public REITs had significantly underperformed both public equities and the private real estate market this year primarily due to the rise in interest rates and the fear of further increases. However, he noted that the private real estate market had seen very little change from the rise in interest rates that occurred this year. Mr. Haitas then passed the discussion over to Mr. Daniel Crews.

Mr. Crews provided an update on the Private Equity program. He reviewed quarterly performance for the program and expected performance as the portfolio expands. Mr. Crews discussed the nature of the j-curve of the portfolio and current efforts to maintain performance while increasing commitments to long-lived buyout finds. He reviewed the profile of commitments made in the 3rd calendar quarter of 2013 as well as the pipeline for 2014. Mr. Crews ended the discussion of private equity with a market update, citing high valuations and active investing in the venture capital area.

Lastly, Tim McClure gave an update on trading and operations for the quarter. Mr. McClure stated that trading volume was down for the quarter, but TCRS had still traded over 108 million shares valued at over \$4.8 billion during the quarter ended September, 2013. All-in trading costs were reasonable at 9.83 basis points compared to expected costs of 9.76 basis points according to the universe of comparable trades. Execution also improved for the fourth straight quarter, with trade execution adding 1.5 basis points when compared to a comparable universe of trades. Basket trading added 2 basis points. The data collected is also helping to identify the brokers that are providing the most favorable execution and helping to identify the trading patterns of the portfolio managers.

The members of the Investment Advisory Council had no additional questions and Chairman Stadler asked for a motion to adjourn. Fred Crown motioned to adjourn the meeting and the motion was seconded by George Stadler and unanimously approved. The meeting adjourned at 11:15 a.m.

# Performance Review

## December 2013

### Absolute comparison

- 1 quarter return of 4.7%
- 1 year return of 12.9% (median fund did 15.0%)
- 3 year return of 10.1% (median fund did 9.7%)
- 5 year return of 11.2% (median fund did 12.6%)
- 10 year return of 6.3% (median fund did 7.1%)

### Benchmark (relative) comparison

- Qtr return beat allocation index by 0.4%
- 1 year return beat allocation index by 1.3%
- 3 year return beat allocation index by 0.8%
- 5 year return beat allocation index by 0.1%

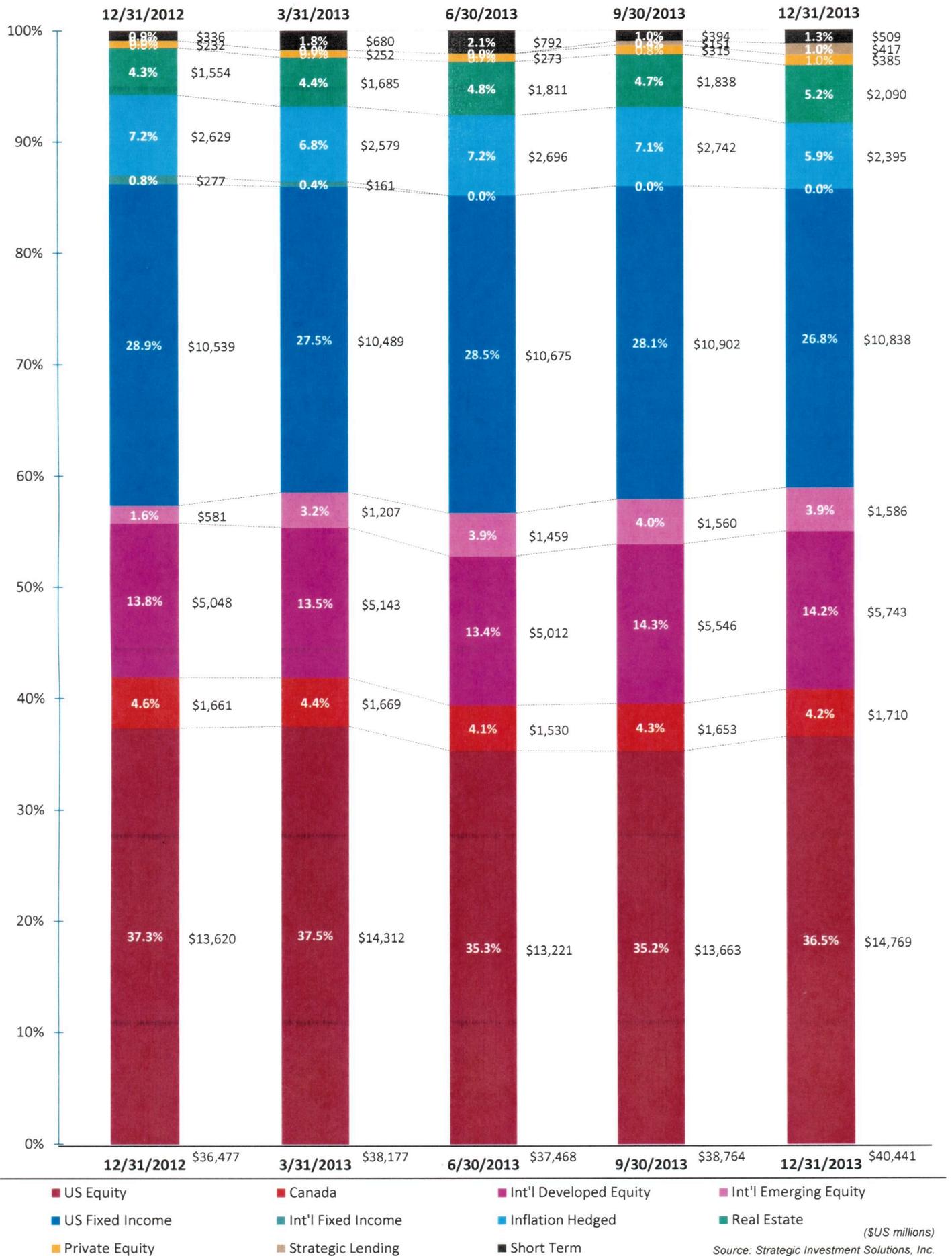
### Peer comparison

- 1 quarter return ranked at 50% (0% = best)
- 1 year return ranked at 74% (0% = best)
- 3 year return ranked at 33% (0% = best)
- 5 year return ranked at 79% (0% = best)
- 7 year return of 5.9% is 31% (0% = best) (median fund did 5.2%)

# Key Initiatives

## December 2013

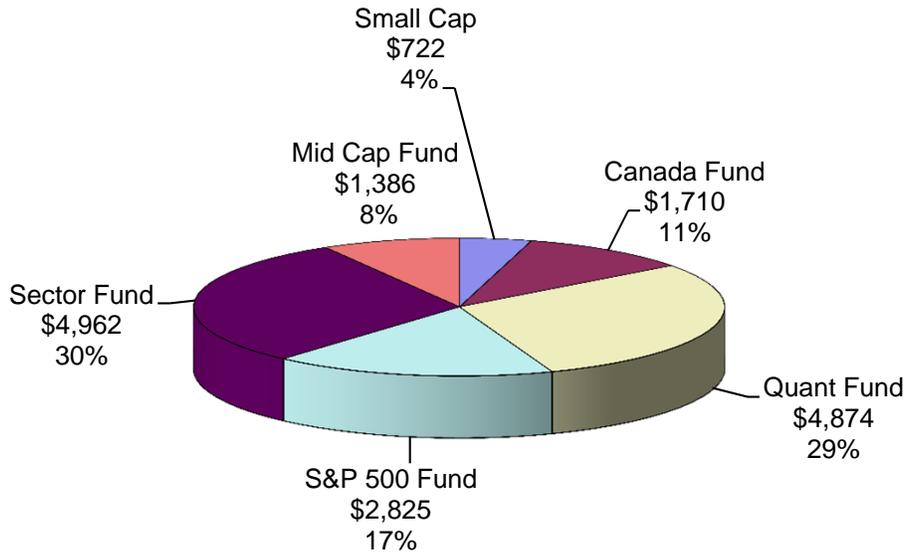
- Personnel/Recruiting
  - Director of Real Estate
  - Director of Private Equity
- Private Equity Due Diligence
- Strategic Lending Due Diligence
- Tactical Allocation
  - Neutral, implementing strategic changes
- Process Improvements
- Securities Lending
  - Legal negotiations in process
  - Began operations in February 2014!



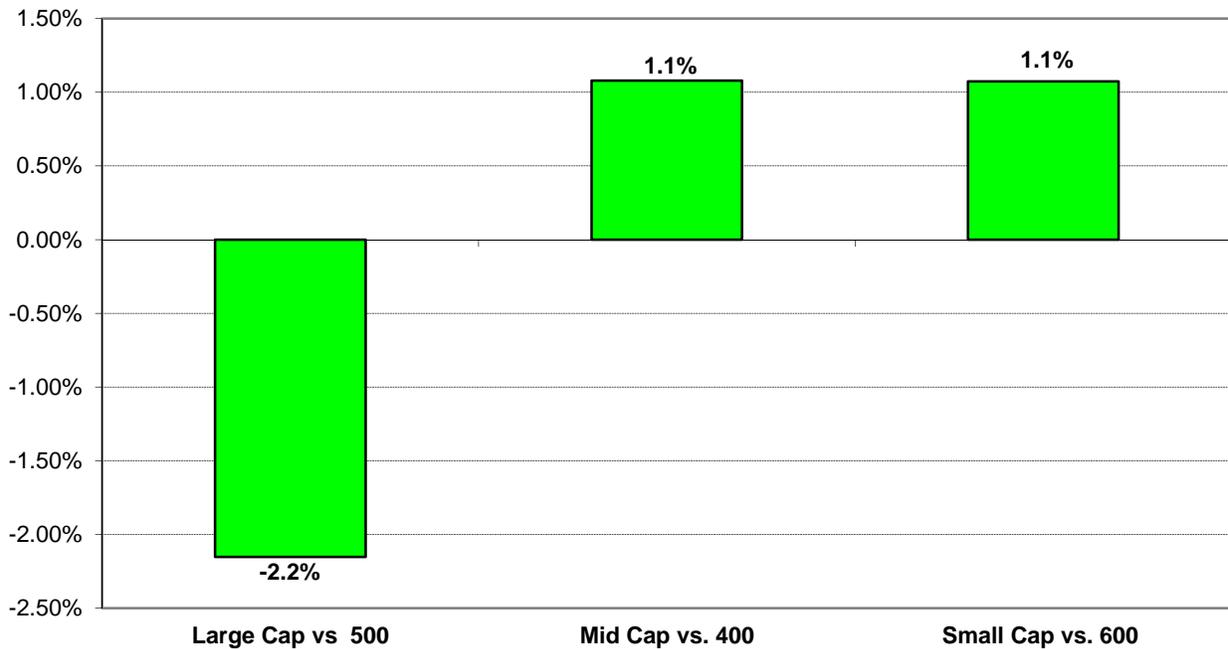
### Domestic Equity Portfolio Overview

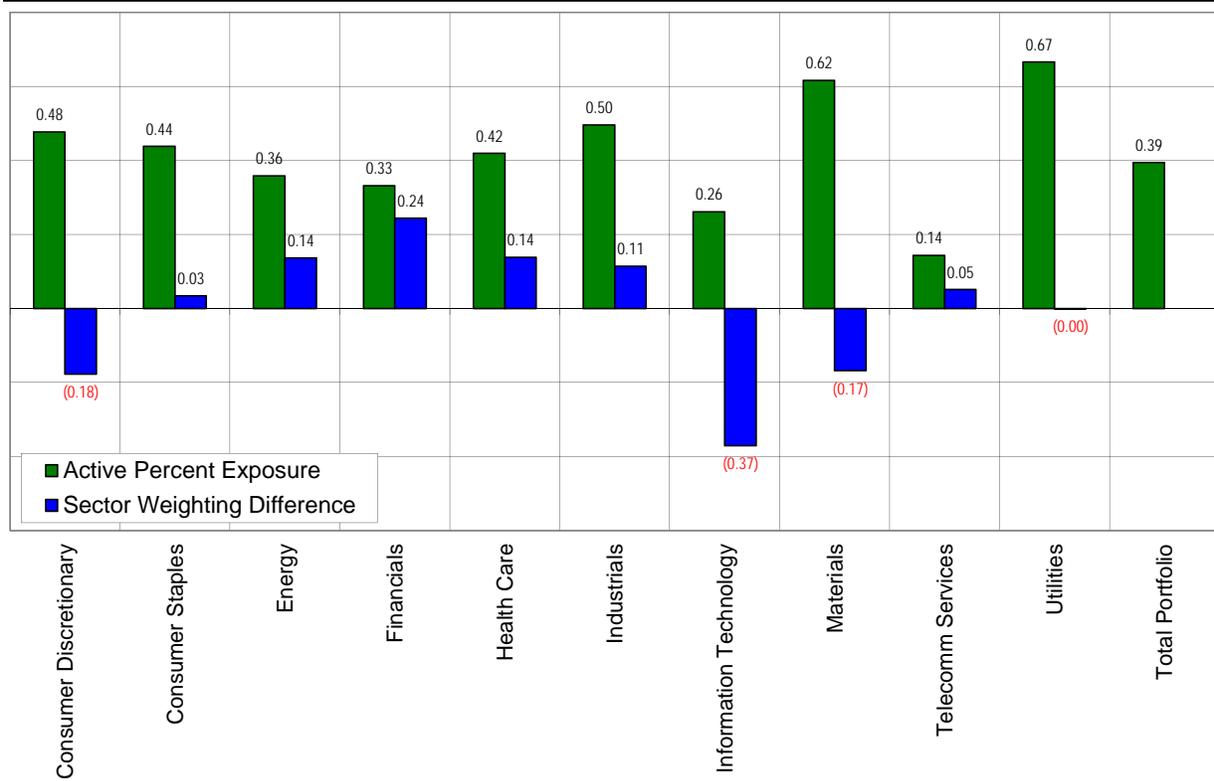
Michael Keeler, CFA

#### TCRS North American Equity Funds



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





The December's rally capped an exceptionally strong year for equities: the S&P 500 gained 29.6% for the full year (32.4% total return)-the best annual performance since 1997. US stocks outperformed all other asset classes, surpassing the total return for global equities (MSCI ex. US +20.6%) and cash (+0.1%). Investors lost money in investment grade corporate bonds (-1.5%), long-term Treasury bonds (-13.3%), and gold-the year's worst performing asset class (-27.8%).

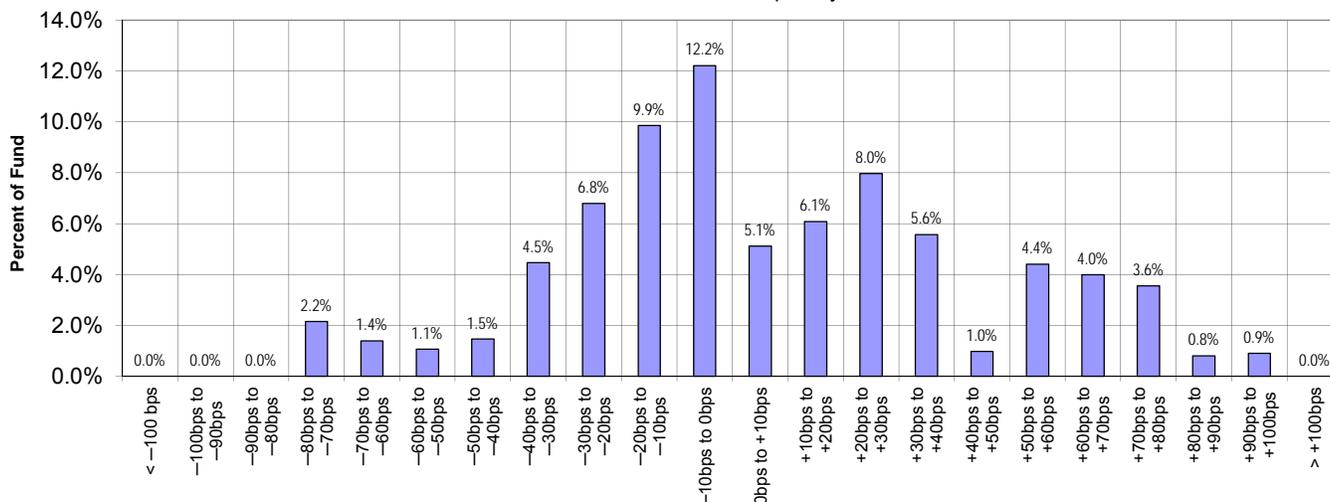
Economic and market conditions look favorable for the capital markets banks going into 2014. The Fed's tapering announcement has set free the long end of the US yield curve, while the central bank continues to promise to maintain its zero interest rate policy for a long time. The uncertainty of massive central bank intervention will be ending and fixed income investors will be able to return to the decidedly more familiar task of wagering on credit, rates and yield curve shape.

Consumer Discretionary was the best performing sector in 2013 (+41.0%), followed by Health Care (+38.7%); the cyclical sectors of Industrials (+37.6%) and Financials (+33.2%) also outperformed the market. Telecom and Utilities-the bond proxies-were the worst performing sectors (+6.5% and +8.8%, respectively) despite their strong start to the year.

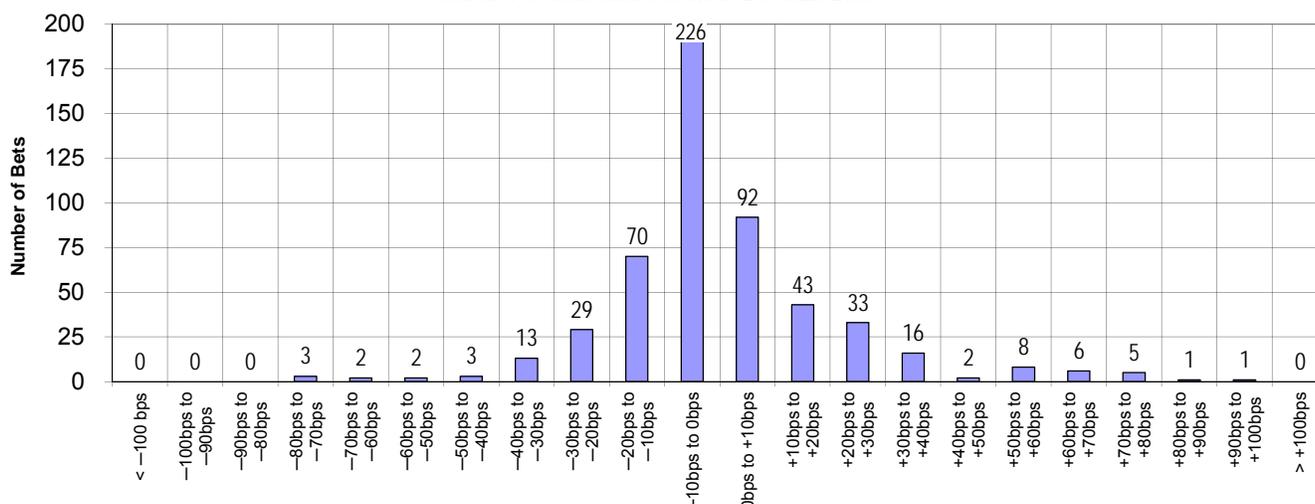
The quant models underperformed in the quarter and the portfolio had a 57 bps underperformance versus the benchmark. We still have the same provisions as the last quarter to neutralize the risks. The Quant Fund's tracking error was once again maintained at the level similar to that of previous quarter.

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

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



Number of Individual Stocks in Bet Size Bins

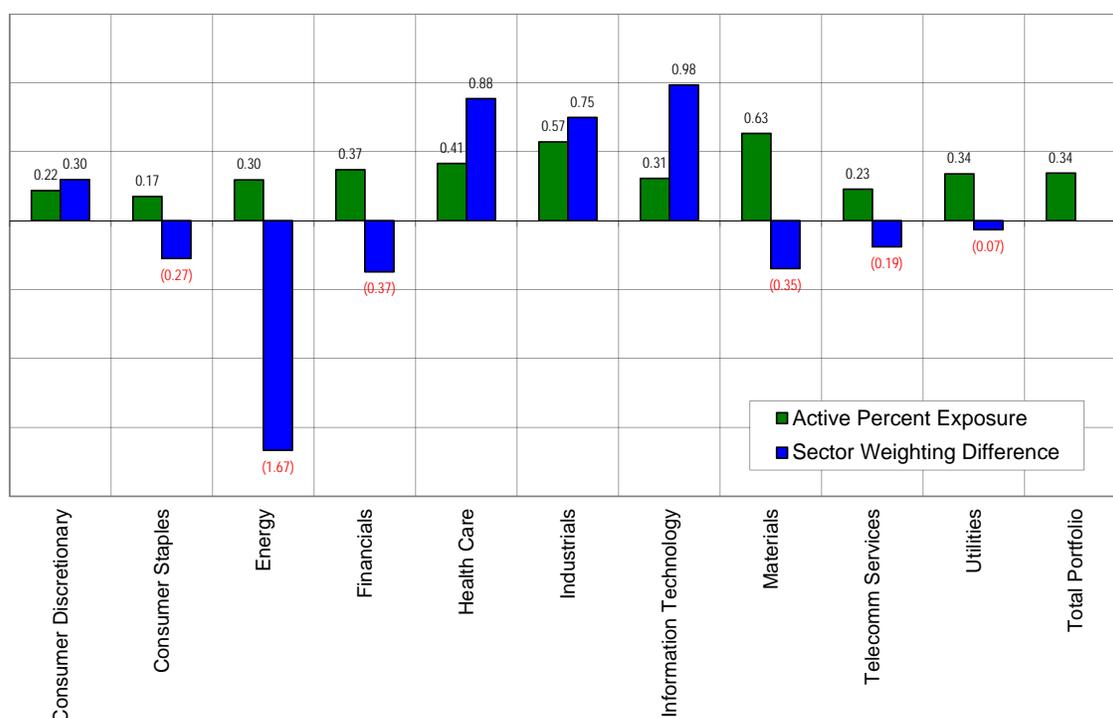


Largest Overweights by Stock in Fund

Ticker	Description	Bps Over
MSFT	Microsoft Corporation	90
TRV	Travelers Companies, Inc.	81
TWX	Time Warner Inc.	72
SLB	Schlumberger NV	72
TJX	TJX Companies, Inc.	71
VIAB	Viacom Inc. Class B	71
MO	Altria Group, Inc.	70
AMGN	Amgen Inc.	69
BA	Boeing Company	68
ACT	Actavis Plc	68
PEP	PepsiCo, Inc.	68
WLP	WellPoint, Inc.	64
RTN	Raytheon Company	63
MDT	Medtronic, Inc.	60
NOC	Northrop Grumman Corporation	59
CI	Cigna Corporation	57
BHI	Baker Hughes Incorporated	54
DVN	Devon Energy Corporation	54
JNJ	Johnson & Johnson	53
AMP	Ameriprise Financial, Inc.	53

Largest Underweights by Stock in Fund

Ticker	Description	Bps Under
DIS	Walt Disney Company	-73
GE	General Electric Company	-72
KO	Coca-Cola Company	-71
CVX	Chevron Corporation	-70
PM	Philip Morris International Inc.	-69
UTX	United Technologies Corporation	-55
FB	Facebook, Inc. Class A	-52
BMY	Bristol-Myers Squibb Company	-50
PG	Procter & Gamble Company	-49
GOOG	Google Inc. Class A	-48
CELG	Celgene Corporation	-40
BIIB	Biogen Idec Inc.	-38
EBAY	eBay Inc.	-37
MON	Monsanto Company	-36
DD	E. I. du Pont de Nemours and Comp	-35
MDLZ	Mondelez International, Inc. Class A	-35
MET	MetLife, Inc.	-34
ABT	Abbott Laboratories	-34
CAT	Caterpillar Inc.	-33
XOM	Exxon Mobil Corporation	-32

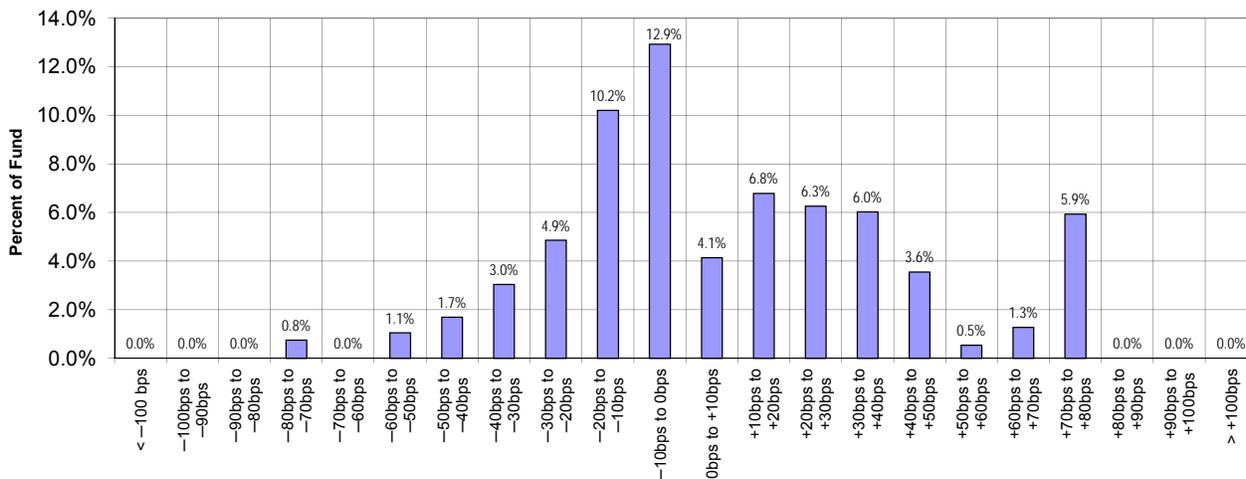


Growing confidence in a healthy economy led to strong equity markets despite well-anticipated distractions from the government shutdown, the flawed start for the Obamacare health exchange and the announcement of the tapering of the Federal Reserve's bond buying program. Relative performance among the sectors followed the script for economic expansion (Information Technology and Industrials) helping to deliver an uncharacteristically large gain from sector allocation.

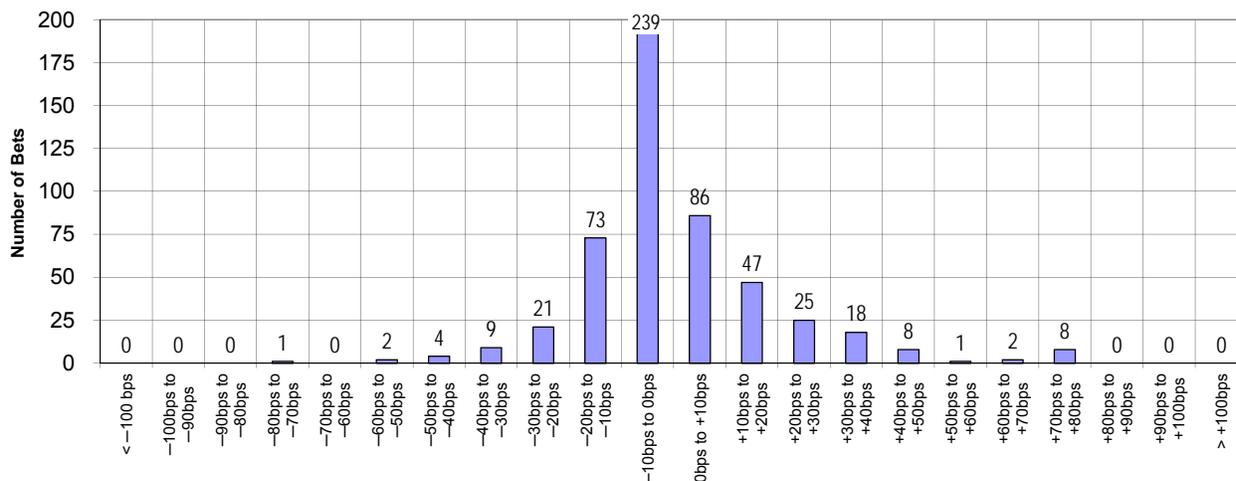
S&P 500 investors are paying a high multiple for earnings that are showing slower rates of growth. The fourth quarter earnings season has delivered according to expectations and disappointing guidance is no worse than typical. Some of the smaller emerging markets are showing strains (esp. Turkey, Argentina and Ukraine) and there is slower activity in all of the BRICs. Europe is emerging from recession but it appears to be a jobless recovery thus far. This has the makings of a peak in equity performance.

Superior stock selection further boosted relative performance in many sectors (orange bars above). Sector Fund overweight Avago, whose products let devices share an increasingly crowded wireless spectrum, punctuated a great earnings call with a bid to acquire LSI Logic. The market reaction to earnings can be tough to anticipate: Sector Fund overweight Priceline.com, a high quality growth leader in travel, did not get anything like the reaction of Expedia which also did well, to the relief of investors.

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



Number of Individual Stocks in Bet Size Bins

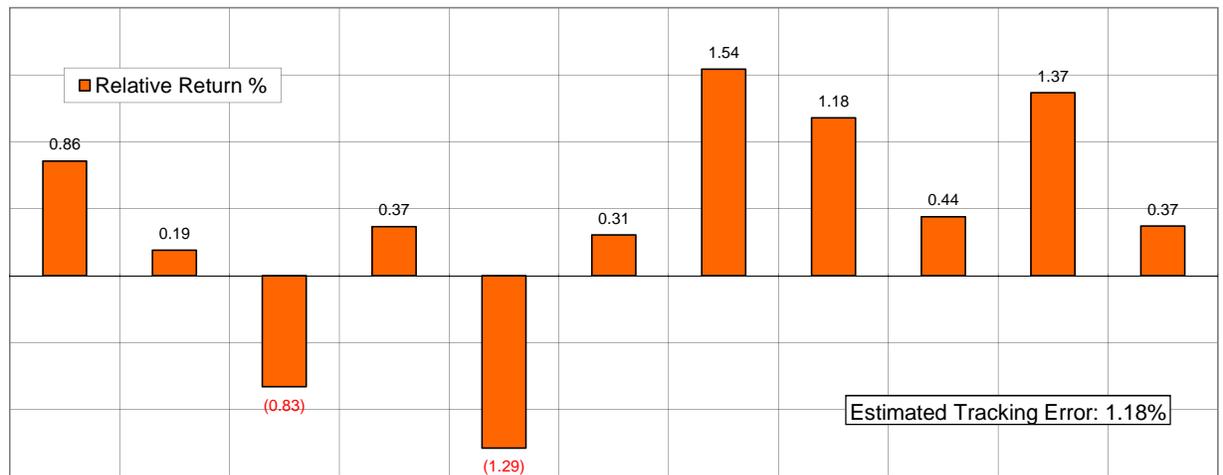
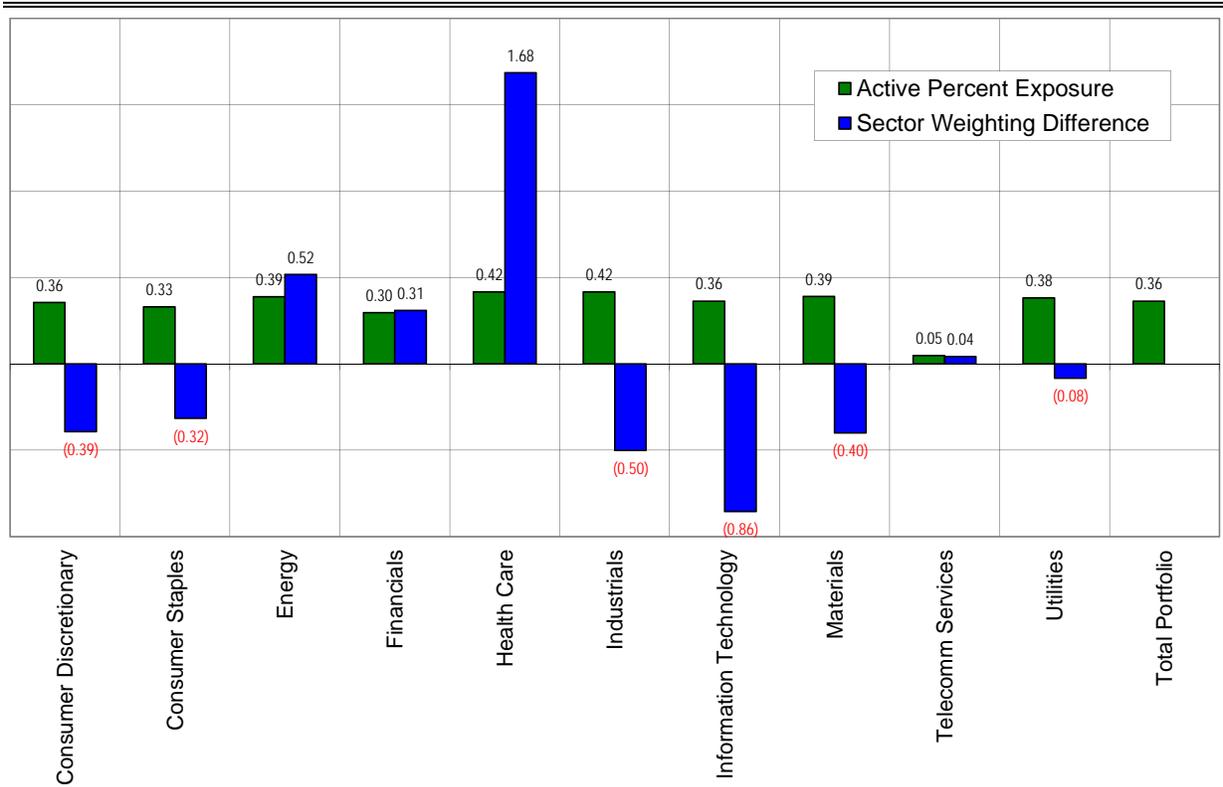


Largest Overweights by Stock in Fund

Ticker	Description	Bps Over Index Wt
AAPL	Apple Inc.	79
AVGO	Avago Technologies Limited	75
GILD	Gilead Sciences, Inc.	74
DHR	Danaher Corporation	74
DAL	Delta Air Lines, Inc.	74
BEAV	B/E Aerospace Inc.	73
BA	Boeing Company	72
SNDK	SanDisk Corporation	71
SYNA	Synaptics Incorporated	66
MU	Micron Technology, Inc.	61
VMW	Vmware, Inc. Class A	54
ABBV	AbbVie, Inc.	48
ACT	Actavis Plc	46
MRK	Merck & Co., Inc.	45
HCC	HCC Insurance Holdings, Inc.	45
HAL	Halliburton Company	45
WAT	Waters Corporation	44
CI	Cigna Corporation	42
BCR	C. R. Bard, Inc.	40
EOG	EOG Resources, Inc.	38

Largest Underweights by Stock in Fund

Ticker	Description	Bps Under
JNJ	Johnson & Johnson	-75
MMM	3M Company	-54
AXP	American Express Company	-51
OXY	Occidental Petroleum Corporation	-46
CVX	Chevron Corporation	-41
T	AT&T Inc.	-41
BIIB	Biogen Idec Inc.	-40
EBAY	eBay Inc.	-39
DD	E. I. du Pont de Nemours and Comp	-36
CAT	Caterpillar Inc.	-35
MSFT	Microsoft Corporation	-34
DOW	Dow Chemical Company	-33
HPQ	Hewlett-Packard Company	-33
ACN	Accenture Plc	-32
BAC	Bank of America Corporation	-31
LLY	Eli Lilly and Company	-31
AIG	American International Group, Inc.	-28
COF	Capital One Financial Corporation	-27
MS	Morgan Stanley	-26
MET	MetLife, Inc.	-26

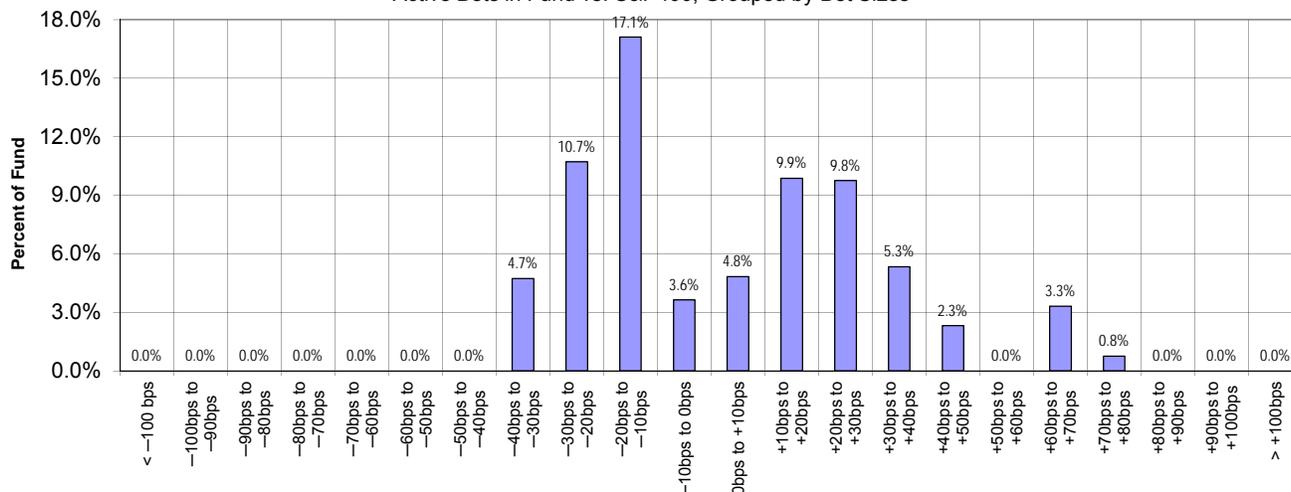


Our business cycle analysis currently indicates we're in a mid to late expansion, primarily characterized by rising inflation expectations and the Fed moving to neutral from expansive. However, the recent slow but reasonably steady improving trend appeared to stall midway through the 1<sup>st</sup> quarter as a wide array of data disappointed forecasters and investors.

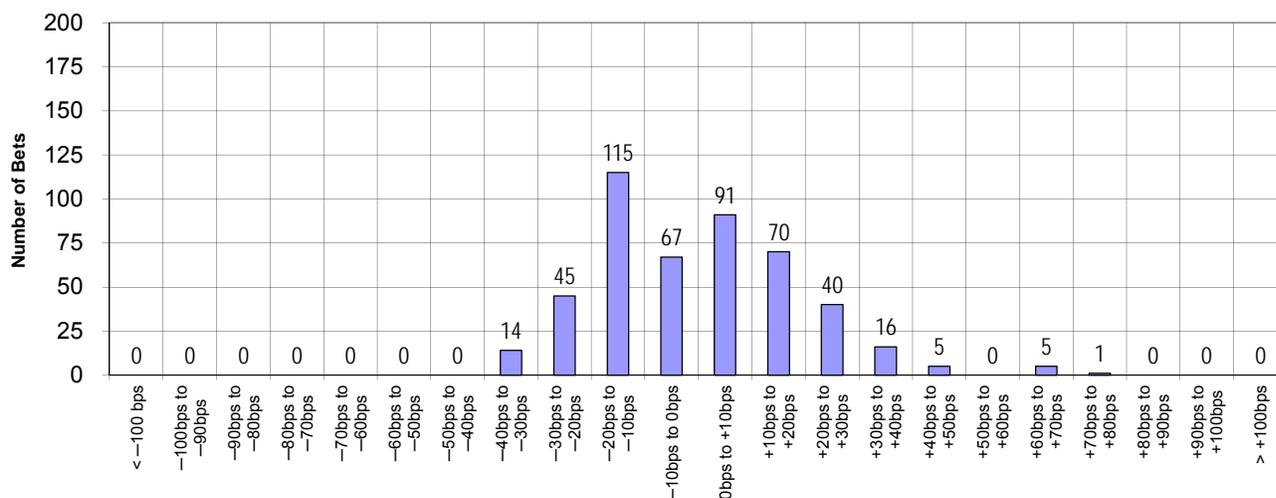
In spite of this and at least for the time being we remain positive on stocks although conditions are increasingly vulnerable to earnings and top line growth disappointments as well as a geopolitical flare-up as valuations, while not exorbitant, seem to be pricing in a decent amount of growth.

The Mid Cap Fund outperformed the S & P Mid Cap 400 return during the quarter. Good stock selection in the retailing and IT software/services industries as well as a general avoidance of Utility stocks was somewhat offset by an overweight to the weak performing Energy sector and stock selection difficulties in the health care equipment and services industry. All of our excess return came from stock selection, while sector allocation was slightly negative, reversing the pattern of the prior two quarters

Active Bets in Fund vs. S&P400, Grouped by Bet Sizes



Number of Individual Stocks in Bet Size Bins



Largest Overweights by Stock in Fund

Ticker	Description	Bps Over
ADS	Alliance Data Systems Corporation	76
ALK	Alaska Air Group, Inc.	69
AVT	Avnet, Inc.	69
IEX	IDEX Corporation	67
MHK	Mohawk Industries, Inc.	66
CYN	City National Corporation	61
HII	Huntington Ingalls Industries, Inc.	50
JKHY	Jack Henry & Associates, Inc.	48
SGY	Stone Energy Corporation	47
SBNY	Signature Bank	44
AEE	Ameren Corporation	42
BLL	Ball Corporation	40
FCN	FTI Consulting, Inc.	38
WCG	WellCare Health Plans, Inc.	35
SPW	SPX Corporation	35
AES	AES Corporation	35
CBOE	CBOE Holdings, Inc.	34
EV	Eaton Vance Corp.	34
JEC	Jacobs Engineering Group Inc.	34
OCR	Omnicare, Inc.	34

Largest Underweights by Stock in Fund

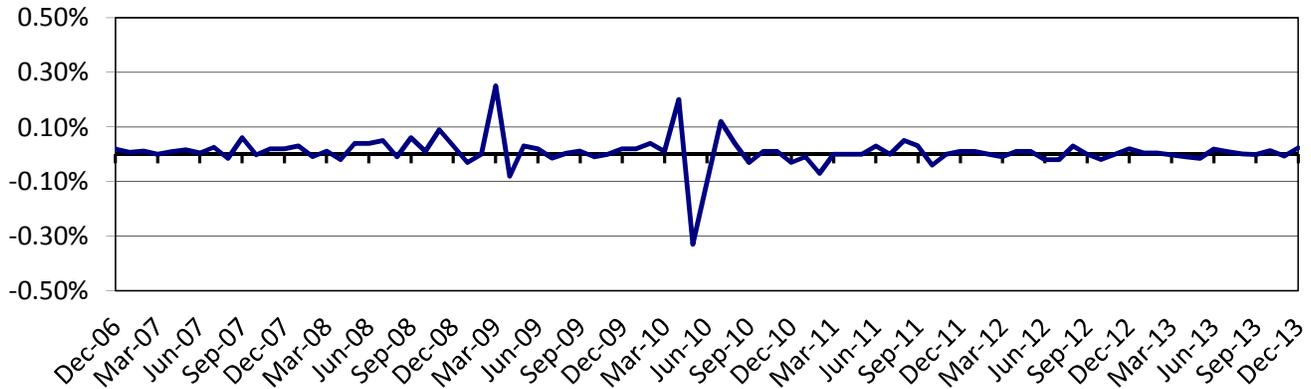
Ticker	Description	Bps Under
HOLX	Hologic, Inc.	-40
TOL	Toll Brothers, Inc.	-38
BEAV	B/E Aerospace Inc.	-38
SLXP	Salix Pharmaceuticals, Ltd.	-37
RPM	RPM International Inc.	-36
GPOR	Gulfport Energy Corporation	-35
ALB	Albemarle Corporation	-34
Y	Alleghany Corporation	-32
CNQR	Concur Technologies, Inc.	-32
GNTX	Gentex Corporation	-31
DDD	3D Systems Corporation	-31
AYI	Acuity Brands, Inc.	-31
JBHT	J.B. Hunt Transport Services, Inc.	-30
MLM	Martin Marietta Materials, Inc.	-30
TW	Towers Watson & Co. Class A	-30
DRC	Dresser-Rand Group Inc.	-30
DRQ	Dril-Quip, Inc.	-29
ATR	Aptargroup, Inc.	-29
LKQ	LKQ Corporation	-29
SWKS	Skyworks Solutions, Inc.	-29

Passive Domestic Equity Funds  
 Derrick Dagnan, CFA & Carrie Green, CFA

Index Fund vs. S&P 500

Assets as of December 2013: \$2.8B

Monthly Excess Returns

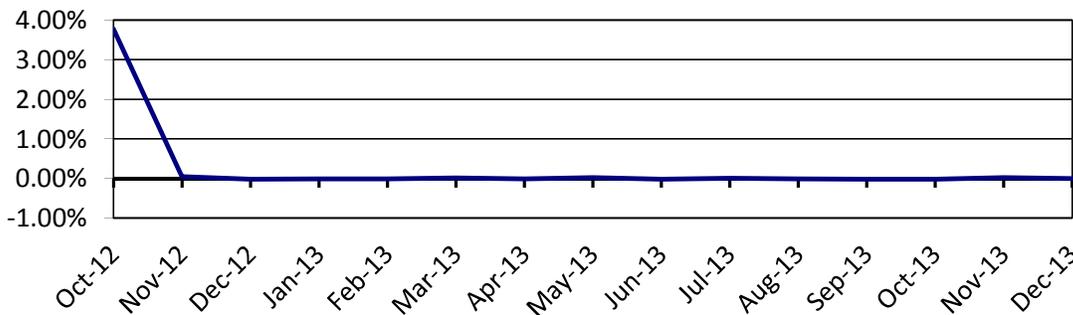


	1 Quarter	1 Year	3 Years	Since Inception
Index Fund	10.5%	32.4%	16.2%	7.0%
S&P 500	10.5%	32.4%	16.2%	6.9%
Excess Return	0.0%	0.1%	0.0%	0.1%
Tracking Error	0.05%	0.04%	0.07%	0.20%

Small Cap Fund vs. S&P 600

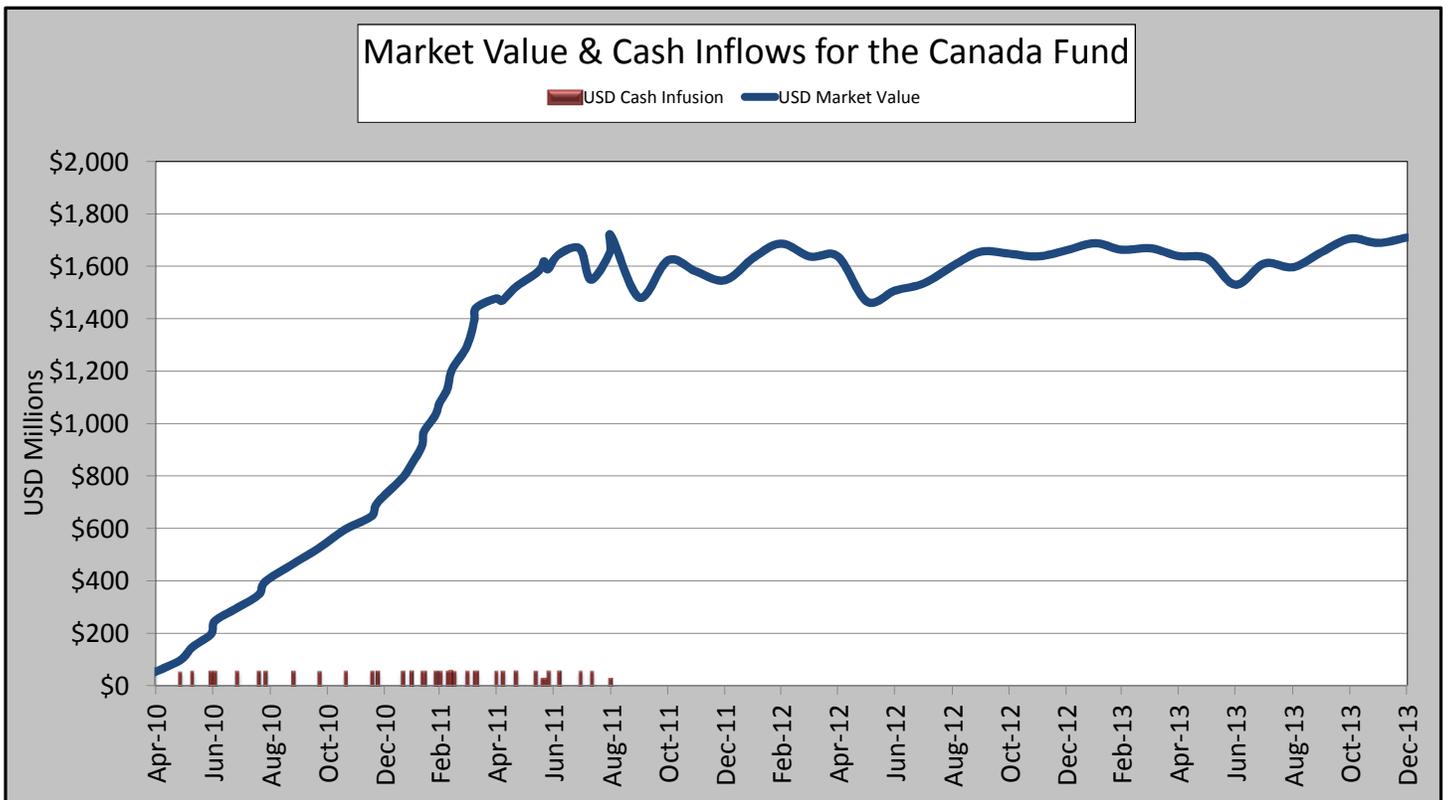
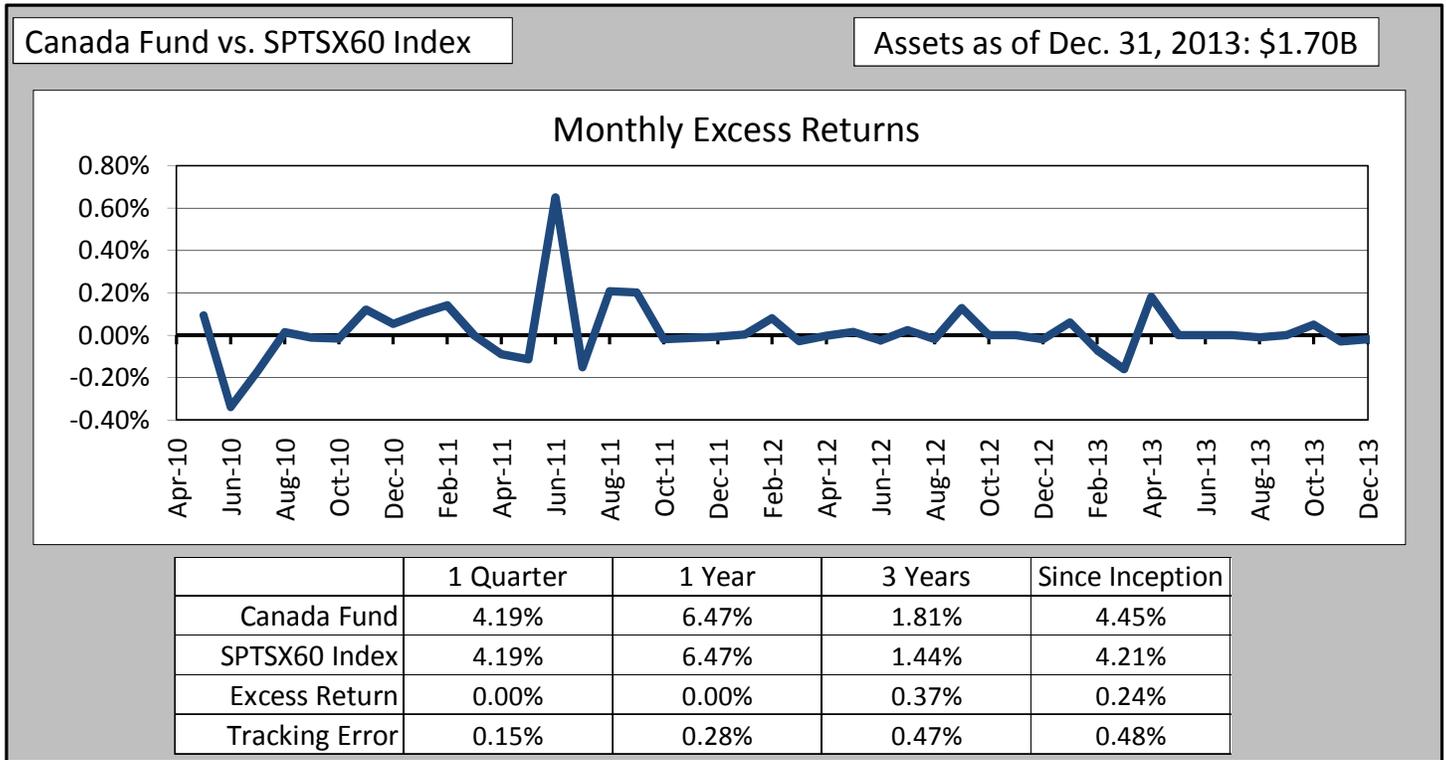
Assets as of December 2013: \$727M

Monthly Excess Returns



	1 Quarter	1 Year	3 Years	Since Inception
Small Cap Fund	9.83%	41.3%	N/A	50.02%
S&P 600	9.83%	41.3%	N/A	44.45%
Excess Return	0.00%	0.0%	N/A	5.57%
Tracking Error	0.06%	0.05%	N/A	3.37%

Canada Fund  
Kushal Gupta, CFA, CAIA



Manager Performance Comparison – International Equity

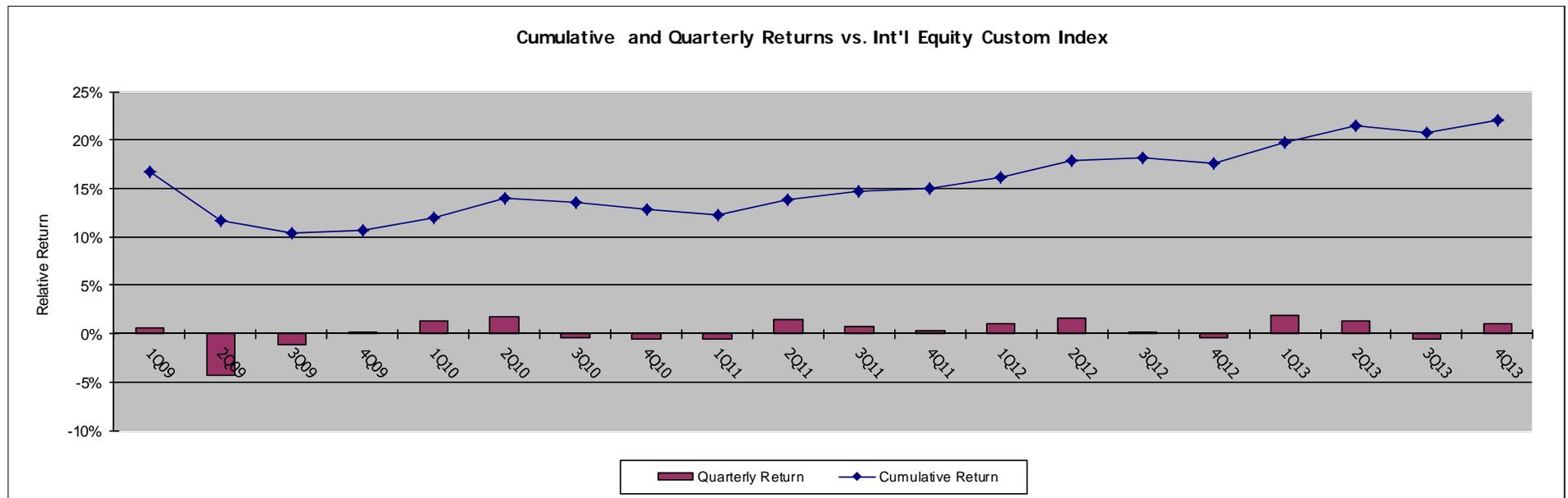
As of December 31, 2013

Manager Returns For The Quarter Ending December 31, 2013

Manager	Manager Return	Benchmark	Benchmark Return
American Century	8.93	MSCI EAFE Small Cap	5.91
Baring Asset Mgmt	5.97	MSCI EAFE	5.71
Emerging Market ETF	2.90	MSCI Emg Mkts Net Custom	1.50
GE Asset Mgmt	7.83	MSCI Europe	7.88
Marathon	7.25	MSCI EAFE net	5.71
Pacific Indexed Portfolio <sup>1</sup>	0.68	MSCI Pacific net	1.56
PanAgora Asset Mgmt	6.25	MSCI EAFE	5.71
Pyramis Global	6.26	MSCI EAFE Small Cap	5.91
TT International	9.45	MSCI EAFE	5.71
Walter Scott	2.85	MSCI EAFE net <sup>2</sup>	5.71
International Equity	5.60	Int'l Equity Custom <sup>3</sup>	4.57

Manager Returns For Five Years Ending December 31, 2013

Manager	Manager Return	Benchmark	Benchmark Return
American Century		MSCI EAFE Small Cap	
Baring Asset Mgmt	14.20	MSCI EAFE	12.44
Emerging Market ETF		MSCI Emg Mkts Net Custom	
GE Asset Mgmt	13.78	MSCI Europe	13.36
Marathon	15.54	MSCI EAFE net	12.44
Pacific Indexed Portfolio <sup>1</sup>	10.08	MSCI Pacific net	10.94
PanAgora Asset Mgmt	14.70	MSCI EAFE	12.44
Pyramis Global		MSCI EAFE Small Cap	
TT International	14.24	MSCI EAFE	12.44
Walter Scott	15.88	MSCI EAFE net <sup>2</sup>	12.17
International Equity	14.00	Int'l Equity Custom <sup>3</sup>	11.51

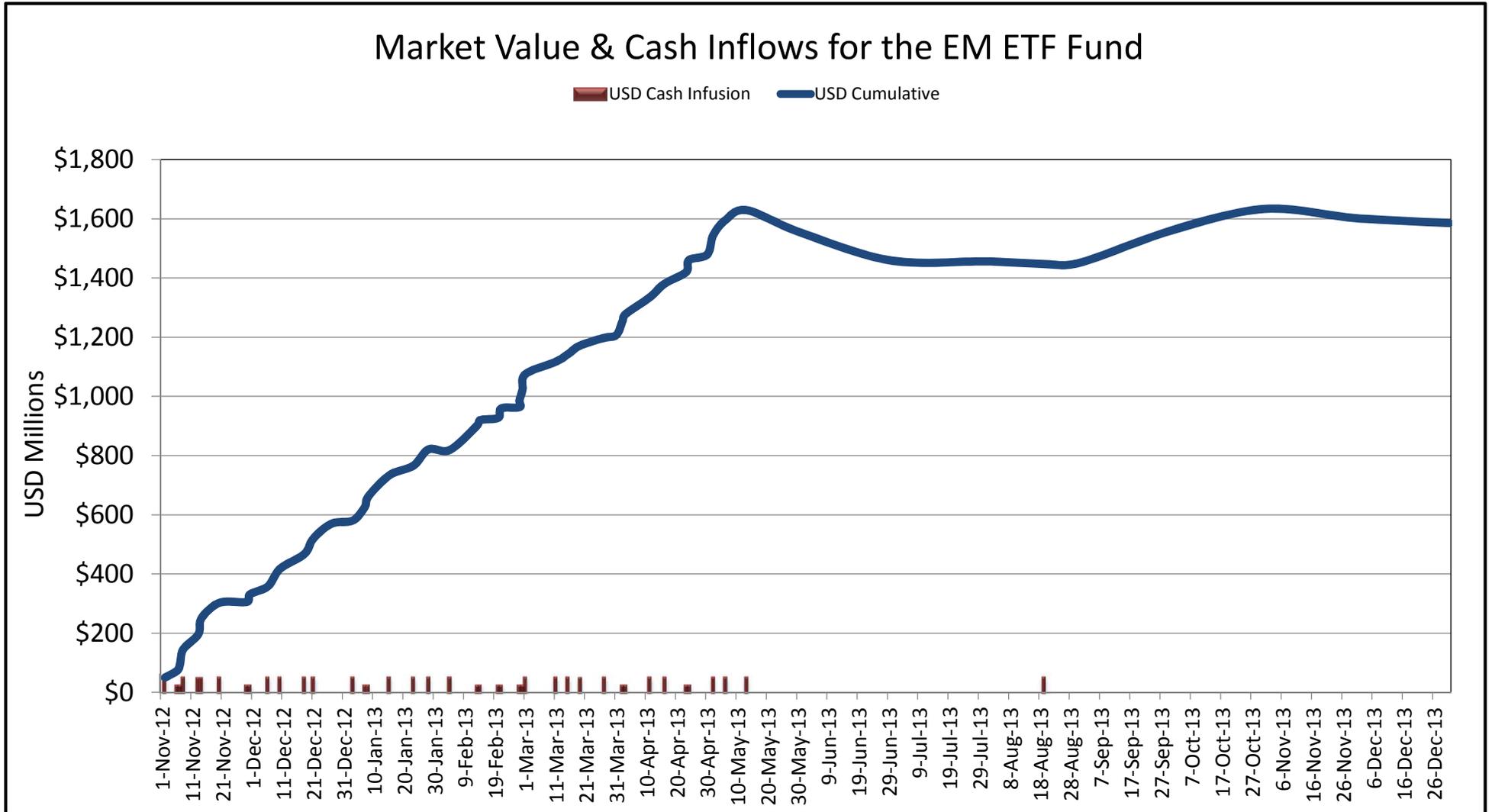


<sup>1</sup> Effective as of 9/4/10, internally managed by TCRS staff. Amundi Pacific terminated.

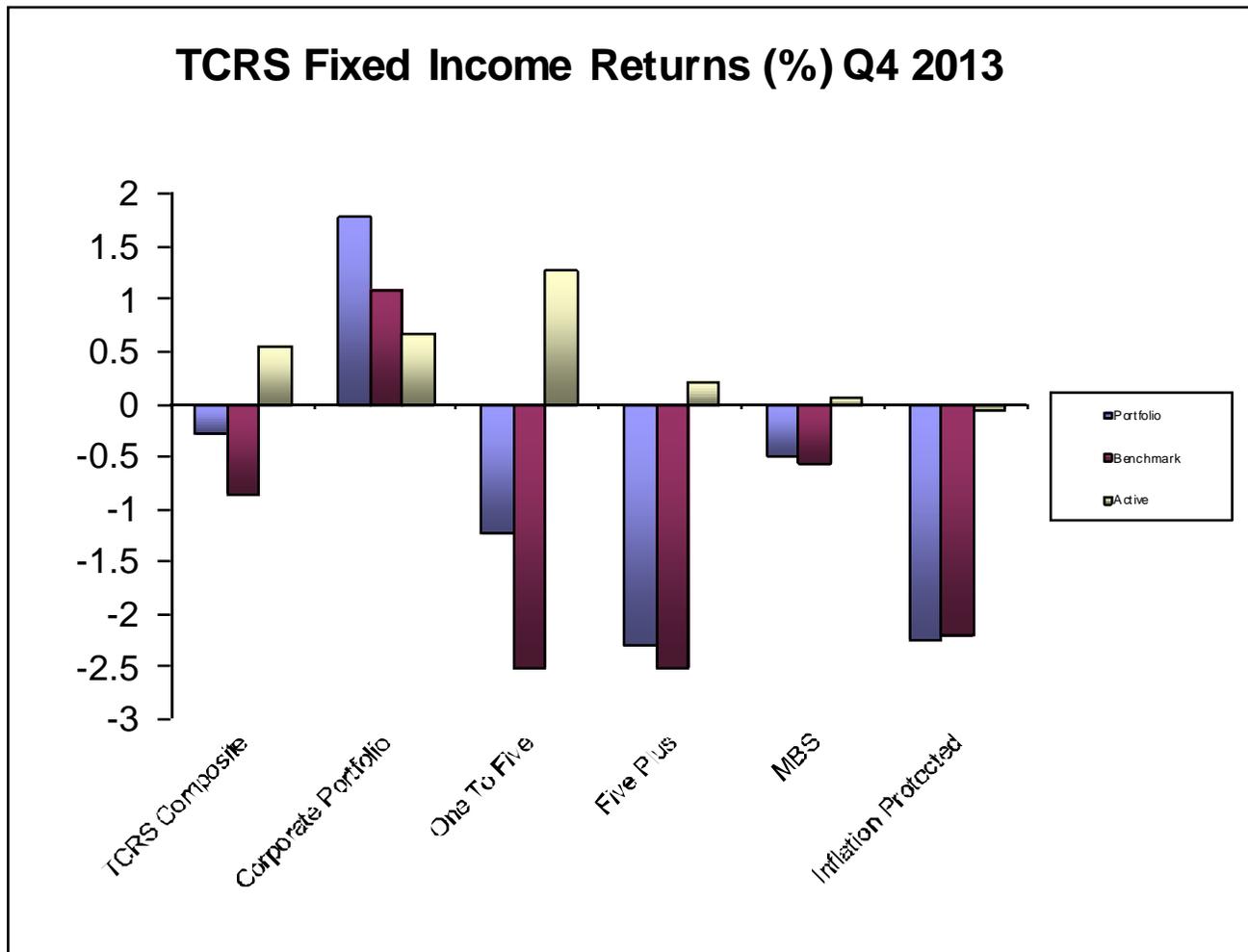
<sup>2</sup> Effective 3/1/09. Benchmark is linked to MSCI Europe Index.

<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.

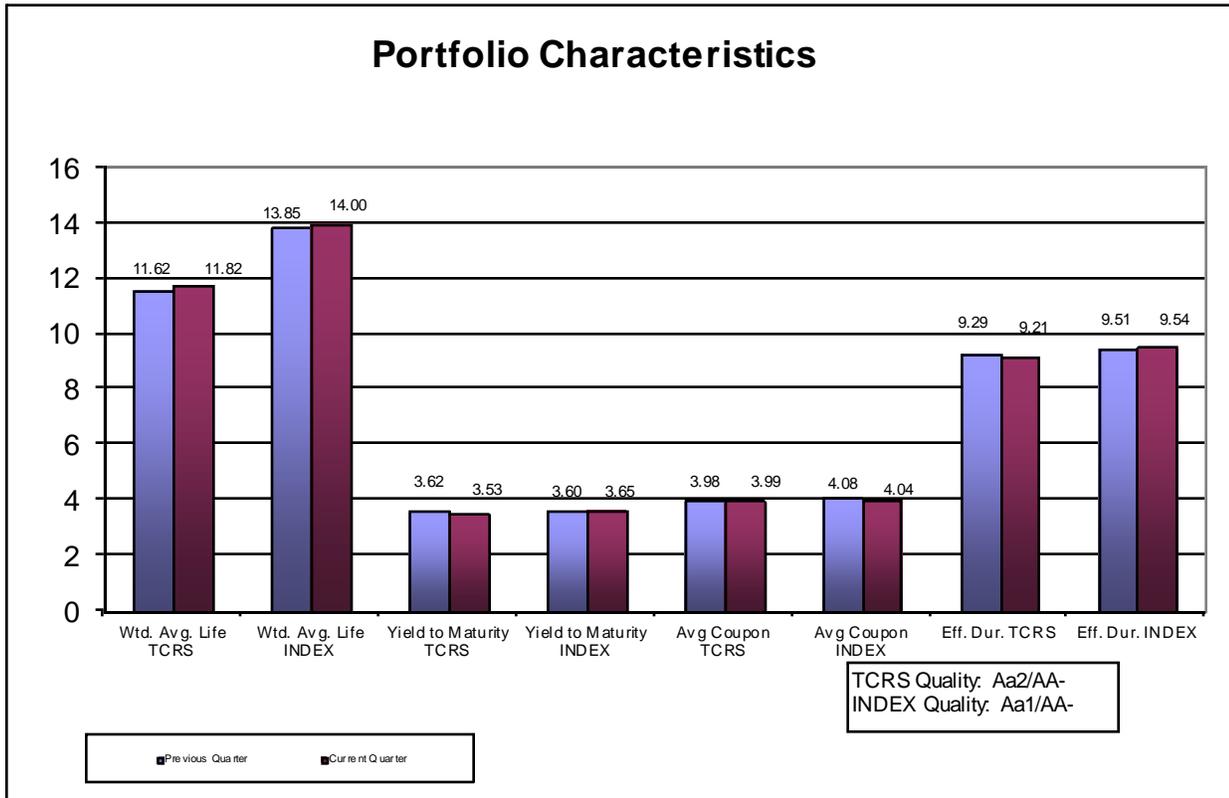
Assets as of Dec. 31, 2013: \$1.58B



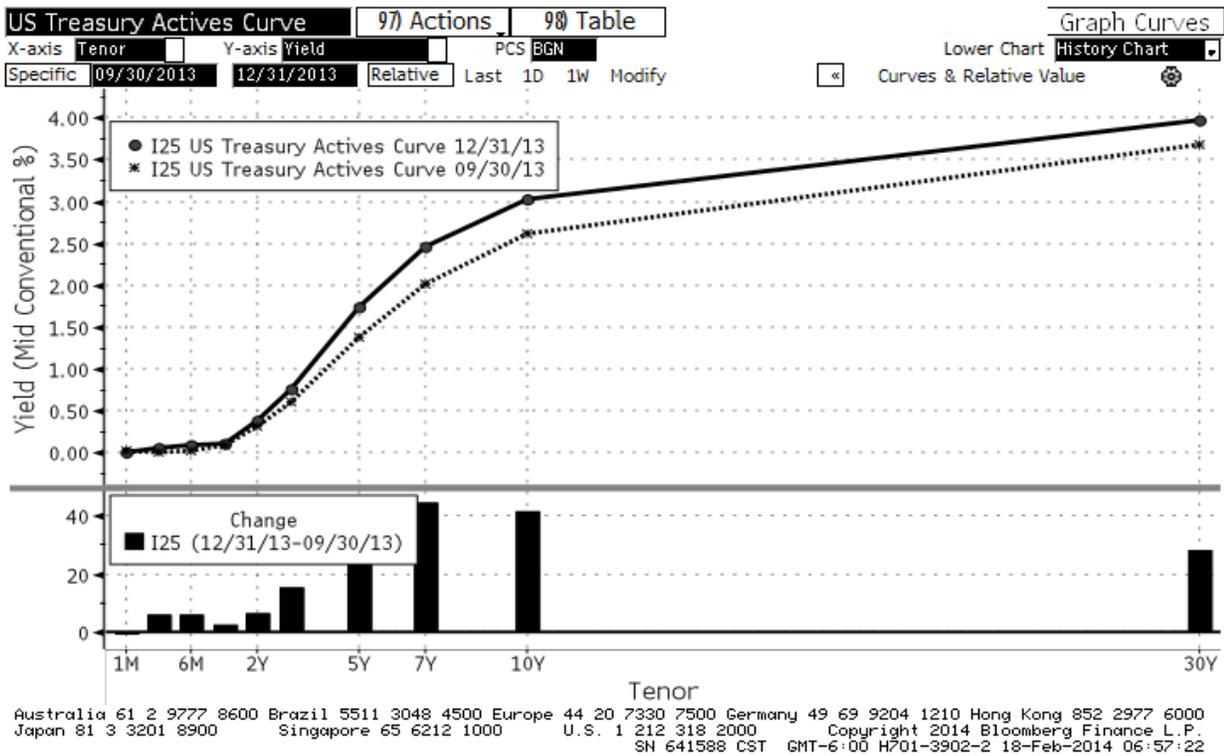
Portfolio	Value (Yield Book) (\$MMs)	Portfolio Return	Benchmark Return	Active Return
TCRS Domestic Fixed Income Composite	\$10,860	(0.28)	(0.84)	0.56
Corporate Portfolio	\$3,405	1.79	1.10	0.69
Government One To Five Years	\$1,896	(1.22)	(2.50)	1.28
Government Five Plus Years	\$1,941	(2.28)	(2.50)	0.22
Mortgage Portfolio	\$3,567	(0.48)	(0.55)	0.07
TCRS Inflation Protected Securities	\$2,395	(2.23)	(2.19)	(0.04)



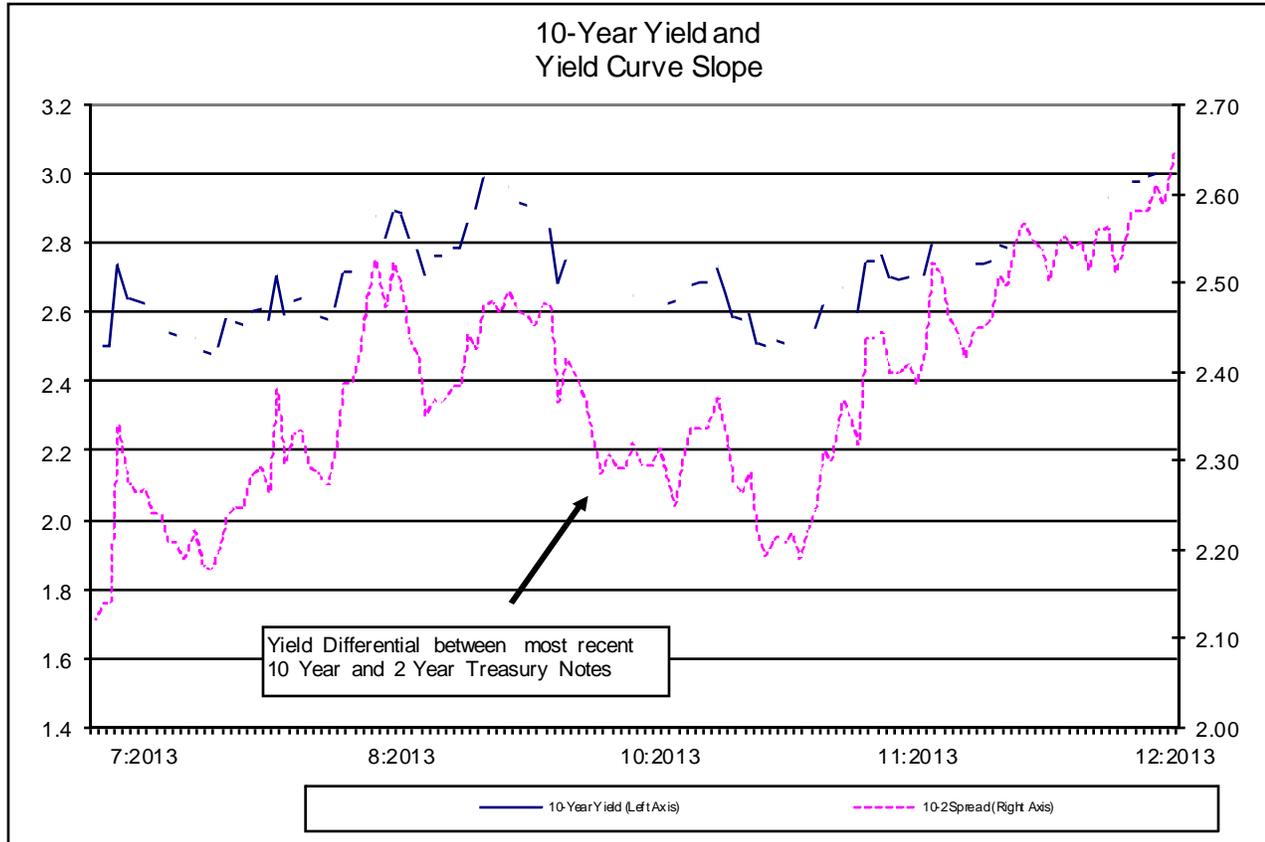
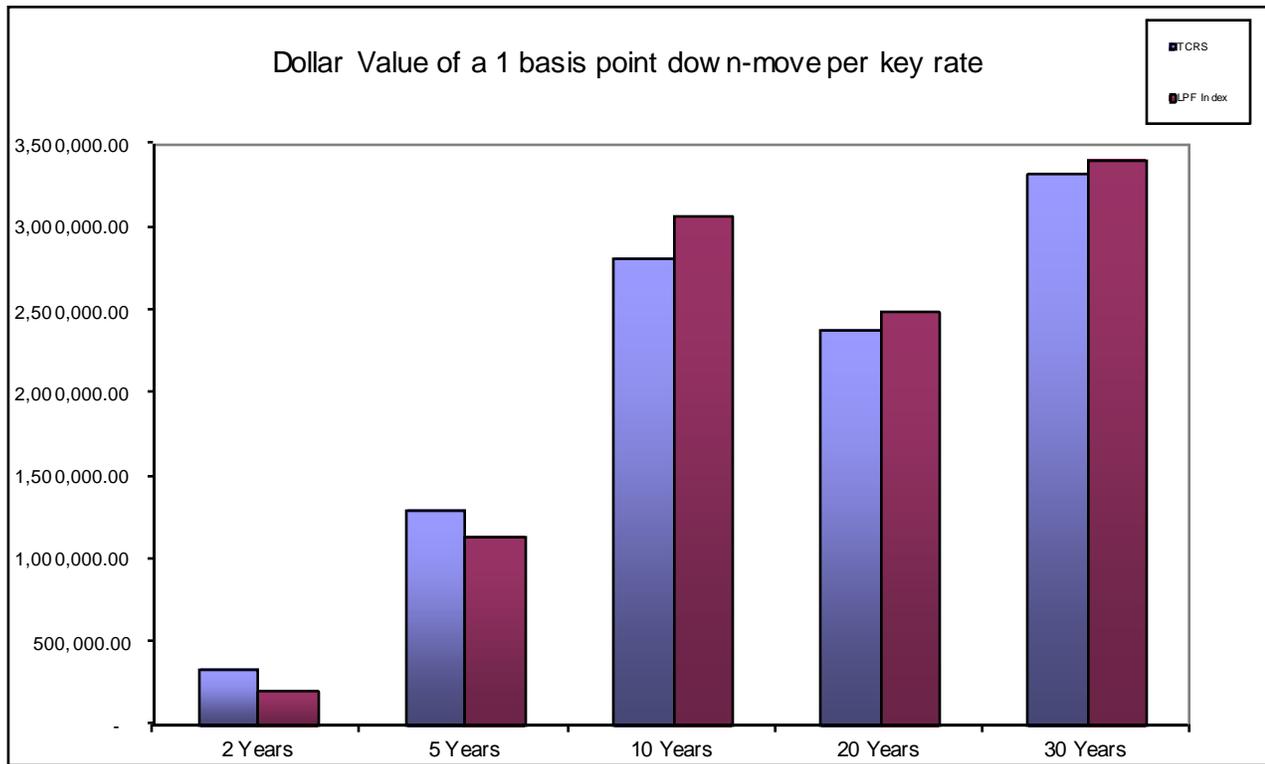
*Characteristics were stable from quarter to quarter*



*Yields rose and the curve flattened*



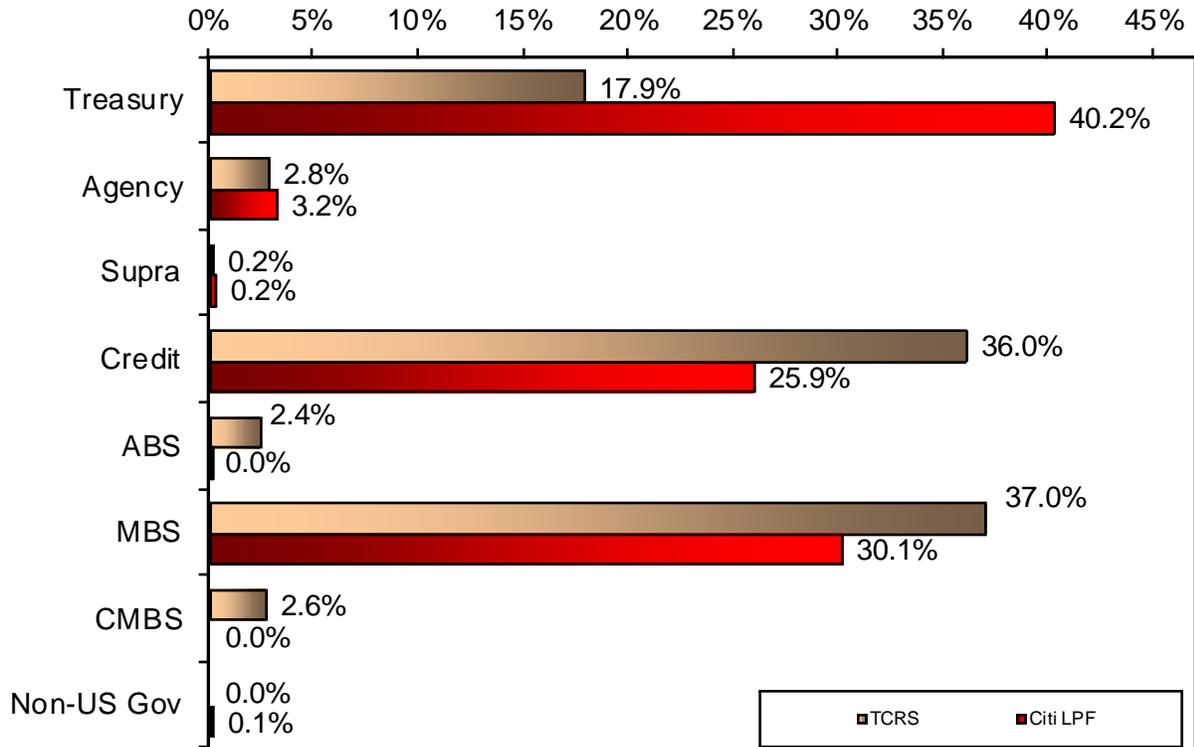
*Curve positioning reflects our view that the Federal Reserve will maintain low short interest rates for longer than expected by markets.*



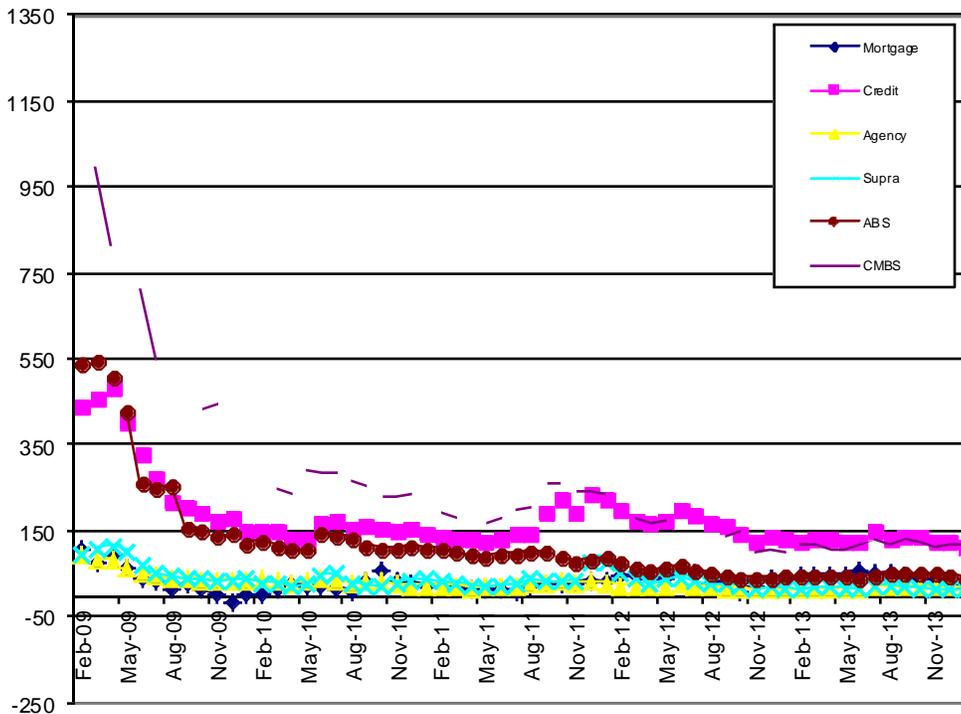
source: Bloomberg

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

Sector Allocation v. Index  
(% market value)



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

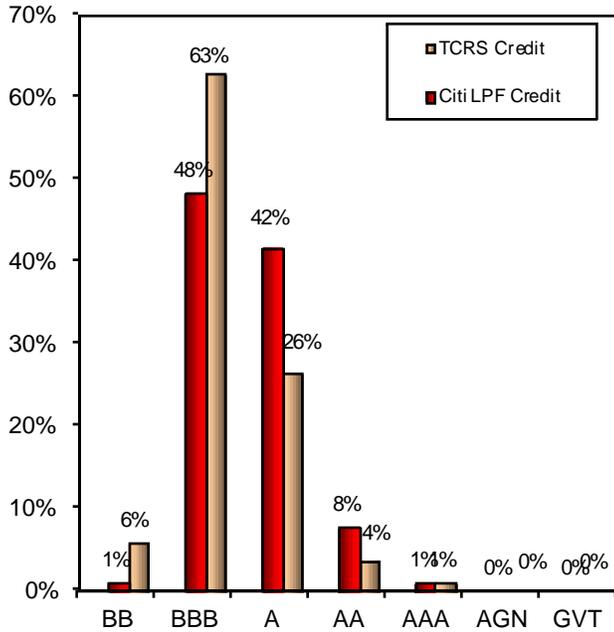


*Spreads tightened during the quarter.*

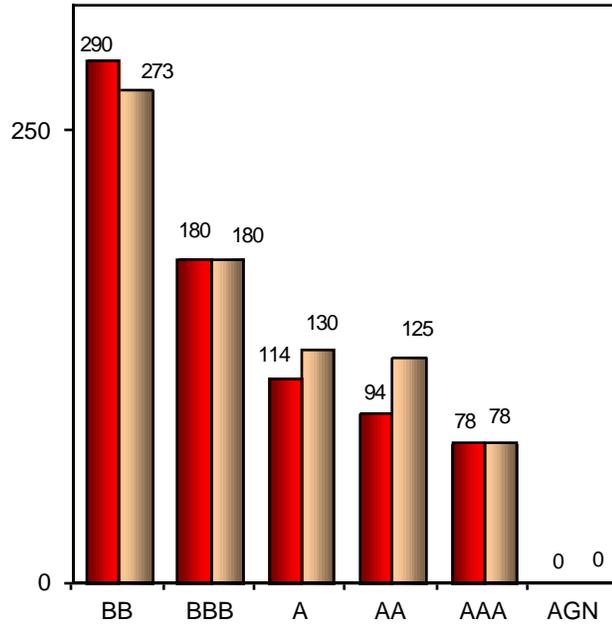
*TCRS spreads reflect a more conservative posture*

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

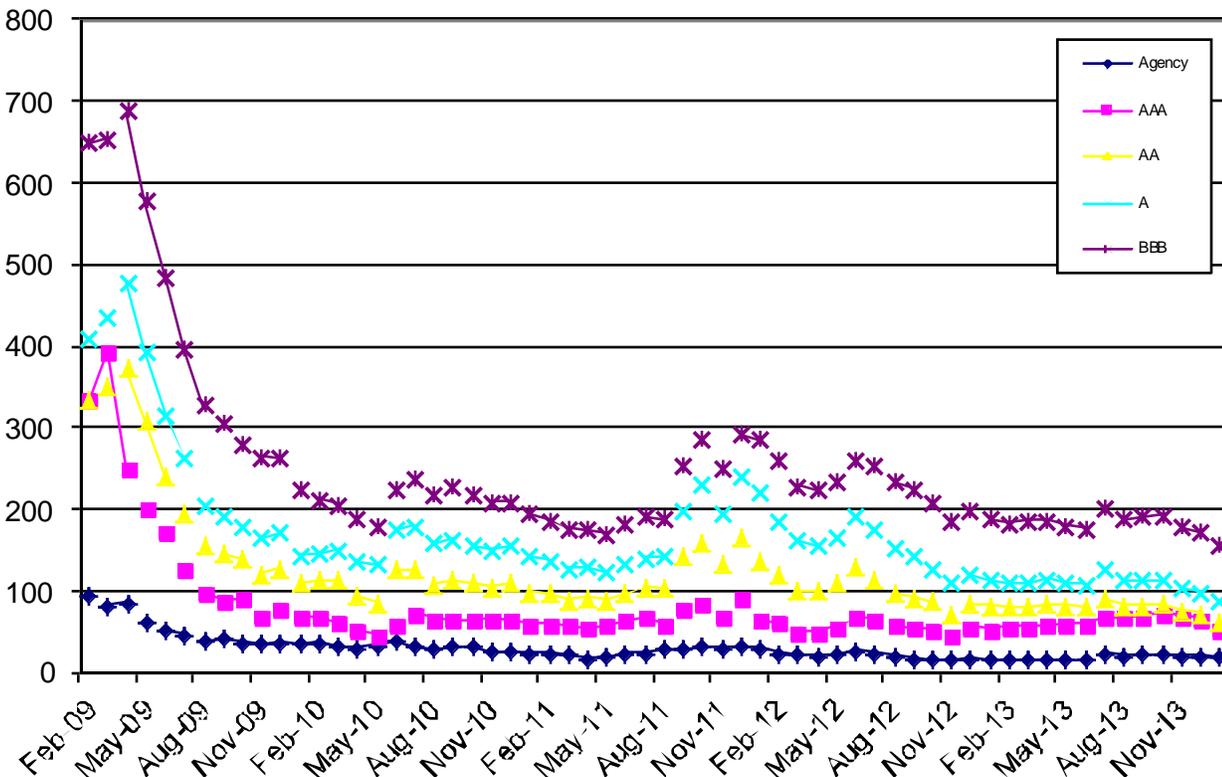
Credit Allocation v. Index  
(% market value)



OAS by Credit Allocation



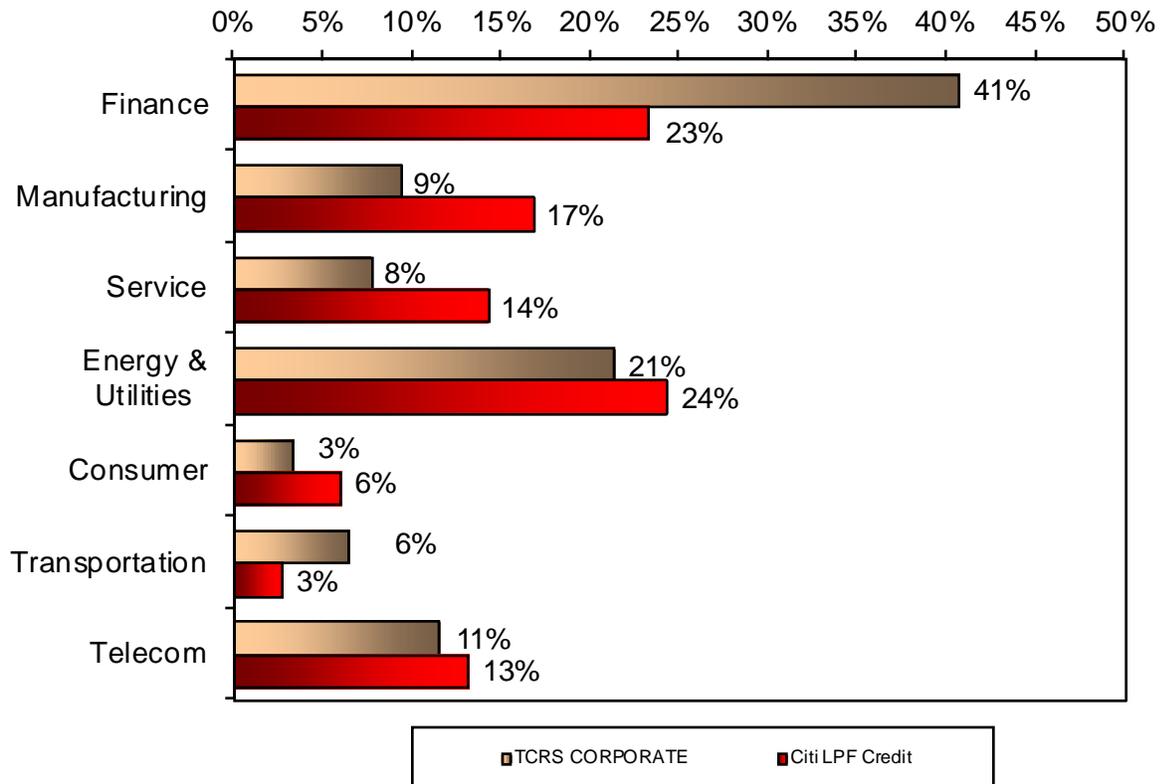
Spread to Treasury by Credit Rating  
(in basis points, index data)



<b>Top 5 Credit Holdings (by Market Value)</b>	MktVal	% MktVal
CITIGROUP INC	138,000	1.4
VERIZON COMMUNICATIONS INC	122,000	1.2
GENERAL ELECTRIC CO	99,622	0.9
AMERICAN INTERNATIONAL GROUP INC	95,588	0.9
JPMORGAN CHASE & CO	90,266	0.8

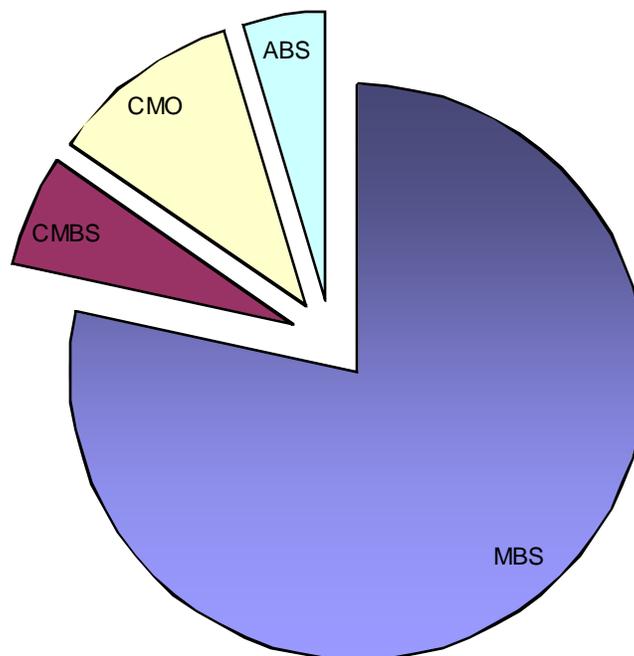
<b>Top 5 Credit Holdings (by Dollar Duration)</b>	\$ Duration	\$ Duration
VERIZON COMMUNICATIONS INC	151.50	1.5
CITIGROUP INC	138.73	1.4
GOLDMAN SACHS GROUP INC	90.32	0.9
AMERICAN INTERNATIONAL GROUP INC	84.76	0.8
JPMORGAN CHASE & CO	81.53	0.8

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



	Market Value (\$MM - Yield Book)	TCRS % of portfolio	CITI	Differenc
<b>Agency Mortgage Backed Securities</b>	\$3,519,539	32.6	30.1	2.5
<b>GNMA</b>				
15-Yr	\$26,615	0.3	0.1	0.2
30-Yr	\$648,522	6.0	7.9	-1.9
<b>FNMA</b>				
10-, 15- & 20-Yr	\$435,643	4.0	2.9	1.1
30-Yr	\$1,491,600	13.8	11.4	2.5
<b>FHLM</b>				
15-Yr	\$80,748	0.8	1.7	-0.9
30-Yr	\$753,994	7.0	6.2	0.8
<b>Agency Hybrid</b>	\$82,417	0.8	0.0	0.8
<b>Commercial Mortgage Backed Securities</b>	\$280,227	2.6	0.0	2.6
<b>CMO and Non Agency Passthroughs</b>	\$486,816	4.5	0.0	4.5
<b>Asset Backed Securities</b>	\$206,456	1.9	0.0	1.9
<b>Total Securitized Product</b>	<b>\$4,493,038</b>	<b>41.6</b>	<b>30.1</b>	<b>11.5</b>

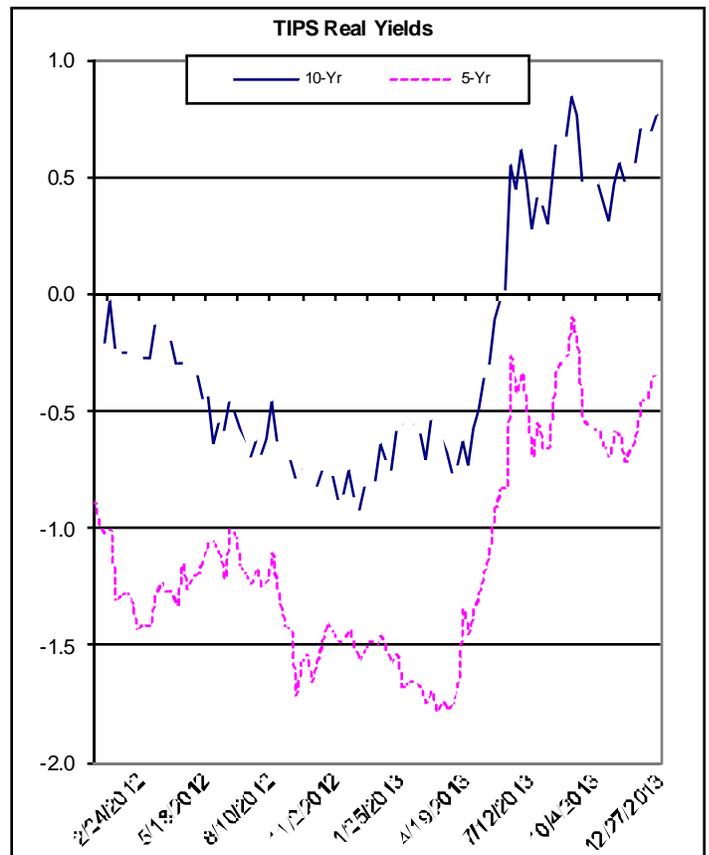
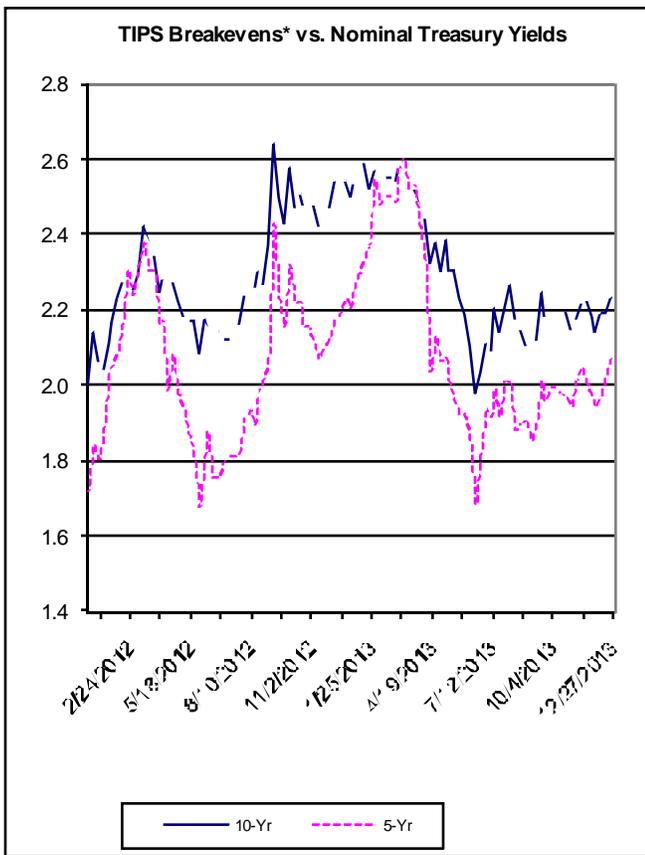
Percent of Securitized Product



Portfolio Value (Yield Book): \$2,394,975,065  
 Portfolio Return: -2.23%  
 Citigroup ILSI Index: -2.19%  
**Active Return: -0.04%**

**% Market Value by Duration**

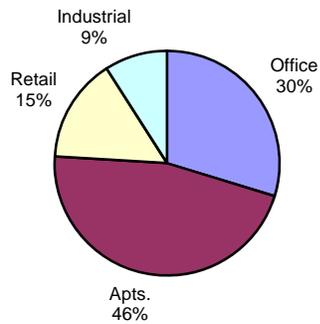
	TCRS	CITI	Difference
0-2	0.0%	0.0%	0.0%
2-4	1.8%	2.0%	-0.2%
4-6	3.5%	3.5%	-0.1%
6-8	6.0%	5.7%	0.4%
8-10	7.2%	7.2%	0.0%
10+	11.2%	10.6%	0.6%



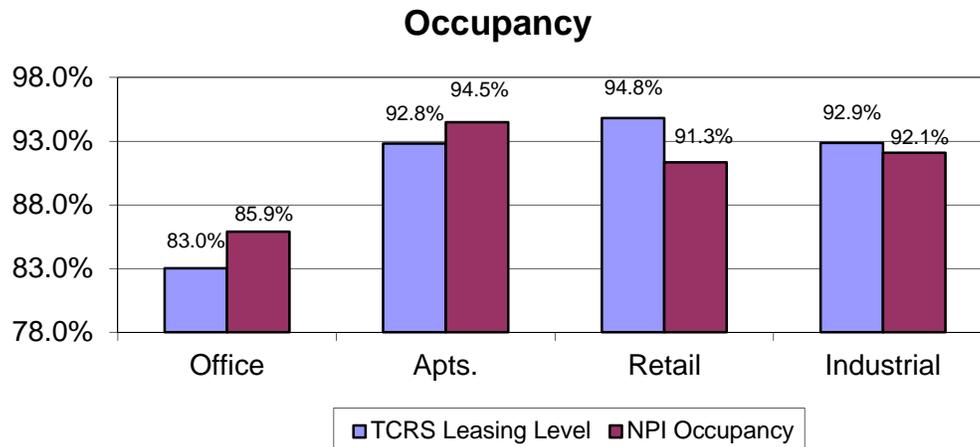
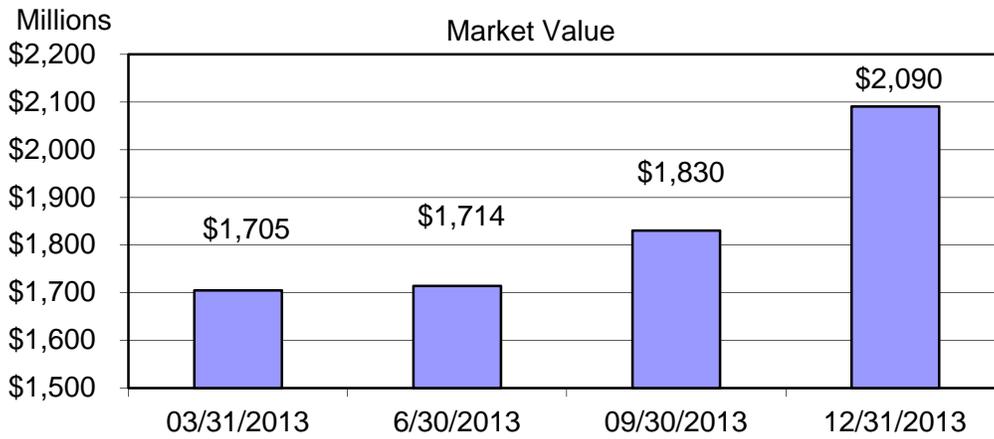
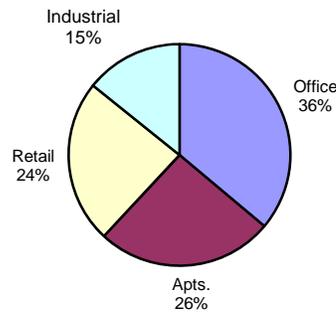
\* The "breakeven" rate is the expected rate of inflation at which investment in TIPS yield the same return as investment in Treasuries

Source: Bloomberg

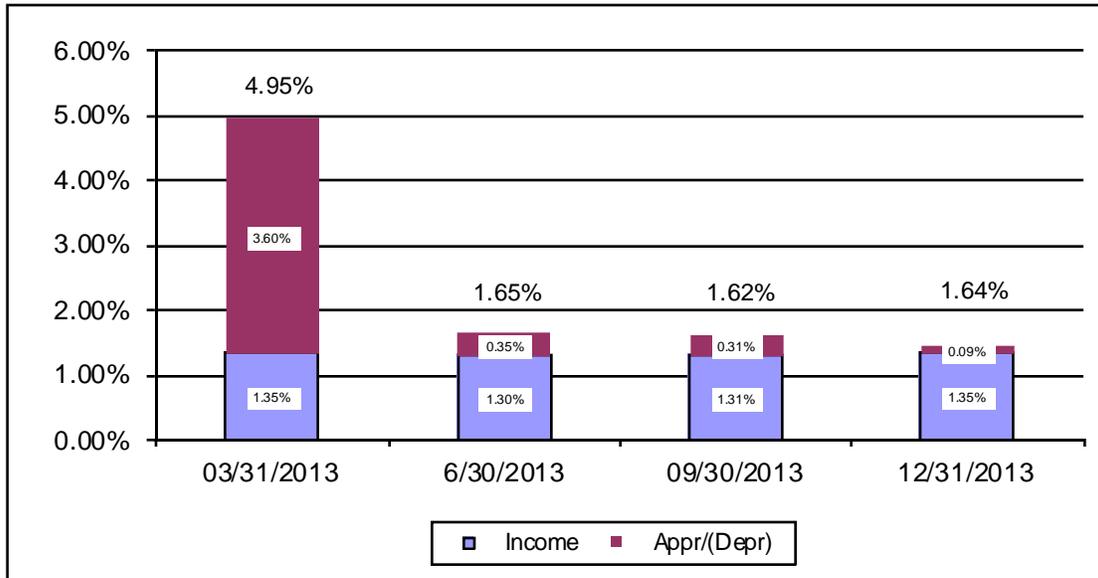
**TCRS By Property Type**



**NPI By Property Type**

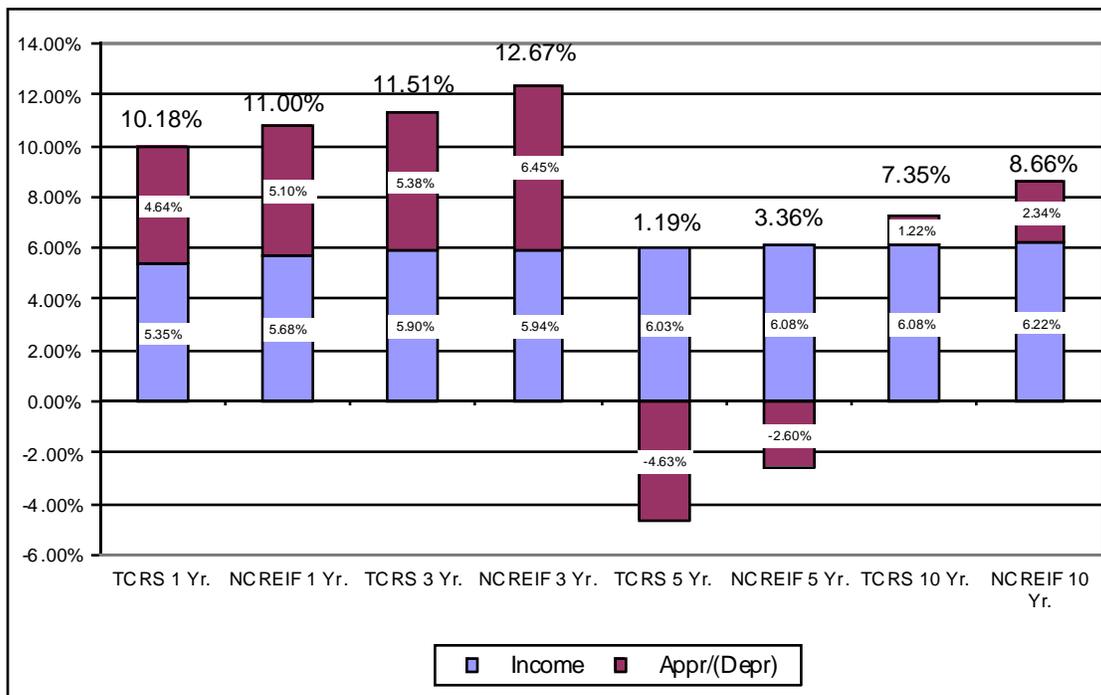


The NPI is the National Property Index of the National Council of Real Estate Investment Fiduciaries (the index used for US core properties).



All returns shown above are reported one quarter in arrears

Budgeted Annual Income Return for calendar year 2014 (excluding fund 5.44%)



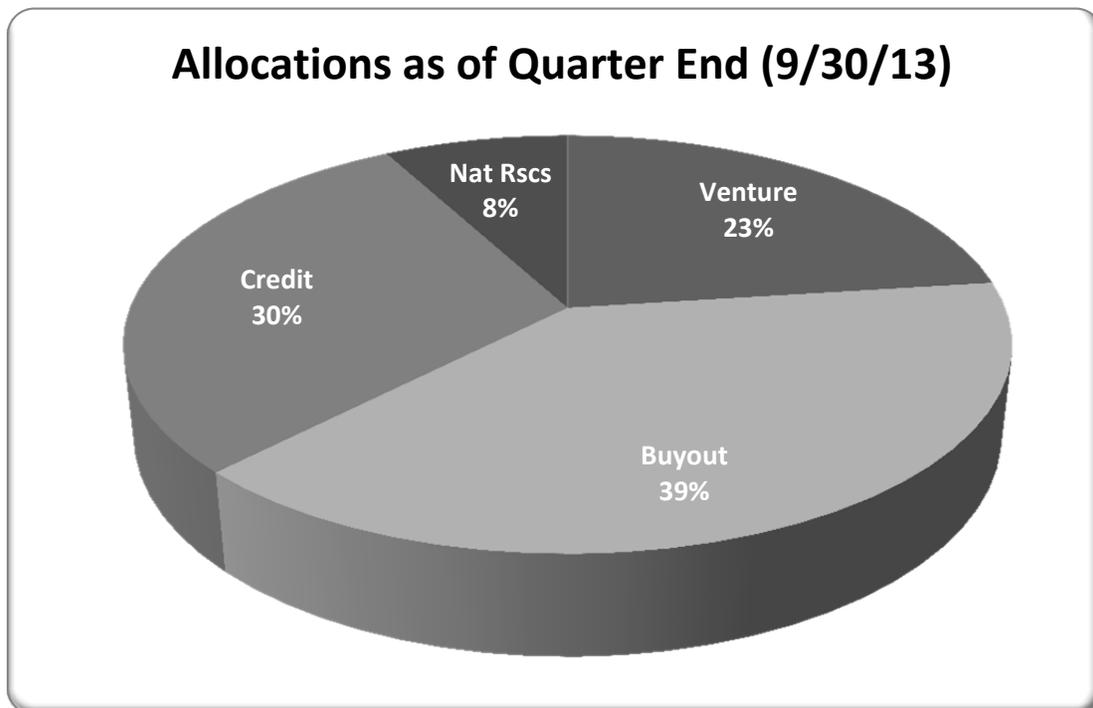
All returns shown above are reported one quarter in arrears

**Tennessee Consolidated Retirement System**  
 Private Equity Program  
 Fiscal Q2 2014 Update  
 Daniel Crews, CFA

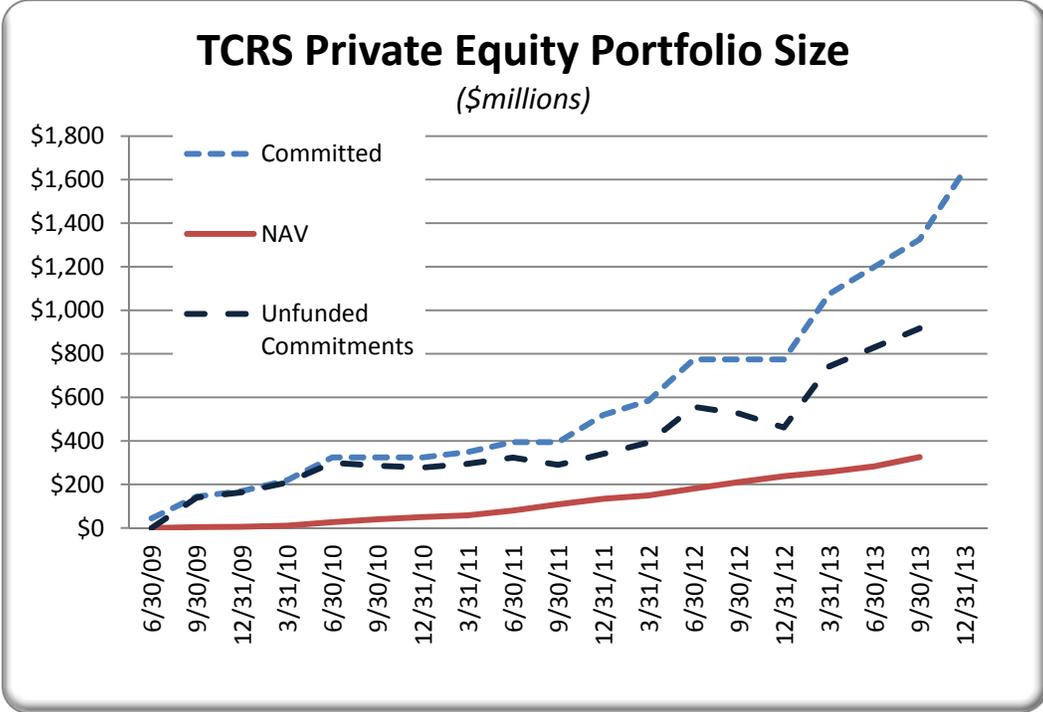
We have finalized our fiscal Q1:2014 results (the period ending 9/30/13), and are pleased to report that the program continues to show positive returns. Both the Buyout portfolio and Natural Resources are showing signs of an improving j-curve and Credit continued its positive contribution. However, significantly positive returns in the public markets continue to negatively impact our relative performance.

<i>Trailing IRR</i>	<b>Quarter</b>	<b>Trailing 1 Year</b>	<b>Since Inception</b>
Buyout	8.3%	19.4%	10.8%
Credit	2.8%	16.3%	13.1%
Venture	0.4%	5.4%	8.8%
Natural Resources	<u>0.4%</u>	<u>-9.5%</u>	<u>-17.9%</u>
<b>TCRS PE Overall</b>	<b>3.3%</b>	<b>12.4%</b>	<b>10.6%</b>
<i>S&amp;P 500 + 3%</i>	6.0%	22.7%	20.4%

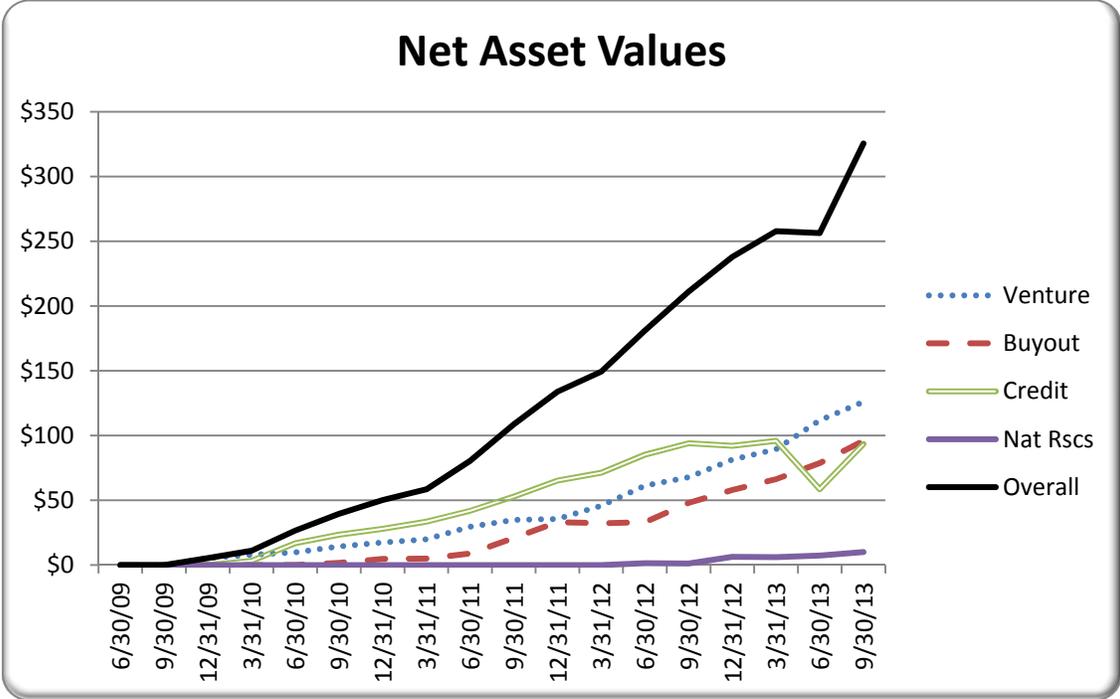
As of the end of the previous quarter, the portfolio continues to exhibit a favorable allocation among the major strategy areas. The following chart shows the allocations to the sub-asset classes based on current NAV and unfunded commitments through the end of September 2013.



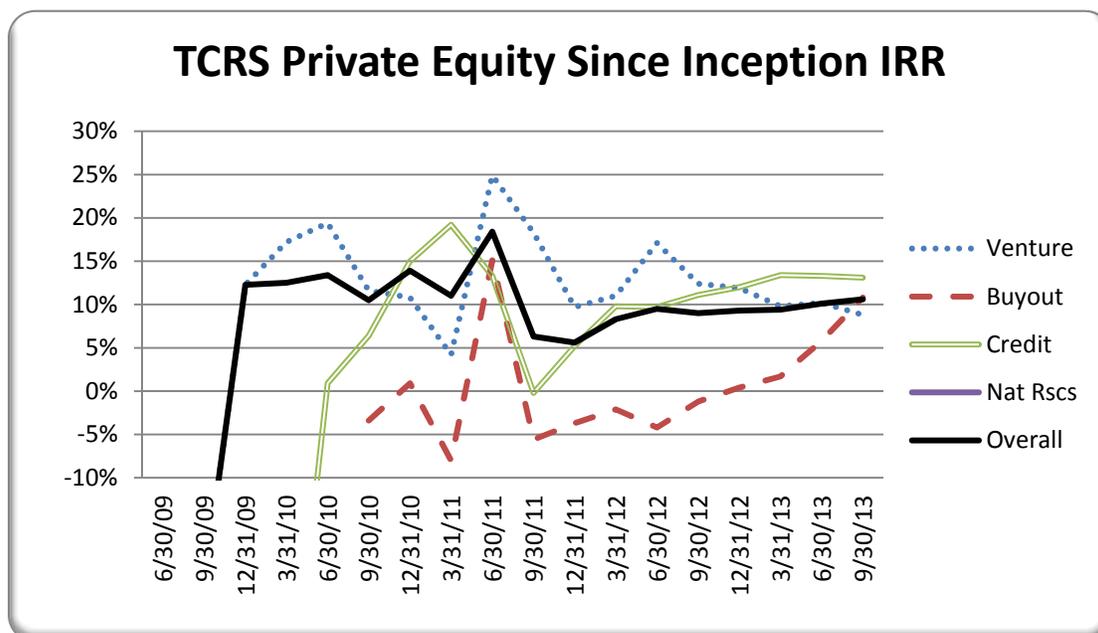
The next chart shows the overall size and growth of the TCRS portfolio in terms of commitments, unfunded commitments, and net asset value.



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 has steadied at around 10% in recent quarters.



### Recent Commitments

In December 2013, TCRS made the following commitments in the private equity portfolio:

Fund	Category	Commitment
General Catalyst VII	Venture	\$25,000,000
Drive Capital I	Venture	\$20,000,000
ASF VI	Secondaries/Buyout	\$75,000,000
Trident VI	Buyout	\$60,000,000

### Looking Ahead

In 2014, Staff expects to focus on assessing and improving portfolio planning and monitoring processes.

# 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>			900		<b>CBOT 10 T-NOTE 13 Dec</b>		
			3805		<b>CBOT T-BONDS 13 Dec</b>		
			4239		<b>CBOT ULTRABOND 13 Dec</b>		
<b>TRADE SUMMARY BY ACCOUNT</b>							
<b>5+ Gov't (1381)</b>							
	-	-	-		<b>CBOT 10 T-NOTE 13 Dec 0</b>		
	-	-	-		<b>CBOT 10 T-NOTE 13 Sep 0</b>		
	-	-	-		<b>CBOT 10 T-NOTE 14 Mar 0</b>		
	-	-	-		<b>CBOT 5YR TNOTE 13 Dec 0</b>		
	-	-	-		<b>CBOT 5YR TNOTE 14 Mar 0</b>		
	375	-	(375)		<b>CBOT T-BONDS 13 Dec 0</b>		
	-	-	-		<b>CBOT T-BONDS 13 Sep 0</b>		
	-	375	375		<b>CBOT T-BONDS 14 Mar 0</b>		
	1,000	-	(1,000)		<b>CBOT ULTRABOND 13 Dec 0</b>		
	-	1,000	1,000		<b>CBOT ULTRABOND 14 Mar 0</b>		
<b>1-5 Gov't (1368)</b>							
	1,500	1,000	(500)		<b>CBOT 10 T-NOTE 13 Dec 0</b>		
	-	-	-		<b>CBOT 10 T-NOTE 13 Sep 0</b>		
	-	1,500	1,500		<b>CBOT 10 T-NOTE 14 Mar 0</b>		
	1,560	1,560	-		<b>CBOT 5YR TNOTE 13 Dec 0</b>		
	1,560	250	(1,310)		<b>CBOT 5YR TNOTE 14 Mar 0</b>		
	3,130	-	(3,130)		<b>CBOT T-BONDS 13 Dec 0</b>		
	-	-	-		<b>CBOT T-BONDS 13 Sep 0</b>		
	300	3,130	2,830		<b>CBOT T-BONDS 14 Mar 0</b>		
	2,259	-	(2,259)		<b>CBOT ULTRABOND 13 Dec 0</b>		
	-	2,454	2,454		<b>CBOT ULTRABOND 14 Mar 0</b>		
<b>Overlay (1371)</b>							
	500	-	(500)		<b>CBOT 10 T-NOTE 13 Dec 0</b>		
	-	-	-		<b>CBOT 10 T-NOTE 13 Sep 0</b>		
	-	500	500		<b>CBOT 10 T-NOTE 14 Mar 0</b>		
	-	-	-		<b>CBOT 5YR TNOTE 13 Dec 0</b>		
	-	250	250		<b>CBOT 5YR TNOTE 14 Mar 0</b>		
	300	-	(300)		<b>CBOT T-BONDS 13 Dec 0</b>		
	-	-	-		<b>CBOT T-BONDS 13 Sep 0</b>		
	600	300	(300)		<b>CBOT T-BONDS 14 Mar 0</b>		
	680	-	(680)		<b>CBOT ULTRABOND 13 Dec 0</b>		
	-	1,070	1,070		<b>CBOT ULTRABOND 14 Mar 0</b>		
<b>Corporate (1365)</b>							
	100	200	100		<b>CBOT 10 T-NOTE 13 Dec 0</b>		
	-	-	-		<b>CBOT 10 T-NOTE 13 Sep 0</b>		
	400	200	(200)		<b>CBOT 10 T-NOTE 14 Mar 0</b>		
	-	-	-		<b>CBOT 5YR TNOTE 13 Dec 0</b>		
	-	-	-		<b>CBOT 5YR TNOTE 14 Mar 0</b>		
	-	-	-		<b>CBOT T-BONDS 13 Dec 0</b>		
	-	-	-		<b>CBOT T-BONDS 13 Sep 0</b>		
	-	-	-		<b>CBOT T-BONDS 14 Mar 0</b>		
	440	140	(300)		<b>CBOT ULTRABOND 13 Dec 0</b>		
	500	300	(200)		<b>CBOT ULTRABOND 14 Mar 0</b>		
<b>End</b>			1800		<b>CBOT 10 T-NOTE 14 Mar 0</b>		
			2905		<b>CBOT T-BONDS 14 Mar 0</b>		
			4324		<b>CBOT ULTRABOND 14 Mar 0</b>		
			-1060		<b>CBOT 5YR TNOTE 14 Mar 0</b>		

# 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 .
- Rolled Ten -Year, 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 Ultra-Long, Long Bond , Ten-Year Futures and Five-Year 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 Jesse Picunko, CFA

2014 2nd Quarter Activity

**NO ACTIVITY**

---

TCRS MORTGAGE PORTFOLIO

END OF QUARTER MORTGAGE TBA POSITIONS

Jesse Picunko, CFA

	PRICE	PAR	MARKET	SETTLE	FIRM
	(\$milion)	(\$million)	(\$million)		
15yr FNMA 3.0	102.03	50	51.02	JAN	WFC
15yr FNMA 3.5	104.53	50	52.27	JAN	CS
30yr FNMA 3.5	99.45	45	44.75	JAN	DCM
30yr FNMA 3.5	99.45	50	49.73	JAN	BAML
30yr FNMA 3.5	99.45	50	49.73	JAN	CS
30yr FNMA 3.5	99.45	10	9.95	JAN	NOM
30yr FNMA 4.5	106.08	20	21.22	JAN	BAML
30yr FNMA 4.5	106.08	30	31.82	JAN	C
30yr GNMA 4.0	104.03	20	20.81	JAN	BNP
30yr FNMA 4.0	103.06	30	30.92	JAN	C
15yr FNMA 2.5	99.00	-30	-29.70	JAN	C
Total		325	332		

By Firm	
	(\$million)
CS	101.99
BAML	70.94
WFC	51.02
DCM	44.75
C	33.04
BNP	20.81
NOM	9.95
	332.50

**Tennessee Consolidated Retirement System**  
Operations Update  
Fiscal Q2 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 December 31 more than doubled when compared to the previous quarter. There were 3,009 purchases totaling over 106 million shares with a market value of \$5.4 billion, and 3,693 sales totaling over 113 million shares with a market value of \$4.8 billion.

*Cash and Operations* – Earnings on the cash portion of the portfolio continues to hover near zero. In order to maintain the liquidity to have the greatest flexibility, the bulk of the cash is invested in overnight commercial paper. The level over the last quarter was typically 5 to 7 basis points. Fed fund futures indicate that rates will be less than 50 basis points until late 2015. BASEL III regulations regarding bank reserves are also adding pressure to short term rates as well as depressing demand for public deposits and municipal securities.

Finally, staff is preparing for the launch of the securities lending program.

