

**TUCSON SUPPLEMENTAL RETIREMENT SYSTEM
BOARD OF TRUSTEES
Notice of Regular Meeting / Agenda**

DATE: Thursday, August 27th, 2015
TIME: 8:30 a.m.
PLACE: Finance Department Conference Room, 5th floor
City Hall, 255 West Alameda
Tucson, Arizona 85701

A. Consent Agenda

1. Approval of July 30, 2015 TSRS Board Meeting Minutes
2. Retirement ratifications – August 2015
3. July 2015 TSRS expenses compared to budget

B. Investment Activity Report

1. Introduction to Art Cuaron
2. Champlain Investment Partners – Annual Manager Review – Judy O’Connell, Scott Brayman
3. Economic Update – Callan Associates
4. June 30, 2015 TSRS Performance Summary - Callan Associates - Paul Erlendson, Gordon Weightman
5. TSRS Portfolio composition, transactions and performance review for 07/31/15

C. Disability Retirement Application – Gina Callen*

D. Administrative Discussions

1. Discussion of treatment for non-trust related expenses

E. Articles for Board Member Education / Discussion

1. The Balance between Crude Oil Supply and Demand (Causeway Capital Management , August 14, 2015)
2. NIRS bites back on pensions report (Employee Benefit Adviser, August 20, 2015)

F. Call to Audience

G. Future Agenda Items

H. Adjournment

Please Note: Legal Action may be taken on any agenda item

* Pursuant to ARS 38-431.03(A)(3) and (4): the board may hold an executive session for the purposes of obtaining legal advice from an attorney or attorneys for the Board or to consider its position and instruct its attorney(s) in pending or contemplated litigation. The board may also hold an executive session pursuant to A.R.S. 38-431.03(A)(2) for purposes of discussion or consideration of records, information or testimony exempt by law from public inspection.

TUCSON SUPPLEMENTAL RETIREMENT SYSTEM BOARD OF TRUSTEES

Meeting minutes from Thursday, July 30, 2015

Members Present: Robert Fleming, Chairman
Kevin Larson, City Manager Appointee
Curry Hale, HR Director
Silvia Amparano, Director of Finance
Michael Coffey, Elected Representative
Jorge Hernández, Elected Representative
John O'Hare, Elected Retiree Representative

Staff Present: Dave Deibel, Deputy City Attorney
Silvia Navarro, Treasury Administrator
Michael Hermanson, Plan Administrator
Dawn Davis, Administrative Assistant

Guests Present: Catherine Langford, Yoder & Langford, P.C.
Leslie Thompson, Gabriel, Roeder, Smith & Company (via telephone)

Absent/Excused: None

A. Consent Agenda

1. Welcome Jorge Hernandez, new TSRS Board member

Item A1 was considered separately at the request of John O'Hare. The Board formally welcomed Jorge Hernández.

2. Approval of June 25, 2015 TSRS Board Meeting Minutes
3. Retirement ratifications - July 2015
4. June 2015 TSRS expenses compared to budget

A motion to approve Consent Agenda items A2 – A4 was made by Chairman Fleming and passed by a vote of 5 – 0 (Silvia Amparano absent, Chairman Fleming did not vote).

B. Administrative Discussions

1. Determination Letter Renewal / Discussion of Proposed TSRS Code Changes – Cassie Langford

Catherine Langford explained this item relates to taking this opportunity to make minor adjustments to the Plan document in conjunction with application to the IRS for a determination letter renewal. The determination letter application process requests the IRS to review the Plan document (Tucson City Code) and determine if it meets the standards necessary for a tax qualified plan. The application is language based only; the IRS will not audit to see if the Board is operating in compliance with any laws, it is only about documentation. TSRS is required to submit for a determination letter renewal by the end of January 2016. The IRS will soon be suspending this five year renewal program, so this will probably be the last time TSRS will have to submit a determination letter application, and from here we will be on our own for maintaining the Code to keep it in compliance with the tax laws. Currently, our determination letter means if the IRS audits the plan they cannot criticize the language in the Code because the Board has a determination letter proving that the IRS has

approved the language contained therein; in the future the Board will not have that protection. Ms. Langford said there are no compliance changes necessary, just administrative issues that can be fine-tuned or clarified to address issues the Board has encountered since the last Code revisions were completed in 2009:

Funding Policy - Chapter 22-30(h) (statutory authority for Rounding Policy) - the code currently requires the City to appropriate an employer contribution defined as the Annual Required Contribution (ARC); expressed in current terminology as the Actuarially Determined Contribution (ADC). The ARC is defined in the Code as the employer contribution from the City plus the member contributions. Over the last few years, as the Board has been making the funding and the rounding policies, they have been recommending to the Mayor and Council that the City contribute an amount in excess of the ARC because the rounding policy takes the dollar amount slightly above the ARC calculated by the actuary based on the straight actuarial requirements. This proposed change to the Code would incorporate the Board's funding policies into the Code and therefore what the City is required to appropriate, and give the Board statutory authority to have adjustments beyond what the actuary calculated.

Michael Coffey asked if the Board had a rounding policy in practice.

Michael Hermanson answered yes because the current funding policy incorporates a rounding approach that is applied (added) to the recommended employee and employer contribution rates.

Mr. Coffey clarified; the sole effect of this revision was to incorporate that rounding policy into the Code?

Ms. Langford answered yes because the rounding policy currently in place is designed to level out contribution fluctuations for both the City and the plan members, adding stability to the rates. If the Board adopts this change, the rounding policy becomes a part of the annual calculations just like the actuarial factors already take into account.

John O'Hare asked if a goal of the rounding policy was fully funding the plan within 16 years?

Mr. Hermanson answered full funding of the plan is projected to occur by 2028 or 2029, but that target can vary, depending on what the Plan's annual experiences are. The basic strategy behind rounding up contribution rates is to accelerate the funding by adding a slight amount to the contribution amounts paid into the plan, which in turn pays off the unfunded liabilities quicker.

Ms. Langford explained the funding policy language has stated intent to reach full funding but does not include hard wired requirements to reach those funding targets because things change annually. There is some flexibility for the Board because they control the funding policy, so as the funding policy changes over time this language incorporates those changes into the Code.

Mr. Hermanson said in essence the Board has transitioned from a funding policy based solely on the ARC to one that has an additive element of rounding up the rates.

Ms. Langford explained the last time they performed Code revisions all of the defined terms were tied to the actuarial valuation performed every year, and the ARC was divided between the City and member contributions; now there is another piece because the Board is using the funding policy. The funding policy is also where they capture the amortization period and open vs. closed. All of those factors have been used over time but they have not been incorporated directly into the Code through incorporation of the funding policy.

Kevin Larson said he thought of the ARC as an actuarial accounting calculation, which is defined by the first sentence of §22-30(h): "*Annual Required Contribution*' or '*ARC*' means the annual amount necessary to fund all employee segment normal cost amounts plus the amount necessary to satisfy the annual amortization requirements for the System's unfunded accrued liability, as determined by the system actuary in accordance with sound actuarial principles, and as set by the Board on a fiscal year basis." When the funding policy concept is included they are changing the definition so that the funding policy is a part of the ARC. Instead of

trying to add it or change the ARC definition would it be better to say the ARC may be modified or increased by the Board to meet certain funding objectives, making it additive to the ARC instead of a part of the ARC.

Ms. Langford said the first sentence is the definition, and the reason she was trying to incorporate the funding policy into the definition was because the term funding policy is tied to the appropriation requirement. It could be made clearer that the ARC is the ARC with an additive element but it would require more changes to the Code, which could ultimately be more confusing.

Silvia Amparano said when she explained the rounding policy to the Mayor and Council they liked that they were contributing more than was required, which has been a selling point for them to show they are supportive of the plan. She liked giving them that flexibility to decide what they want to do. The ARC has been the required minimum for a long time and changing that may have a negative effect on the opinion of Mayor and Council. She recognized that she was speaking from the point of view of the Finance Director as opposed to a Board Member, but she was not inclined to include the funding policy as a part of the required minimum because she did not want to have that kind of flexibility at the Board level instead of at the Mayor and Council level.

Ms. Langford stated that was a good point because this was definitely an instance in which the Board perspective would differ from the City's perspective.

Mr. Hermanson explained the Board wanted to maintain their fiduciary control over the funding of the plan. Mayor and Council do not have that control; they have control over other factors but not the funding policy.

Ms. Langford said the Board has decided to use the rounding policy for the last few years as a part of the funding policy. As it stands now the Mayor and Council can reject any recommendation including any additional dollar amount resulting from the funding policy. This revision gives statutory authority to the Board's funding policy. From the Board's perspective, believing in the funding policy and the goals of the rounding policy, the goal was to put as much authority behind the funding policy as possible. This Code revision may not be approved at the level of Mayor and Council so the question is whether the Board wants to advance it.

Leslie Thompson calculates the ARC, and the funding policy contribution which incorporates the rounding policy. The funding policy contribution provides the recommendation from the Board to Mayor and Council every year, so the Code must have language that allows the actuary to calculate the funding policy contribution. She expressed concern with the Code language because the annual amortization requirements are determined based on the funding policy, which represents sound actuarial principles. The funding policy is not superseded with anything she feels is more sound, she just follows the funding policy.

Ms. Langford answered the only new language is the bolded words in the revision draft. The language in question was already in the Code. The language predates the formal funding policy put in writing in December 2014. The Code says "in accordance with sound actuarial principles, and as set by the Board on a fiscal year basis." Because the GASB language is changing, the Board may want to revise the Code on a more wholesale level to use an Actuarially Determined Contribution definition so that the new language would fit the current actuarial process.

Ms. Thompson says the Code needs to be specific enough that she can produce the numbers the Board needs, while keeping it vague enough that the Board can change the funding policy as needed without having to perform another Code revision.

Ms. Langford said those were funding policy questions. If there was a consensus from the Board about adding the funding policy to the Code, she and Ms. Thompson could work together to determine a long standing and appropriate language.

Chairman Fleming confirmed the revisions provided were for informational purposes and that the Board would not be taking any formal action at this meeting.

Ms. Langford confirmed this was correct; the revisions presented were for the purpose of discussion at this meeting.

The Board gave the consensus that the policy should expressly require the City to contribute at a level set by the funding policy, which includes the rounding policy.

Final Leave Cash Outs - Tier 1 Members - §22-30(i) (clarification) Ms. Langford said the 2nd revision was included mainly for clarification. The definition of Average Final Monthly Compensation (AFMC) says for tier I members; leave cash outs may be included. The new language would mean that it will be included if it does not decrease the AFMC.

Mr. Coffey asked how it was possible for the leave cash out to decrease the AFMC.

Mr. Hermanson answered there has been a question when a member's current pay rate, as can be the case with demotions, is lower than the AFMC and this can dilute the average final monthly compensation.

Disability Benefits - Chapter 22-30(jj) (SSA determination as evidence; application timing changes) Ms. Langford explained the 3rd revision relates to disability benefits and was a compilation of suggestions based on some of the disability applications the Board has reviewed over the last few years and the difficulties that have arisen when the appropriate answer was not obvious. §22-30(jj) is the definition within the Code of a total and permanent disability. Historically the Code has used language to indicate a member is entitled to a disability pension if they were permanently disabled. In 2009, the rewrite included language that the disability was a condition expected to last for a continuous period of not less than 12 months. This language was not intended to set the bar at 12 months and 1 day, it was meant to show a long term condition. Some examples have shown it is not always clear what is going to happen if a member is going to be disabled for 2 or 3 years, but not permanently, and she thought it was appropriate to move the language back to a permanent standard. This was the first piece of the definition change; "to last for a continuous period of not less than 12 months" has been changed to "continue for a long and indefinite duration." If the medical reports indicate that the member will recover at a time certain in the future, that is probably not permanent. The second change is whether the Board wants to incorporate a Social Security Administration (SSA) determination as conclusive evidence of disability.

Chairman Fleming asked if the Board should use a standard of total and permanent disability rather than any medical long term and indefinite duration if relying on the SSA determination, because that definition has set a different bar for their disability.

Dave Deibel answered that it would be okay because the SSA determination has such a high bar.

Ms. Langford explained they did not want a member to wait for an SSA determination to apply for disability retirement because that determination can take years, but if they already have one when they are applying the Board might want to recognize it accepting that generally the SSA determination is harder to acquire.

There are also timing issues related to utilizing an SSA determination, which are addressed in the following paragraphs of the revision for **Qualification - §22-39(a)**:

Chairman Fleming said the revision stated the member had to apply for disability retirement within 12 months of separation from City employment and asked whether it said the member had to have become disabled while employed by the City.

Ms. Langford answered that in §22-39(a) there were two options available for this: (1) they could add language requiring the member to establish that they terminated employment with the City as a result of their disability, which is a high standard to prove, or (2) that their disability developed or was present while they were employed by the City. The old Code language, going back 10 to 15 years, said the disability had to be incurred

while employed. She believed the long term intent of the language was to require that a disability was present at the time of termination as opposed to developing post termination. In terms of qualifying for disability retirement, a time frame after termination should be added in which the member has to apply, and there has to be a connection between the disability, and physical or mental condition while the member was employed by the City.

Curry Hale expressed his support for Ms. Langford's suggestion and asked if the Board could require physical examinations of disability retirees to confirm they were still permanently disabled.

Ms. Langford answered they had the verification process in the Code were the Board could require future medical exams and stop benefits if the member is no longer disabled. If at the time someone is approved there is medical evidence they should recover the Board and staff should be following up. She asked if staff performed disability verification on a discretionary basis or every 5 years.

Mr. Hermanson explained that a disability audit is performed annual by sending out an affidavit for the members to complete and return, that continues until they meet normal retirement age 62, or have attained 80 points, at that point they are not subject to further audit. The affidavit used in the audit states the condition persists and that they are not receiving any earned income. If there is no earned income stated, it may be assumed the member is not working and remains disabled.

Chairman Fleming asked the Board which option they preferred of the 2 presented by Ms. Langford.

Ms. Langford explained option #1 set a higher standard for the member, and it would decrease the number of disability pensions approved which is a cost saving mechanism for the system. The Board needed to consider, in terms of reviewing and approving an application what would a member have to show to meet that standard.

Mr. Hermanson answered one example is they would look for evidence of leave time usage and leave without pay in the payroll record.

Mr. Hale stated the crux of it was whether they were unable to work due to a medical condition.

Mr. Coffey asked how they would assess the quality of the member's argument.

Ms. Langford answered the Board would have to review medical records from the time of termination.

Chairman Fleming stated this would be true for option #2 as well to prove the disability existed.

The Board's consensus was a preference for option #1.

Chairman Fleming asked if it was possible to tie the onset back to the SSA determination so that the Board would be permitted but not required to adopt the SSA determination of the date of onset.

Ms. Langford explained the date of onset was another question and it is addressed in **Application process - §22-39(b)** regarding when the disability benefit would commence. There may be an established date for when the disability occurred which could be different from the date when the pension benefits would begin, and they should focus on when the pension benefits would begin. If someone was disabled before their date of termination their disability benefit would not begin until the completed application for disability retirement was submitted.

Mr. Hermanson stated they did not want to provide a pension benefit to a member who was still being compensated as an employee.

Ms. Langford clarified the benefit would not begin until all leave balances have been exhausted. The question was whether the Board wanted to set a commencement date for a pension disability or leave that to a case by case basis.

Mr. Hale stated he would rather leave it on an individual case basis.

Mr. Larson stated if the Board concluded the member was disabled at the time they separated from City employment they could still start the benefits at a later date and he felt this opened the Board and the City up to litigation.

Ms. Langford said by requiring an application within 12 months they were lessening their exposure on that kind of case already. If they said the pension will commence, if approved, not later than the date of the application, it would give the Board the discretion to go back to the date of termination if appropriate.

Paid Military Leave - Member Contributions - Chapter 22-34(e) (compliance change) – this revision refers to paid military leave for active members called up to serve their country. The IRS requires the plan to address compensation to an individual who is on military leave. So if a member receives payment from the City at the beginning or end of a military leave the Code must address how the City handles that compensation as well as collecting TSRS contributions. The goal is to clarify that if the City is paying any type of compensation to an employee on military leave, member contributions will be taken from that compensation.

Mr. Coffey asked if the City already did this.

Mr. Hermanson answered yes, when a member goes out on military leave and their orders are completed, the member is offered an opportunity to purchase service credits for the period of time they were gone and did not earn service credits, at the same rate they would have paid if they were here. If the member purchases the period of service they were on orders, the City contributes their portion to provide funding for that period.

Mr. Coffey asked if that was standard in other plans as well.

Ms. Langford answered yes, and the language addressed in these changes relates to a small portion of a member's military leave because City compensation will not be provided over the duration of that leave in the majority of cases, this applies to member contributions from any City compensation that overlaps with the military leave.

The next change **Government and Military Service Purchases - §22-36(e)** (expand purchase eligibility) relates to military leave and the purchase of service credits. There is a service purchase provision that has always required the member to be contributing at the time they purchase service credits. There was an instance in which a member was on military leave, and not contributing to the TSRS plan, wanted to purchase service credits and retire. The existing language says the City should be allowing prior military and government service credit purchases as liberally as possible. The change will eliminate the contributing member requirement and allow a member who has not yet requested a refund or retirement to buy service credits. This would allow someone to purchase service credits for military leave that has not yet been completed, or as a deferred vested member who is no longer a City employee contributing to the system.

Mr. Hermanson explained there were 2 ways TSRS sells service for members of the military. In the first method already discussed, an employee completes their military orders, and the employee pays into the plan the amount of contributions missed, based on their pay rate, the period of orders and the contribution rate; the City pays the complementary employer rate for that period. The second method allows an employee to purchase service credits for prior military service that took place prior to City employment. The qualifications for purchasing this type of service require there can be no duplicated benefits derived from the military service, and the member pays the full cost, determined actuarially. In that case, the City does not contribute to the purchase of service credits for prior government service.

Ms. Langford advised that the language could be revised so that employees on military leave who would not return to City employment would pay the full actuarially determined cost.

Mr. Hermanson stated he would like to talk to Ms. Thompson about that idea before taking action on it.

Ms. Langford said the next revision was to **Commencement of Pension to Deferred Vested Members §22-37(d)** - (compliance change), addressing an IRS compliance issue for commencement of pension to deferred vested members. When a vested member with deferred status is notified that they have become eligible to receive their benefits, occasionally they do not take any action to receive those benefits. The Code has always had a rule that if a member does not commence their pension benefits they will not receive any retroactive adjustments to account for the delay. The requirement is that if someone waits past the normal retirement age before beginning to receive their benefits, retroactive payments are not necessary but there should be an actuarial adjustment to the amount of the monthly benefit, to account for the period during which they did not receive their payments once they were eligible. This would not result in a retroactive payment back to their retirement date because it would be an adjustment to the amount of their monthly benefit.

Chairman Fleming asked if this was required by the IRS.

Ms. Langford answered yes; it is seen in private sector plans. The IRS has looked at it on a few governmental plans and has said that even under pre-ERISA rules dating back to the early 1970's a governmental plan should be doing this as well. This was the perfect time to add it to the Code.

The next revision was to **Non-Spouse Beneficiary on Joint and Survivor Election - §22-42(c)** (compliance change). The Code currently has a rule that says benefit payments will be calculated under U.S. Code §401(a)(9), which is the section that governs how much can be paid out over a member's lifetime and the lifetime of their beneficiary. This code section also requires retirement benefits have to start by the time the retiree is 70.5 years old. The revision addresses a joint survivor election where the member has designated a beneficiary other than a spouse and there is a significant age difference between the member and the non-spouse beneficiary because there is a limit to how much can be paid to that beneficiary.

The next revision was to **Rehire of Retirees - §22-37(g)** (Codification of Practice) relating to the rehire of retirees. From the Board's perspective this is a pension suspension issue; the question for the system is whether a rehired retiree should continue to receive a pension benefit during their period of re-employment. The Code currently provides relief from suspension of pension benefits if a member has been separated from service for at least 12 months and they are rehired into a non-permanent classification. There have been a few situations where those criteria have been met, but then the rehired retiree has worked in 2 or more non-permanent classifications in a row. Generally a non-permanent classification lasts for 12 months with a 6 month extension.

Mr. Hale confirmed this was correct and stated the employees did not receive healthcare benefits.

Mr. Deibel explained he and Ms. Langford had worked together to determine whether the non-permanent job a retiree was taking, was different from the job they had retired from. There were also situations in which the retiree wanted to remain in another non-permanent position, so a legal determination had to be made as to whether or not the successive jobs were distinct from each other or whether it was a subterfuge to avoid the benefit suspension rules.

Mr. O'Hare asked if this would affect the pension fund in any way regardless of what the Board decided.

Mr. Hermanson said the actuary could argue that a position was being filled by a non-contributing member, which is not good funding policy for the plan.

Ms. Langford explained the legal issue was that they could not pay a pension to a member without a bona fide termination, which is why the original Code §22-37(g) was written. If a member retired and returned to work

after less than 12 months, or if they returned to a permanent position at any time they are no longer retired which is the legal compliance issue that could affect the entire system if it were a regular practice for retired employees to come back while still receiving a pension. On the actuarial side, they want to limit the rehire of retirees so that City positions are filled with contributing members. The Board may want to be more descriptive, given the situations faced since the last revisions, regarding when the suspension of pension benefits would start. The current revision addresses the situation Mr. Deibel described previously when a retiree works several successive non-permanent jobs.

Mr. Coffey asked if they could include a maximum number of months a retiree can work before their pension benefits are suspended.

Ms. Langford answered yes that could be done.

Chairman Fleming asked if the Board could create a rule stating any retiree returning to any City position, no matter how long they had been gone, would no longer be retired and their benefits get suspended.

Ms. Langford answered they could and recommended using the traditional union rule; if a retiree comes back to work they are no longer retired, their pension is suspended, and they begin contributing to the system again.

Chairman Fleming said presumably the new pension when they retire again will be increased.

Ms. Langford answered that was a complicating factor but it would be manageable.

Mr. Hale and Mr. Coffey expressed their support for this idea.

Mr. Deibel warned that the City Manager's office and the Mayor and Council may react adversely in proportion to the restrictiveness of the revisions. The presented revision is the standard Ms. Langford and the City Attorney's office were currently using. If the Board wanted to completely change the system it should be discussed as a separate item because it could place the other revisions in jeopardy.

Mr. Larson asked if a non-permanent employee was considered an employee from an IRS standpoint receiving a W2, or were they considered consultants receiving a 1099. He expressed support for becoming stricter on the regulations regarding rehiring retirees.

Chairman Fleming stated the Board had expressed collective support for a rehired employee only being allowed to work for up to 18 months before they are no longer considered to be retired.

Ms. Langford answered she would add that to the Code revisions.

Mr. Coffey expressed concern over the use of the term "subterfuge" in the Code language.

Ms. Langford said he was not the first person to express this concern and it would be changed. The next revision was to **Post Retirement Marital Changes - §22-42(a)** (Divorce/Remarriage Have No Impact on Elections), regarding post retirement marital changes. The Code has issues in 2 different areas, first, when a member retires, they have elected a benefit type that is irrevocable; then there is a post retirement divorce and remarriage. The language in the Code has always said on the member benefit side, once is selected and ratified by the Board, the pension starts and the benefit selected is irrevocable; so the ex-spouse cannot be dropped from the pension if they were originally named as a survivor beneficiary. The revisions strengthen that language or irrevocability. The second paragraph deals with the Domestic Relations Order (QDRO) applied before the member retires and they make elections stipulated in the QDRO which then become irrevocable. The revisions say if there is a change in marriage status after the QDRO is accepted, TSRS benefits are irrevocable because on an actuarial basis there must be certainty regarding who will be receiving benefits.

Ms. Amparano asked if the Board should require marriage over a domestic partnership now that same sex marriage is legally recognized in Arizona.

Mr. Hale answered the Human Resources (HR) department is working on making changes in the insurance benefits area that require marriage so that a spouse would be able to receive benefits but a domestic partner could not.

Ms. Langford explained the Board should wait until the changes have been made in HR before the Board considers taking any action.

Mr. Coffey clarified that it was an actuarial issue concerning the age of the former spouse vs. the age of the new spouse.

Ms. Langford answered yes because if a member retired with a spouse that was their age, then got divorced and married a new spouse who was 20 years younger, it would have a significant impact the present value of the benefit, so the revision states the original spouse elected at the time the member retired is who will be paid.

Ms. Langford explained in the Code there is a list of Board member authorities and duties under §22-45(i); she has added the authority to hear and resolve claims. This would be similar to what the Board does when hearing disability applications but it was not written into the Code. It is a responsibility that almost all fiduciary bodies over a retirement plan have.

Mr. Larson asked who handled this responsibility previously.

Mr. Hermanson answered this was just a formalization of current Board responsibilities.

Ms. Langford asked if the Board was still interested in looking into making the System Administrator a Board appointed position as opposed to a finance department employee.

Mr. Hermanson indicated he was leaving the room so the Board could speak freely.

Ms. Langford explained the idea was to make TSRS separate from City oversight. Mr. Hermanson's office would be responsible for reporting to the Board instead of the finance department.

Mr. O'Hare stated there was real value in this idea from a fiduciary standpoint because more value is given to the opinion of the entity responsible for the employee's evaluation, but all of the administrative type tasks, like payroll, could still be handled by the finance department.

Mr. Deibel contrasted that approach with the PSPRS structure, which is required by Arizona State law, and advised the Board to discuss this issue with the City employment lawyers because he was not sure that the Board could just hire someone outside of civil service and provide City benefits and compensation. The PSPRS administrator position was required to be separate by state law; however he is still a City employee that does not fall under the oversight of any City department.

Mr. Hale said based on his experience as a PSPRS Board member he would not advise the TSRS Board adopt a similar structure. It is inefficient with duplication of efforts, and he also believed City oversight is needed over many of the functions.

Mr. Deibel counseled the Board to seriously consider the implications of this action.

Chairman Fleming said the Board may want to look at the PSPRS model and continue the discussion because it would be nice to have more control over the salary, hiring, and firing of the plan administrator, but implementing the PSPRS model for TSRS could be a terrible mistake.

Mr. Deibel explained there were no City Board's with control over hiring, firing, and compensation; the Civil Service system was put in place as required by the City Charter, so it was not as simple as just deciding to make the Plan Administrator an appointed position.

Mr. Hale stated that the PSPRS Board's control over the hiring, firing, and compensation for the plan administrator has created several problems in the past.

Mr. O'Hare said he never suggested the TSRS Board adopt the model of the PSPRS Board. The TSRS Plan Administrator used to be appointed by the TSRS Board.

Chairman Fleming stated this was an issue the Board should continue to discuss at the retreat.

Ms. Langford said for the purpose of that discussion there are other models, besides PSPRS, where the administrator is an appointed position outside of civil service the Board could review.

Mr. O'Hare said no part of this discussion should be taken as a reflection of the performance of Mr. Hermanson because he had been extremely responsive to the Board's requests.

Mr. Hale brought Mr. Hermanson back into the meeting.

Ms. Langford asked if the Board would like to increase Board membership as the plan grows.

Chairman Fleming stated the Board had discussed it and decided they did not want to pursue that course of action.

2. Discussion of Open and Closed Amortization, comparison to TSRS Funding / Amortization Policy
(Gabriel, Roeder, Smith & Company – July 14, 2015)

Michael Hermanson said this subject came up when the Independent Audit Performance Commission (IAPC) reviewed actions taken by the TSRS Board in responding to the 2012 ballot initiative called the "Sustainable Retirement Benefits Act". Staff responses to the IAPC report called Review of TSRS Pension Alternative indicated the commission might want additional information to help them understand how open and closed amortization approaches used for payment of unfunded liabilities provide different results. This report contrasts those two approaches with the TSRS funding policy, which is a hybrid method that provides results that are closer to a closed amortization approach than what is achieved through open amortization.

Leslie Thompson explained the reason the unfunded liability is always looked at is because the accrued liability is the value of the benefits that have been earned to date. Ideally the assets would be equal to the accrued liability, but they are not and as a result, there is unfunded liability. The unfunded liability looks, to many people, like the value of what the plan should have but does not. The method to pay that off is the amortization payment and there are a variety of methods allowed.

Closed amortization refers to the number of years needed to pay off the unfunded liability. The actuary will calculate a payment such that the unfunded liability will be paid off in 20 years, and the following year they calculate a payment such that it will be paid off in 19 years, until the unfunded liability equals \$0. Closed amortization methods always lead to \$0 in unfunded liabilities; to get there the plan has to make the cash amortization payments calculated.

By contrast in the open method; the actuary will calculate a payment such that the unfunded liability will be paid off in 20 years, the following year they will calculate a payment such that the unfunded liability will be paid off in another 20 years so the unfunded liability never reaches \$0. The open method is not allowed in the private sector because the private sector entities can close shop and terminate pension plans at any time. In the public sector the entities exist in perpetuity, so the open method is allowed because they will not terminate their pension plans. The other reason the open method is allowed is because when the GASB Statement Nos.

25 and 27 came into effect, the Government Accounting Standards Board (GASB) tested to see if there was a difference in the funding levels between open and closed plans, they found no differentiating distinctions.

The current City funding policy utilizes a rounding policy that has a closed amortization effect, because of its projected negative unfunded liability by the year 2029; even though, technically, the Board has an open amortization method stated in its funding method. As such, TSRS has the budgeting advantage and the actuarial flexibility of an open amortization, but achieves the impact associated with a closed amortization method. Some of the IAPC members did not understand the difference between open and closed plans and became concerned about open amortization as a code for perpetual debt, so they never got around to discussing how the funding policy layers on top of the open amortization method, which solves the problem and, moves the plan to closed amortization in effect.

Michael Coffey asked if, of the 347 surveys conducted on public pension plans, TSRS was absolutely unique in its design.

Ms. Thompson said they were not absolutely unique, but TSRS was unique because although other entities may have a rounding policy, the TSRS funding policy states it will keep the contribution rate stable at 27.5% until the plan is fully funded, which is a nice blend of keeping the rates stable and taking care of the plan.

Chairman Fleming asked if going forward they would see charts showing the difference between the Board's intent and what actually happened based on valuation variations.

Ms. Thompson answered yes, there is a projected funding chart in every valuation, and there would be fluctuations.

John O'Hare asked for clarification on the GASB test showing no significant differentiation between open and closed plans.

Ms. Thompson explained in the comments from the GASB Statement No. 25 or 27, a committee member talks about that survey and discovering there is really no difference in the funded ratio between the open and closed plans in the public sector over a long period of time, given the impact of public sector plans in the past did a lot to meet a statutory rate to stay funded so the funded ratios did not change that much whether the plan used open or closed methods. In today's environment, plans that use open amortization and level percent of pay funding methods make the lowest possible amortization payment and that approach pushes a lot of unfunded liability into the future.

3. Discussion of Topics and possible guest attendees for the October 30th TSRS Board Retreat (Copy of October 2014 Agenda attached)

Michael Hermanson asked the Board to consider what they would like to hear about at this year's Board retreat.

Michael Coffey requested some education and discussion on disability applications and definitions.

Chairman Fleming asked for statistics regarding disability pensions in TSRS.

Mr. Hermanson said there are approximately 156 members receiving retirement benefits from a disability application approved. All of these except for about 70 have not reached age 62 as the normal retirement age, which is when they are no longer audited annually. The average benefit paid to disabled retirees is only \$1,000 a month because these retirees have experience a shorter periods of service, averaging only 11 or 12 years. Mike said he would provide more specific information at the retreat on this topic.

Mr. Coffey would like educational materials in order to be able to treat applicants more fairly, and expressed concern over recent Board decisions given the applicants had not necessarily completed all the steps in the City's process before submitting their application for disability retirement.

Curry Hale said members of the medical leave management team could give the Board a presentation on the benefits offered by the City outside of disability retirement.

John O'Hare and Kevin Larson stated they would like to discuss various models regarding a Board appointed plan administrator.

Chairman Fleming and Mr. Hale expressed interest in discussing the rehire of retirees and the process involved in changing the current policy.

Mr. Hermanson advised he needed to receive any requests for guest speakers by the end of August so that they might have time to plan an invitation.

Chairman Fleming and Mr. Larson expressed interest in having fewer investment managers speak at the retreat.

Catherine Langford advised that the Board did not need to meet with each manager every year anymore given Callan's (investment consultant) capacity to evaluate these managers as frequently as necessary.

Mr. O'Hare stated he felt the Board needed to see the managers at least once a year for education purposes.

Chairman Fleming expressed interest in placing the discussion of how many times the Board should meet with the managers on the retreat agenda.

Mr. O'Hare said it would be good to discuss indexing parts of the fund at the retreat.

C. Investment Activity Report

1. Update on Transition Manager Activity

Silvia Navarro said the outside counsel has reviewed the proposed contracts and provided revisions, which staff sent to the transition managers for their review and acceptance. Staff has heard back from one of the managers thus far. Once those agreements have been accepted, staff will request a pre-trade analysis to be reviewed by staff and Callan will assist selecting a transition manager to complete the transition in a few weeks.

2. TSRS Portfolio composition, transactions and performance review for 06/30/15

Silvia Navarro reported as of 6/30/15 the total portfolio value was \$735.5M, as of 7/29/15, it was \$736.9M.

Calendar YTD returns – For the month of June, the Total Fund returned -1.08% vs. the Custom Plan Index at -1.44%; Total Fixed returned -1.52% vs. the Barclays Aggregate at -1.09%; Total Equities returned -1.66% vs. Equity Composite at -1.92%; Total Real Estate returned 2.45%; Total Infrastructure returned 2.66% vs. the CPI +4% at 0.68%. Through 6/30/15, the calendar YTD return for the Total Fund was 2.88% vs. 2.05% for the Custom Plan Index.

Fiscal YTD returns – As of 6/30/15 the Total Fund returned 4.23% vs. the Custom Plan Index at 4.07%; Total Fixed returned 0.67% vs. the Barclays Aggregate at 1.85%; Total Equities returned 5.24% vs. the Equity Composite at 4.26%; Total Real Estate returned 12.74% vs. NCREIF at 10.22% (as of 3/31/15); and Total Infrastructure returned -3.42% vs. the CPI +4% at 4.14%.

Trailing One Year Returns – As of 6/30/15 the Total Fund returned 4.23% vs. the Custom Plan Index at 4.07%; Total Fixed returned 0.67% vs. Barclays Aggregate at 1.85%; Total Equities returned 5.24% vs. the Equity Composite at 4.26%; Total Real Estate returned 12.74% vs. the NCREIF at 10.22% (as of 3/31/15); and Total Infrastructure returned -3.42% vs. the CPI +4% at 4.14%.

\$4M was transferred into the pension fund to pay for retiree benefits. To meet liquidity and rebalance the portfolio \$2M was transferred from T. Rowe Price, \$1M from BlackRock, and \$1M from the cash account.

D. Articles for Board Member Education / Discussion

1. Still a Better Bang for the Buck (National Institute on Retirement Security, December 2014)

Michael Hermanson advised the Board this report, written by the National Institute on Retirement Security was a sequel / follow up to a report previously issued entitled A Better Bang for the Buck. Both reports compare the cost advantages between defined benefit and defined contribution plans and this report explains three specific areas that provide cost advantages that a defined benefit (pension) plan has over defined contribution plan (401(k) plans).

John O'Hare asked for a PDF copy for distribution to the Mayor and Council.

2. Does the Social Security "Statement" Add Value? (Center for Retirement Research at Boston College, July 2015)
3. Trust Fund Reserve Gains One Year for Projected Depletion Date (Social Security Matters, July 23, 2015)
4. Transition Management – Beyond the Basics (Callan Investments Institute July 2013)

E. Call to Audience – None heard.

F. Future Agenda Items

Adjournment – 10:30 AM

Approved:

Robert Fleming
Chairman of the Board

Date

Michael Hermanson
Plan Administrator

Date

Service & Disability Retirements, End of Service Entrants for TSRS Board of Trustees Ratification											
7/10/15 - 8/09/15 - August 2015											
Name of Applicant	Department	Type	Effective Date	Date of Birth	Age	Credited Service	Present Value	Member's Accumulated	AFC	Option	Pension
Bentkowski, Allan T	Finance	Normal	7/25/2015	2/17/1958	57.44	29.5	521,077.82	322,299.57	5,726.40	Single	3,800.78
Cutting, Olga P	Housing & Comm Develop.	Normal	8/7/2015	9/1/1959	55.93	24.7319	307,894.41	91,477.35	3,858.17	Single	2,147.03
Forrester, Richard	Transportation	Deferred	8/4/2015	8/4/1953	62.00	11.2583	75,156.72	80,677.97	2,338.88	Single	592.47
Gibbs, Donna S	Police	Normal	8/6/2015	7/10/1952	63.07	15.6912	142,616.21	39,633.07	3,101.74	Single	1,095.08
Hodshon, Peter Y	Transportation	Normal	7/11/2015	11/22/1953	61.64	37.5948	290,090.43	229,658.35	2,703.47	J&S 50%	2,127.68
Reyna, Rosa	Police	Normal	8/6/2015	5/14/1962	53.23	27.4056	382,722.58	117,363.68	4,198.20	J&S 50%	2,504.92
Roddewig, Joyce	City Clerk	Normal	8/8/2015	5/8/1950	65.25	14.8993	127,181.37	36,543.50	3,016.07	Single	1,011.09
Robinson, James E	Transportation	Normal	8/8/2015	8/25/1950	64.95	26.557	297,141.67	111,919.89	4,151.69	J&S 100%	2,186.80
Schreffler, Dennis N	City Courts	Normal	7/11/2015	8/29/1949	65.87	6.0002	34,241.21	17,310.37	2,162.96	Single	292.01
Vimislik, Henry J	Environmental Svcs	Normal	8/8/2015	7/20/1934	81.05	22.0355	150,365.03	81,954.81	4,258.90	J&S 100%	1,566.50
									35,516.48		17,324.36
Averages					63.04	21.57	232,848.75	112,883.86	3,551.65		1,732.44

Comparison of Monthly Pension Payments - Beginning of FY 2015 to Current Monthly Pension Payments

	Plan Year beginning	Monthly	Annual	(July 2015) Pension Payroll		Annualized	Annual change since July 1, 2014	% change
	07/01/2014 (*from GRS annual valuation)							
Service Pensions	2,264	4,860,656	58,327,872	2,316	5,030,582	60,366,989	2,039,117	3.50%
Disability Pensions	156	169,123	2,029,477	157	171,957	2,063,483	34,006	1.68%
Survivor Pensions	344	326,541	3,918,488	329	319,542	3,834,501	(83,987)	-2.14%
	2,764	5,356,320	64,275,837	2,802	5,522,081	66,264,972	1,989,135	3.09%
				4	\$ 10,500			
				(net) change from previous month				

Report ID : FIN-COT-BA-0001

Run Date : 08/20/2015

Run Time : 11:24 AM

City of Tucson
Budget vs Actual Expenses
Through: July, 2016
For Fiscal Year 2016

Item A3

Parameter Page

Parameters and Prompts

Fiscal Year	2016
Accounting Period	1
Fund	072
Department	900
Unit	*
Object Code	*

Report Description

The Expenses vs. Actual Report shows expenditures and encumbrances for the selected accounting period and for the selected fiscal year compared against the current expense budget and the unobligated budget balance. The report is sectioned by Department, Fund and Unit and summarized by Object.

City of Tucson
Budget vs Actual Expenses
Through: July, 2016
For Fiscal Year 2016

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9001 - Normal Retiree Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	5,027,094.74	5,027,094.74	0.00	5,027,094.74	5,027,094.74	63,300,000	58,272,905.26	92.06 %
Total for 100 - PAYROLL CHGS	0.00	5,027,094.74	5,027,094.74	0.00	5,027,094.74	5,027,094.74	63,300,000	58,272,905.26	92.06 %
Total for Unit 9001 - Normal Retiree Benefit	0.00	5,027,094.74	5,027,094.74	0.00	5,027,094.74	5,027,094.74	63,300,000	58,272,905.26	92.06 %

Run Date : 08/20/2015

Run Time : 11:24 AM

City of Tucson
Budget vs Actual Expenses
Through: July, 2016
For Fiscal Year 2016

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9003 - Normal Retiree Beneficiary Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	288,869.30	288,869.30	0.00	288,869.30	288,869.30	3,100,000	2,811,130.70	90.68 %
Total for 100 - PAYROLL CHGS	0.00	288,869.30	288,869.30	0.00	288,869.30	288,869.30	3,100,000	2,811,130.70	90.68 %
Total for Unit 9003 - Normal Retiree Beneficiary Benefi	0.00	288,869.30	288,869.30	0.00	288,869.30	288,869.30	3,100,000	2,811,130.70	90.68 %

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City of Tucson
Budget vs Actual Expenses
Through: July, 2016
For Fiscal Year 2016

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9020 - Disability Retiree Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	171,956.91	171,956.91	0.00	171,956.91	171,956.91	1,975,000	1,803,043.09	91.29 %
Total for 100 - PAYROLL CHGS	0.00	171,956.91	171,956.91	0.00	171,956.91	171,956.91	1,975,000	1,803,043.09	91.29 %
Total for Unit 9020 - Disability Retiree Benefit	0.00	171,956.91	171,956.91	0.00	171,956.91	171,956.91	1,975,000	1,803,043.09	91.29 %

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City of Tucson
Budget vs Actual Expenses
Through: July, 2016
For Fiscal Year 2016

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9021 - Pension Fund Administration

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
101 - SALARIES & WAGES FOR PERMANENT EMPLOYEES	0.00	15,822.74	15,822.74	0.00	15,822.74	15,822.74	211,940	196,117.26	92.53 %
108 - DOWNTOWN ALLOWANCE & DISCOUNTED TRANSIT PASSES	0.00	82.44	82.44	0.00	82.44	82.44	1,160	1,077.56	92.89 %
113 - SUPPLEMENTAL PENSION CONTRIBUTION	0.00	4,351.25	4,351.25	0.00	4,351.25	4,351.25	58,280	53,928.75	92.53 %
114 - FICA (SOCIAL SECURITY)	0.00	1,186.55	1,186.55	0.00	1,186.55	1,186.55	15,410	14,223.45	92.30 %
115 - WORKERS COMPENSATION INSURANCE	0.00	134.48	134.48	0.00	134.48	134.48	5,930	5,795.52	97.73 %
116 - GROUP PLAN INSURANCE	0.00	2,665.14	2,665.14	0.00	2,665.14	2,665.14	30,920	28,254.86	91.38 %
117 - STATE UNEMPLOYMENT	0.00	15.48	15.48	0.00	15.48	15.48	300	284.52	94.84 %
196 - INTERDEPARTMENTAL LABOR	0.00	9,016.66	9,016.66	0.00	9,016.66	9,016.66	220,800	211,783.34	95.92 %
Total for 100 - PAYROLL CHGS	0.00	33,274.74	33,274.74	0.00	33,274.74	33,274.74	544,740	511,465.26	93.89 %
202 - TRAVEL	0.00	0.00	0.00	0.00	0.00	0.00	4,000	4,000.00	100.00 %
204 - TRAINING	0.00	165.00	165.00	0.00	165.00	165.00	14,000	13,835.00	98.82 %
205 - PARKING & SHUTTLE SERVICE	0.00	0.00	0.00	0.00	0.00	0.00	200	200.00	100.00 %
212 - CONSULTANTS AND SURVEYS	0.00	2,738.00	2,738.00	0.00	2,738.00	2,738.00	65,000	62,262.00	95.79 %
213 - LEGAL	0.00	0.00	0.00	0.00	0.00	0.00	50,000	50,000.00	100.00 %
219 - MISCELLANEOUS PROFESSIONAL SERVICES	0.00	0.00	0.00	0.00	0.00	0.00	4,059,500	4,059,500.00	100.00 %
221 - INSUR-PUBLIC LIABILITY	0.00	104.67	104.67	0.00	104.67	104.67	29,160	29,055.33	99.64 %
228 - HAZARDOUS WASTE INSURANCE	0.00	16.30	16.30	0.00	16.30	16.30	560	543.70	97.09 %
232 - R&M MACHINERY & EQUIPMENT	0.00	0.00	0.00	0.00	0.00	0.00	1,200	1,200.00	100.00 %

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City of Tucson
Budget vs Actual Expenses
Through: July, 2016
For Fiscal Year 2016

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9021 - Pension Fund Administration

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
245 - TELEPHONE	0.00	420.00	420.00	0.00	420.00	420.00	1,200	780.00	65.00 %
252 - RENTS EQUIPMENT	0.00	89.84	89.84	0.00	89.84	89.84	0	(89.84)	0.00%
260 - COMPUTER SOFTWARE MAINTENANCE AGREEMENTS	0.00	0.00	0.00	0.00	0.00	0.00	41,000	41,000.00	100.00 %
263 - PUBLIC RELATIONS	0.00	0.00	0.00	0.00	0.00	0.00	2,560	2,560.00	100.00 %
284 - MEMBERSHIPS AND SUBSCRIPTIONS	0.00	245.00	245.00	0.00	245.00	245.00	1,500	1,255.00	83.67 %
Total for 200 - PROF CHARGES	0.00	3,778.81	3,778.81	0.00	3,778.81	3,778.81	4,269,880	4,266,101.19	99.91 %
311 - OFFICE SUPPLIES	0.00	131.19	131.19	0.00	131.19	131.19	7,500	7,368.81	98.25 %
312 - PRINTING, PHOTOGRAPHY, REPRODUCTION	0.00	1,396.69	1,396.69	0.00	1,396.69	1,396.69	7,500	6,103.31	81.38 %
314 - POSTAGE	0.00	0.00	0.00	0.00	0.00	0.00	10,000	10,000.00	100.00 %
341 - BOOK, PERIODICALS AND RECORDS	0.00	0.00	0.00	0.00	0.00	0.00	250	250.00	100.00 %
345 - FURNISHINGS, EQUIPMENT AND TOOLS < \$5,000	0.00	0.00	0.00	0.00	0.00	0.00	1,000	1,000.00	100.00 %
346 - COMPUTER EQUIPMENT < \$5,000	0.00	0.00	0.00	0.00	0.00	0.00	1,000	1,000.00	100.00 %
Total for 300 - SUPPLIES	0.00	1,527.88	1,527.88	0.00	1,527.88	1,527.88	27,250	25,722.12	94.39 %
Total for Unit 9021 - Pension Fund Administration	0.00	38,581.43	38,581.43	0.00	38,581.43	38,581.43	4,841,870	4,803,288.57	99.20 %

City of Tucson
Budget vs Actual Expenses
Through: July, 2016
For Fiscal Year 2016

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9022 - Disability Retiree Beneficiary Benefit

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
105 - PAYROLL PENSION	0.00	31,071.20	31,071.20	0.00	31,071.20	31,071.20	350,000	318,928.80	91.12 %
Total for 100 - PAYROLL CHGS	0.00	31,071.20	31,071.20	0.00	31,071.20	31,071.20	350,000	318,928.80	91.12 %
Total for Unit 9022 - Disability Retiree Beneficiary Ben	0.00	31,071.20	31,071.20	0.00	31,071.20	31,071.20	350,000	318,928.80	91.12 %

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City of Tucson
Budget vs Actual Expenses
Through: July, 2016
For Fiscal Year 2016

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9023 - ACTIVE MEMBER REFUNDS-CONTRBS

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	216,740.94	216,740.94	0.00	216,740.94	216,740.94	2,400,000	2,183,259.06	90.97 %
Total for 100 - PAYROLL CHGS	0.00	216,740.94	216,740.94	0.00	216,740.94	216,740.94	2,400,000	2,183,259.06	90.97 %
Total for Unit 9023 - ACTIVE MEMBER REFUNDS-CON	0.00	216,740.94	216,740.94	0.00	216,740.94	216,740.94	2,400,000	2,183,259.06	90.97 %

City of Tucson
Budget vs Actual Expenses
Through: July, 2016
For Fiscal Year 2016

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM
Fund 072 - TUCSON SUPP RETIREMENT SYSTEM
Unit 9025 - INTEREST ON REFUNDS

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	4,425.07	4,425.07	0.00	4,425.07	4,425.07	50,000	45,574.93	91.15 %
Total for 100 - PAYROLL CHGS	0.00	4,425.07	4,425.07	0.00	4,425.07	4,425.07	50,000	45,574.93	91.15 %
Total for Unit 9025 - INTEREST ON REFUNDS	0.00	4,425.07	4,425.07	0.00	4,425.07	4,425.07	50,000	45,574.93	91.15 %

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City of Tucson
Budget vs Actual Expenses
Through: July, 2016
For Fiscal Year 2016

Department 900 - TUCSON SUPPL RETIREMENT SYSTEM

Fund 072 - TUCSON SUPP RETIREMENT SYSTEM

Unit 9026 - DWE SYSTEM BENEFIT PAYMENT

Object	Current Period Encumbrance	Current Period Expenditure	Current Total Obligations	YTD Encumbrance	YTD Expenditure	YTD Total Obligations	Current Budgeted Amount	Unobligated Budget Balance	Percent
186 - TSRS REFUNDS	0.00	61,918.40	61,918.40	0.00	61,918.40	61,918.40	200,000	138,081.60	69.04 %
Total for 100 - PAYROLL CHGS	0.00	61,918.40	61,918.40	0.00	61,918.40	61,918.40	200,000	138,081.60	69.04 %
Total for Unit 9026 - DWE SYSTEM BENEFIT PAYMEN	0.00	61,918.40	61,918.40	0.00	61,918.40	61,918.40	200,000	138,081.60	69.04 %
Total for Fund 072 - TUCSON SUPP RETIREMENT SYS	0.00	5,840,657.99	5,840,657.99	0.00	5,840,657.99	5,840,657.99	76,216,870	70,376,212.01	92.34 %
Total for Department 900 - TUCSON SUPPL RETIREME	0.00	5,840,657.99	5,840,657.99	0.00	5,840,657.99	5,840,657.99	76,216,870	70,376,212.01	92.34 %
Grand Totals	0.00	5,840,657.99	5,840,657.99	0.00	5,840,657.99	5,840,657.99	76,216,870	70,376,212.01	92.34 %

**Tucson Supplemental Retirement System (TSRS)
Investment Manager Profile
As of 7/31/15**

Firm: Champlain Investment Partners, LLC

Investment: Champlain Mid Cap Equity

TSRS Inception Date: 07/09/10

Value of Assets with TSRS: \$42.4 million

Asset Class: Equity (Common Stock)

Style: U.S. Mid Cap Value Equity

Asset Allocation Relative to Total Fund Balance: 5.7% Actual, 5.0% Target, 3.0% to 7.0% Target Range

Performance Objective: Exceed the annualized total return of the Russell MidCap Index

Performance Relative to Benchmark (Net of Fees):	CYTD	FYTD 2015	FYTD 2016	Three Years (Annualized)
Champlain Mid Cap Equity	4.92%	9.24%	-1.52%	19.15%
Russell MidCap Index	3.11%	6.63%	0.74%	19.48%
Difference	1.81%	2.61%	-2.26%	-0.33%

Recent Portfolio Manager Changes for this Strategy: None

Champlain Mid Cap Core

1. What is the investment philosophy of the strategy and how is it implemented?
2. Please describe the research process. Is it bottom up or top down or perhaps a combination of both? How does a security make it into the portfolio?
3. Please discuss the current positioning of the portfolio.
4. In what type of market environment would you expect the strategy to outperform/underperform?
5. When will you sell a security?
6. What is the current level of assets under management in the strategy? At what asset level will the strategy close to new investors?
7. What is your outlook for US equity markets in 2015?

M I S S I O N S T A T E M E N T

Deliver Exceptional Investment Results and Develop Enduring Client Relationships

PARTNERS

2Q 2015

CHAMPLAIN INVESTMENT PARTNERS

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Disclosure

Certain data contained in this presentation is based on information obtained from sources believed to be accurate, but Champlain cannot guarantee the accuracy of such third party information.

No assurance can be given that Champlain Investment Partners' investment objectives will be achieved or that an investor will receive a return of all or any portion of his, her or its investment with Champlain Investment Partners. Investment results may vary substantially over any given time period.

Certain content contained in this presentation constitutes "forward-looking statements," which may be (but are not necessarily) identified by the use of forward-looking terminology such as "may," "will," "should," "expect," "anticipate," "project," "estimate," "intend," "continue," "target," or "believe" or the negatives thereof or other variations thereon or comparable terminology. Due to various risks and uncertainties, actual events or results may vary materially from those reflected or contemplated in such forward-looking statements. Any such forward-looking statements speak only as of their dates and reflect the expectation of Champlain Investment Partners, and no obligation is undertaken to update any such statements or expectations, whether as a result of new information, further events, or otherwise.

Firm Update

Firm Update

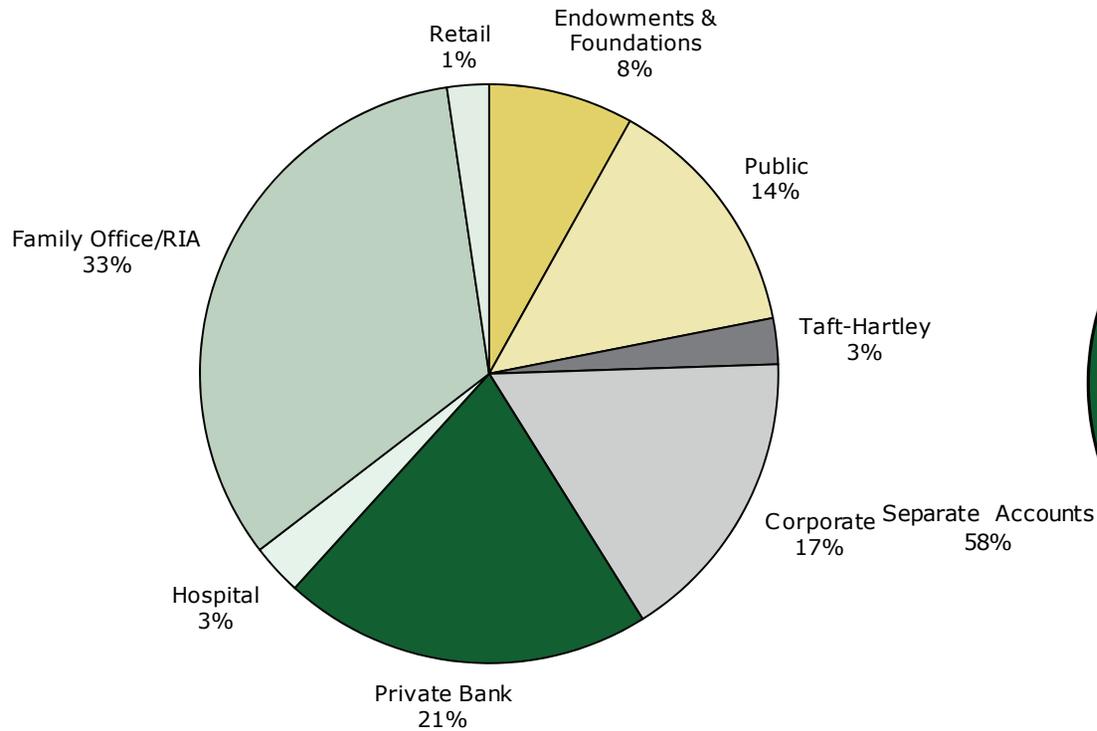
- Expanded Employee Ownership from 8 partners to 12
- Emerging Markets Team
- Revenue Sharing
- \$6.62 Billion AUM as of 06.30.15



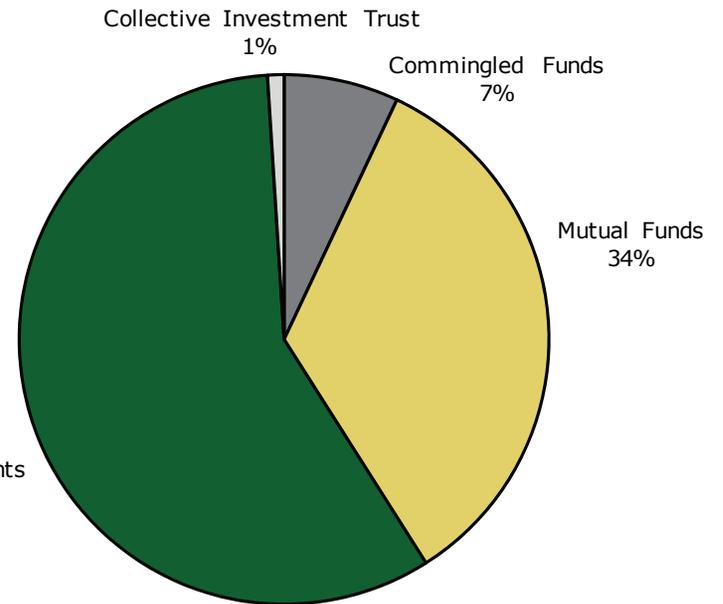
Client Assets Under Management \$6.62 Billion

(as of 06.30.15)

Type of Client



Vehicle



Representative Client List (as of 06.30.15)

Corporate

- Blue Cross and Blue Shield of Kansas, Inc.
- BlueCross BlueShield of Tennessee
- Broadcast Music, Inc.
- Cambridge International, LLC
- Chevron Corporation
- DuPont and Related Companies Defined Contribution Plan Master Trust
- GE Asset Management Inc.
- Goodville Mutual Casualty Company
- Hearst Corporation
- Louisiana-Pacific Corporation
- Nordson Corporation
- Welch Foods, Inc.
- Western Family Foods

Taft-Hartley

- 32BJ North Pension Fund
- California Ironworkers Field Pension Trust
- Minnesota Laborers' Fringe Benefits Fund
- Minnesota Teamsters Construction Division Pension Fund
- Southern California Pipe Trades Retirement Fund
- Teamsters Industrial Employees Pension Fund
- Trucking Employees of North Jersey Pension Fund

Hospital

- Boca Raton Regional Hospital
- Community Hospital of Monterey Peninsula
- Deaconess Hospital
- Glens Falls Hospital
- Huntington Hospital
- Inspira Medical Center Woodbury, Inc.
- Milton Hospital
- North Shore – Long Island Jewish Health System, Inc.
- South Jersey Hospital
- South Shore Community Hospital
- Vidant Health System

Champlain Mutual Funds

- All Cap (CIPYX)
- Mid Cap (CIPMX & CIPX)
- Small Cap (CIPSX)

Religious

- Archdiocese of Milwaukee Catholic Community Foundation, Inc.
- Diocese of Columbus
- Diocese of St. Petersburg
- Diocese of Trenton
- Jewish Federation of Metropolitan Chicago
- The Ordinary Mutual
- Reta Trust
- Sisters of Charity of Saint Elizabeth
- Sisters of St. Francis
- Sisters of St. Joseph of Carondelet
- Sisters of Saint Joseph of Peace
- Trustees of St. Patrick's Cathedral
- United Methodist Foundation of Western North Carolina
- US Conference of Catholic Bishops
- The Young Men's and Young Women's Hebrew Association

Public

- California Teachers Association Economic Benefits Trust
- City of Alexandria Fire Fighters and Police Officers Pension Plan
- City of Miami Fire Fighters' and Police Officers' Retirement Trust
- Första AP-fonden (First Swedish National Pension Fund)
- Ohio Bureau of Workers' Compensation
- Oregon Education Association
- The Metropolitan Gov't of Nashville and Davidson County Employee Benefit System
- Spokane Employee Retirement System
- State of Vermont
- Texas Municipal Retirement System
- Tucson Supplemental Retirement System

College/University

- Centre College of Kentucky
- Fordham University
- Indiana University
- Practising Law Institute
- Regis University
- Rider University
- Samford University
- The Canisius College of Buffalo, NY

Private Bank/Financial Co.

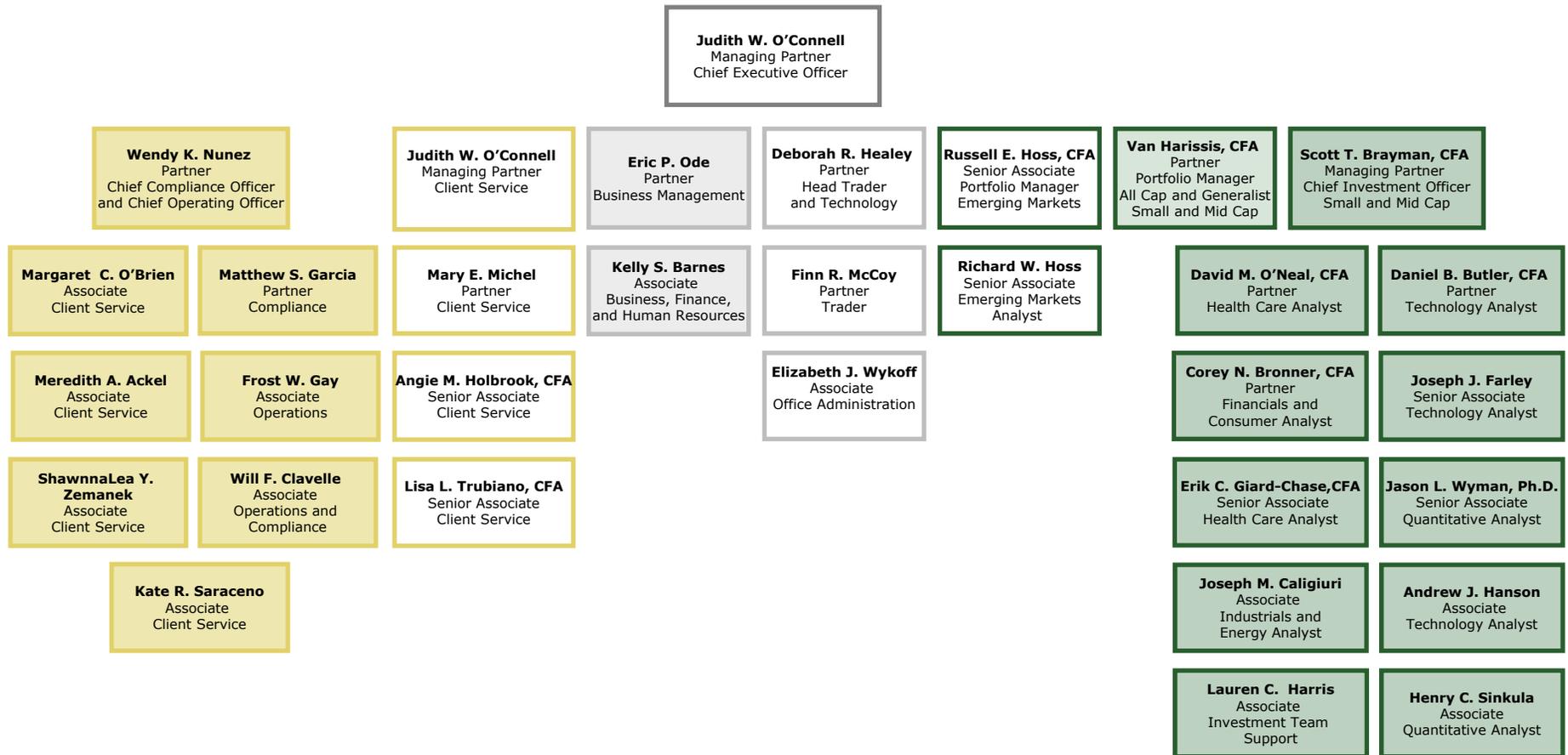
- Bessemer Trust Company
- Bridge Builder Trust
- Diversified Trust Company Inc.

Endowment/Foundation

- Amelia Peabody Foundation
- Association for the Children of New Jersey
- Association of the Bar of the City of New York
- Batchelor Foundation
- College Sparks
- Community Foundation of Herkimer and Oneida Counties, Inc.
- Community Foundation of Louisville
- Community Foundation of Western North Carolina
- Crouse Health Foundation
- Fairfield County Community Foundation
- Glass-Glen Burnie Foundation
- Greater Milwaukee Foundation
- Guttman Foundation
- Incourage Community Foundations, Inc.
- JCRT Foundation
- Johnson Foundation
- J.W. Anderson Foundation
- Marin Community Foundation
- Mitchell Wolfson Sr. Foundation
- Norton Museum of Art
- Oregon Public Broadcasting
- Ploughshares Fund
- Robins, Kaplan, Miller & Ciresi Foundation for Children
- Sarkeys Foundation
- The Community Foundation for the Greater Capital Region
- The Fuller Foundation
- The Harvest Foundation of the Piedmont
- The Stark Community Foundation
- The Rosamond Gifford Charitable Corporation
- The Vermont Community Foundation
- Triangle Community Foundation
- Tull Charitable Foundation

The above list includes all institutional clients that allow disclosure of their relationship with Champlain Investment Partners, LLC. It is not known whether the listed clients approve or disapprove of the adviser or the advisory services.

Professionals



- Seasoned Industry Professionals
- Critical Thinkers
- Courageous



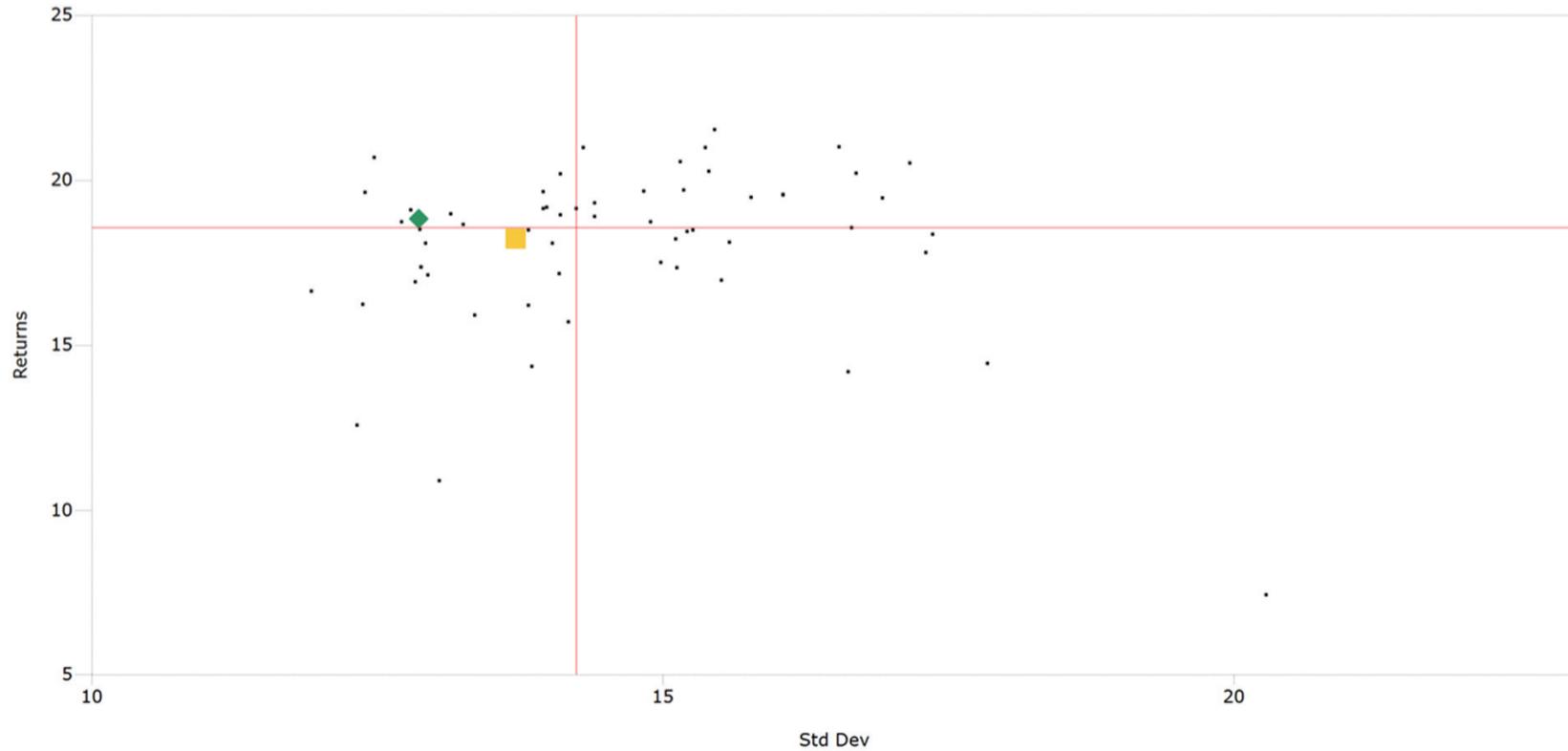
Portfolio Update

Tucson Supplemental Retirement System

(as of 07.31.15)

	Net Return	Gross Return	Russell Midcap
Year To Date	5.08%	5.60%	3.11%
1 Year	11.02%	11.96%	10.69%
3 Years - Annualized	19.15%	20.16%	19.48%
5 Years - Annualized	16.36%	17.35%	16.77%
Since Inception - Annualized (07.09.10 - 07.31.15)	16.50%	17.49%	17.15%
Since Inception (07.09.10 - 07.31.15)	116.62%	126.11%	122.74%

Mid Cap Composite Risk Reward (5 yr as of 06.30.15)



Universe: eVestment US Mid Cap Core Equity

As Of: June 30, 2015

	VT	RM	Returns	Std Dev
◆ Champlain Investment Partners, LLC	SA	GF	18.84	12.86
■ Russell Index	IX	IX	18.23	13.71
+ Universe Median			18.57	14.24

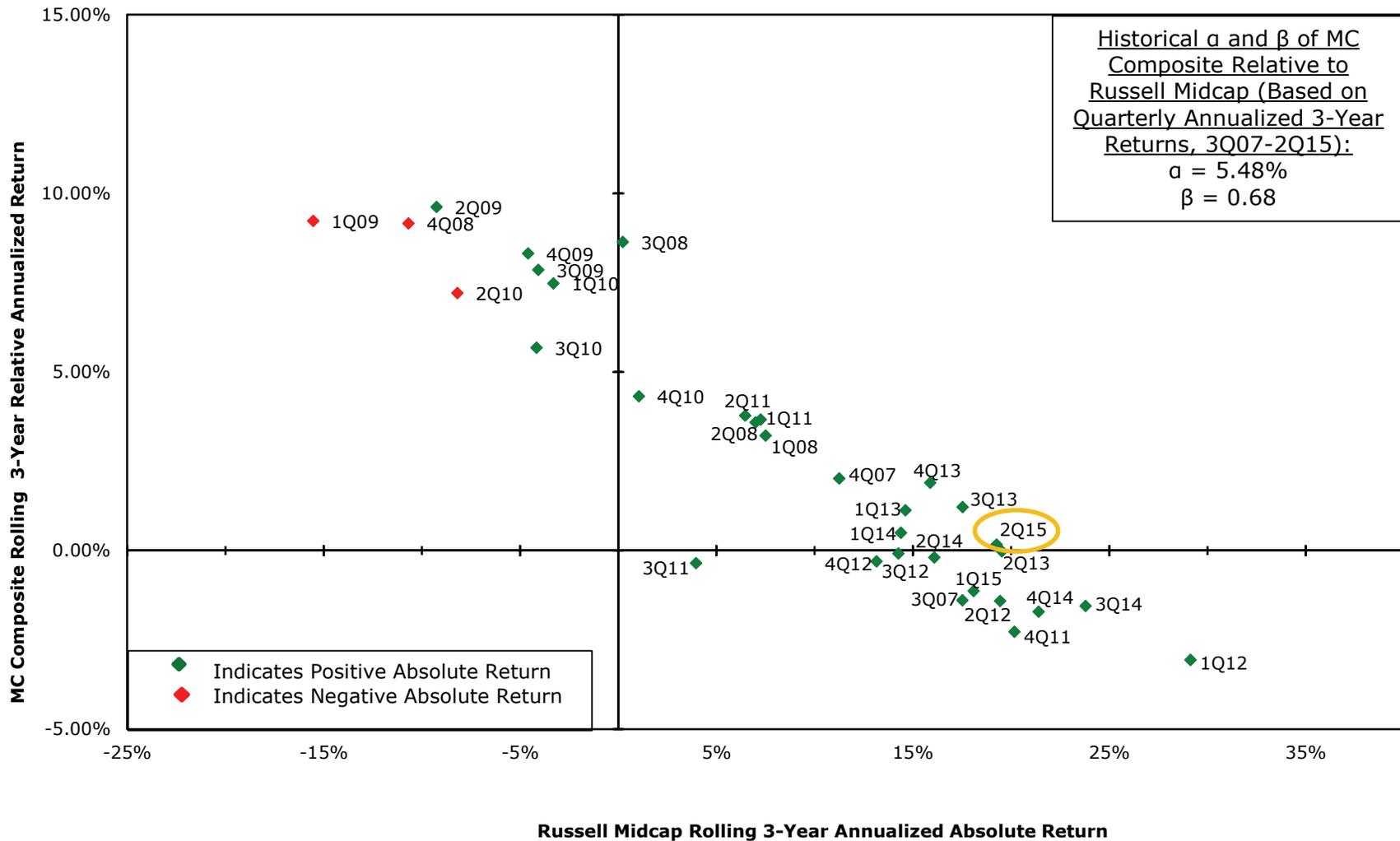
Results displayed in US Dollar (USD)

CHAMPLAIN INVESTMENT PARTNERS

Source: eVestment Alliance, returns are presented annualized. The returns are gross of advisory fees and other expenses. This information is presented as supplemental to the performance disclosure page included in this presentation.

Rolling 3 Year Relative Returns – 3Q07 through 2Q15

Champlain Mid Cap Composite vs. Russell Midcap



The returns are gross of advisory fees and other expenses. This information is presented as supplemental to the performance disclosure page included in this presentation.

Return Analysis by Sector and Holdings

Champlain Mid Cap Composite

1 Year (06.30.14 – 06.30.15)

	Absolute Contribution (%)	vs. Russell Midcap
Energy	-3.73	-1.05
Industrials	-0.66	-0.75
Consumer Discretionary	+1.76	+0.02
Materials	-0.05	+0.05
Telecommunication Services	+0.00	+0.16
[Cash]	+0.00	+0.19
Financials	+1.79	+0.28
Utilities	+0.00	+0.58
Consumer Staples	+1.25	+0.70
Information Technology	+3.67	+1.48
Health Care	<u>+6.34</u>	<u>+2.10</u>
Total	+10.36	+3.75

1 Year (06.30.14 – 06.30.15)

Largest Contributors	Absolute Contr. (%)	Largest Detractors	Absolute Contr. (%)
Edwards Lifesciences Corporation	+1.01	Denbury Resources Inc.	-1.75
Zoetis, Inc. Class A	+0.98	Forum Energy Technologies, Inc.	-0.68
Red Hat, Inc.	+0.97	Oasis Petroleum Inc.	-0.61
CareFusion Corporation	+0.96	Actuant Corporation Class A	-0.59
Altera Corporation	+0.82	Dover Corporation	-0.54
Informatica Corporation	+0.75	Core Laboratories NV	-0.40
PetSmart, Inc.	+0.66	Solera Holdings, Inc.	-0.36
Verisk Analytics Inc	+0.59	Frank's International NV	-0.28
Cepheid	+0.59	Esterline Technologies Corporation	-0.23
Bed Bath & Beyond Inc.	<u>+0.55</u>	SolarWinds, Inc.	<u>-0.16</u>
Total	+7.89	Total	-5.60

CHAMPLAIN INVESTMENT PARTNERS

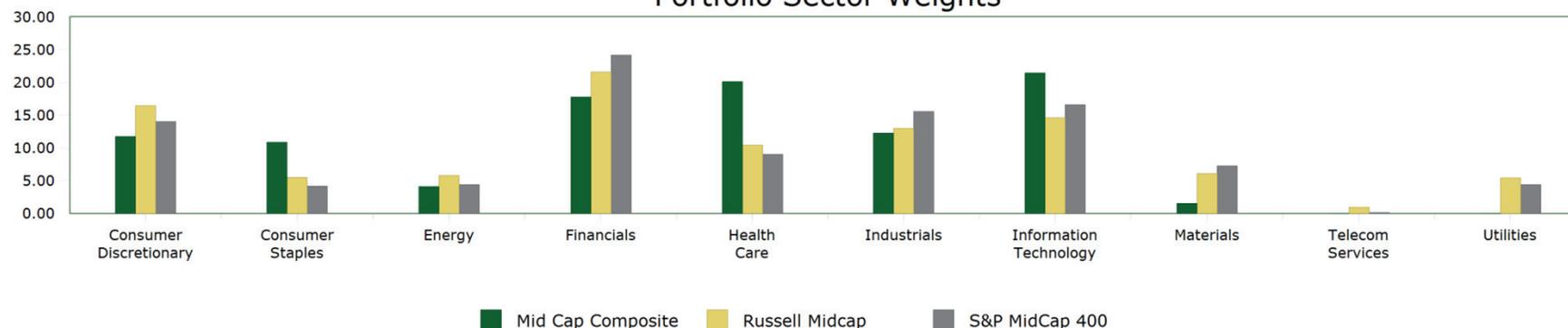
Portfolio Characteristics – 06.30.15

Champlain Mid Cap Composite

	Portfolio	Russell Midcap
FTM P/E	20.3x	20.0x
Price/Cash Flow	16.4x	14.7x
Debt/Cap	35.3%	44.5%
ROE	15.2%	14.4%
ROE (5 Yr Avg)	15.7%	14.1%
ROE (5 Yr StDev)	3.9%	5.8%
Est 3-5Yr EPS Growth	10.9%	11.3%
EPS 5 Year CAGR	9.7%	13.7%
Sales/Sh 5yr CAGR	9.6%	7.7%
5 Yr CAGR BV/Sh	9.2%	7.8%
Owners Yield*	3.9%	4.4%
Wtd. Mkt. Cap (MM)	\$8,129	\$12,255
# of Holdings	57	824
Port. Ending Active Share**	94.0%	NA
3 Yr Avg Portfolio Turnover	42.9%	NA

Top Ten Holdings	
St. Jude Medical, Inc.	3.43%
McCormick & Company, Incorporated	3.18%
Red Hat, Inc.	2.94%
Flowers Foods, Inc.	2.88%
Rockwell Automation, Inc.	2.68%
WEX Inc.	2.63%
J. M. Smucker Company	2.59%
PTC Inc.	2.44%
Cullen/Frost Bankers, Inc.	2.42%
Endurance Specialty Holdings Ltd.	2.34%
Total	27.53%

Portfolio Sector Weights



*Owner's Yield Definition: ((Cash for Common Dividends + Cash Used in Acquisitions + Net Cash from Increase/Decrease in Total Debt + Net Cash from Share Issuance/Purchase + YoY Nominal Increase/Decrease in R&D Spend) / Shares Outstanding (Diluted Basis)) / Price per Share.

**Active share ranges from 0 to 100 percent and measures the percentage of a portfolio's holdings which differs from the benchmark.

Source: FactSet and Compustat - All characteristics (with the exception of Market Cap, Active Share and Portfolio Turnover) are calculated on a Weighted Average basis with outliers dampened via Inter-quartile methodology. All figures on a TTM Basis. Holdings are subject to change. References to specific issuers or securities are presented to illustrate the application of our investment philosophy only and are not intended to be considered recommendations by Champlain Investment Partners. The specific securities identified and described in this presentation do not represent all of the securities purchased, sold or recommended by Champlain, and it should not be assumed that investments in the securities identified were or will be profitable. Upon request, Champlain will provide a list of all securities purchased over the last year. This information is presented as supplemental to the performance disclosure page included in this presentation.

CHAMPLAIN INVESTMENT PARTNERS

Mid Cap Recent Activity and Current Posture

- Relatively Under-Exposed to Interest Rate Risk
 - No exposure to REITs
 - Bank exposure is mostly with asset-sensitive banks
 - Insurance holdings have short-duration bond portfolios
 - Less exposed to highly leveraged companies
 - Utilities are excluded by process
- Overweight Software – Focused on key business processes and infrastructure
- Overweight Machinery Industry – Attractive machinery valuations due to weak oil price and strong Dollar
- EVA Analysis Affirms Quality Bias of Strategies
- Upgrading Holdings – EVA accretive

Mid Cap Opportunities and Risks

Opportunities:

- Shift from client-server to cloud-based computing
- Well-managed (asset-sensitive) community banks
- Diversified industrials with exposure to energy and Europe
- Reliable, long-duration cash flow streams
- Time horizon arbitrage

Risks:

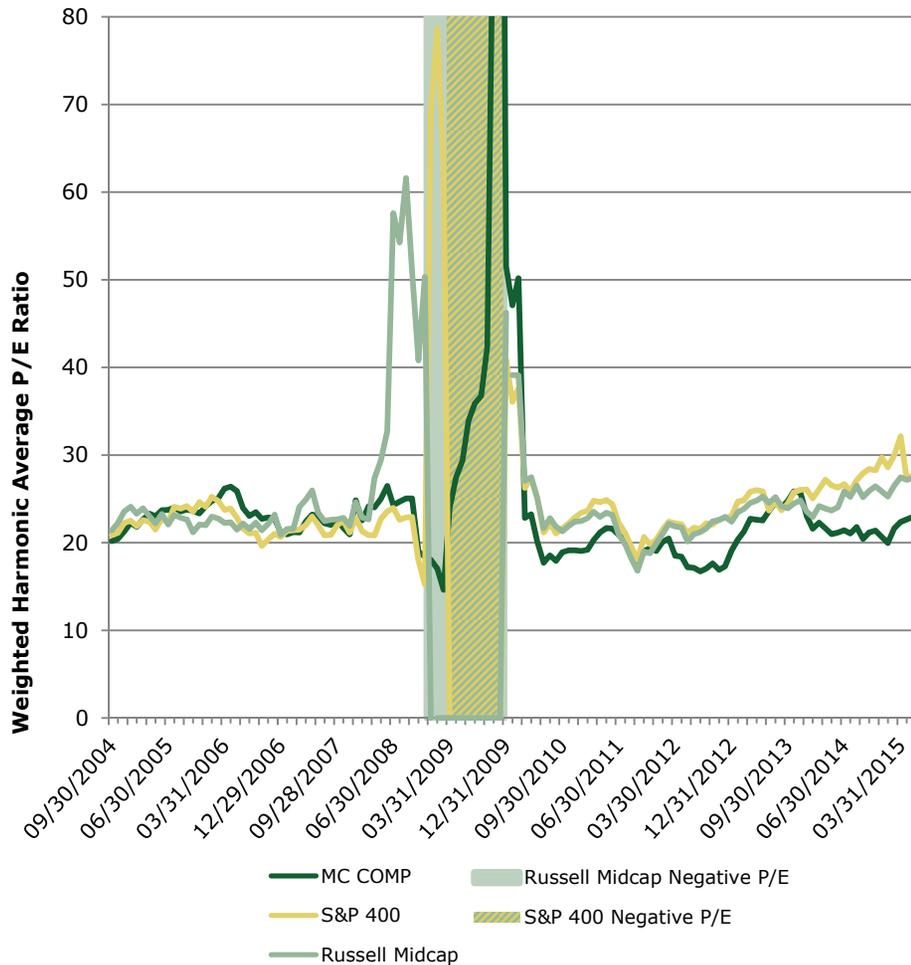
- Policy mistake(s) – Trade, Taxes, Fiscal, Monetary
- Complexity of global financial system
- Cyber crime/terrorism

Appendix

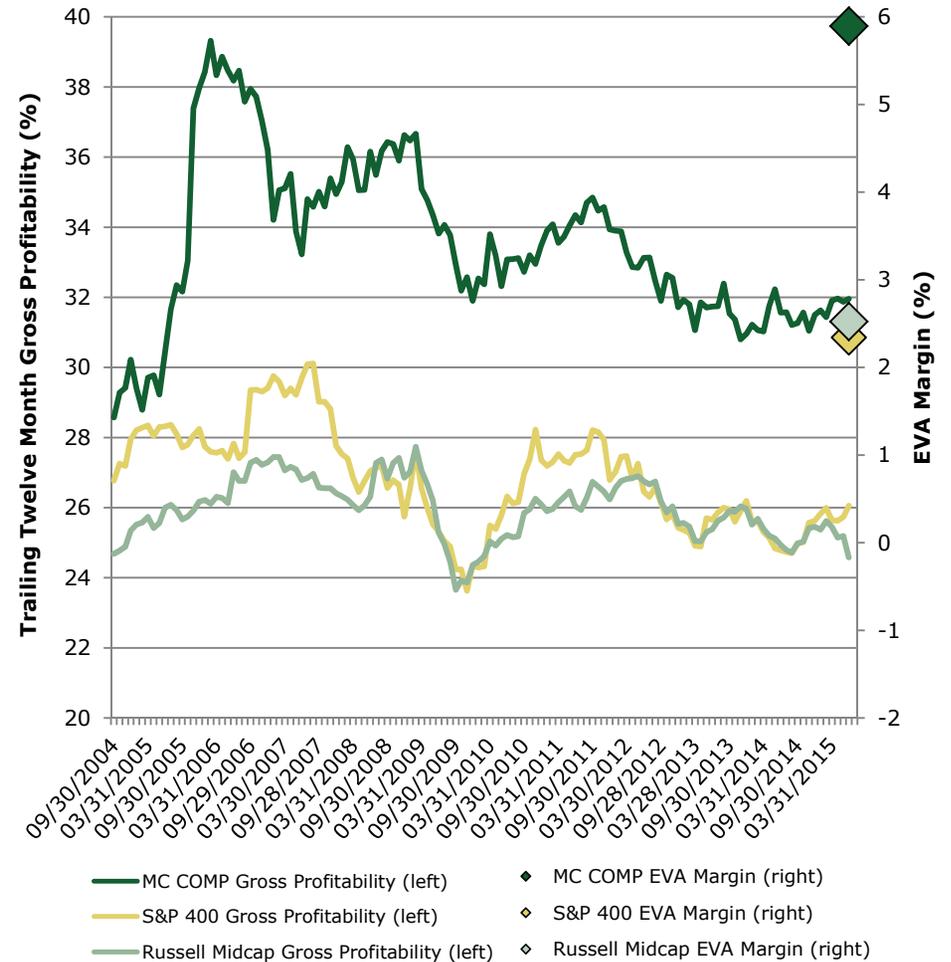
Maintaining Valuation Discipline Without Sacrificing Quality

Champlain Mid Cap Composite vs. Russell Midcap and S&P MidCap 400 (09.30.04 – 06.30.15)

Weighted Harmonic Average P/E¹



Weighted Average Gross Profitability² and EVA Margin³



¹ The Weighted Harmonic Average P/E Ratio is defined as the total market value of the portfolio divided by the total earnings of the portfolio: $P/E = \frac{\sum(\text{PRICE} \times \text{SHARES})}{\sum(\text{EPS} \times \text{SHARES})}$, where the sum is over all stocks in the portfolio.

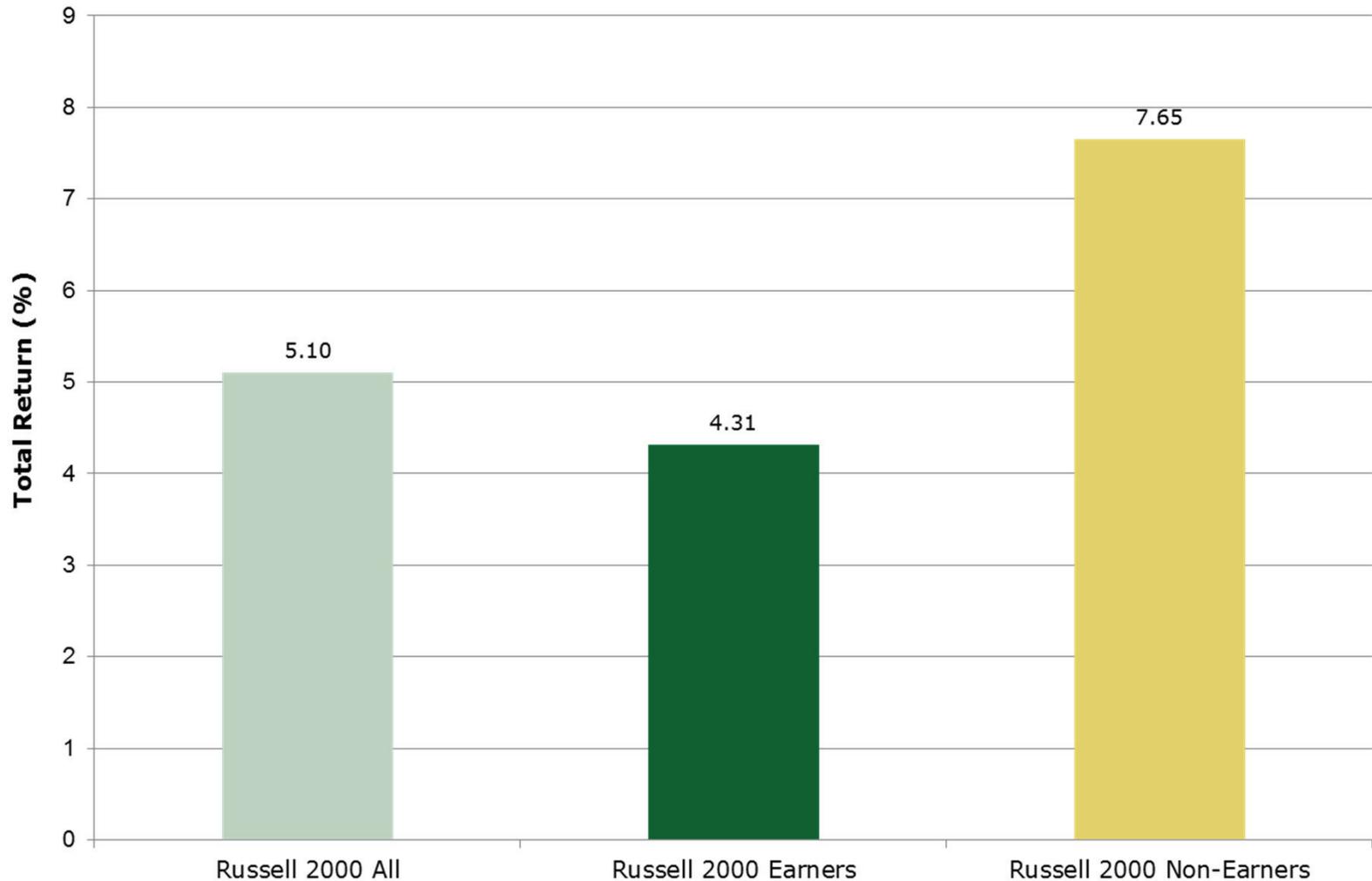
² Gross Profitability = $(\text{Sales} - \text{COGS}) / \text{Total Assets}$.

³ EVA stands for Economic Value Added and is the profit a company earns after deducting all operating and capital costs from sales: $\text{EVA} = \text{Sales} - \text{Operating Costs} - \text{Capital Costs}$; EVA Margin is EVA divided by sales.

Source: Compustat, Factset Datafeed; Analysis: MATLAB. Security level EVA Margin provided by evaDimensions Equity Research, data as of 06.30.15. Portfolio and benchmark distribution and statistics calculated by Champlain Investment Partners with MatLab; outliers were removed using the interquartile method. This information is presented as supplemental to the performance disclosure page included in this presentation.

Total Return of Russell 2000 – Earners and Non-Earners

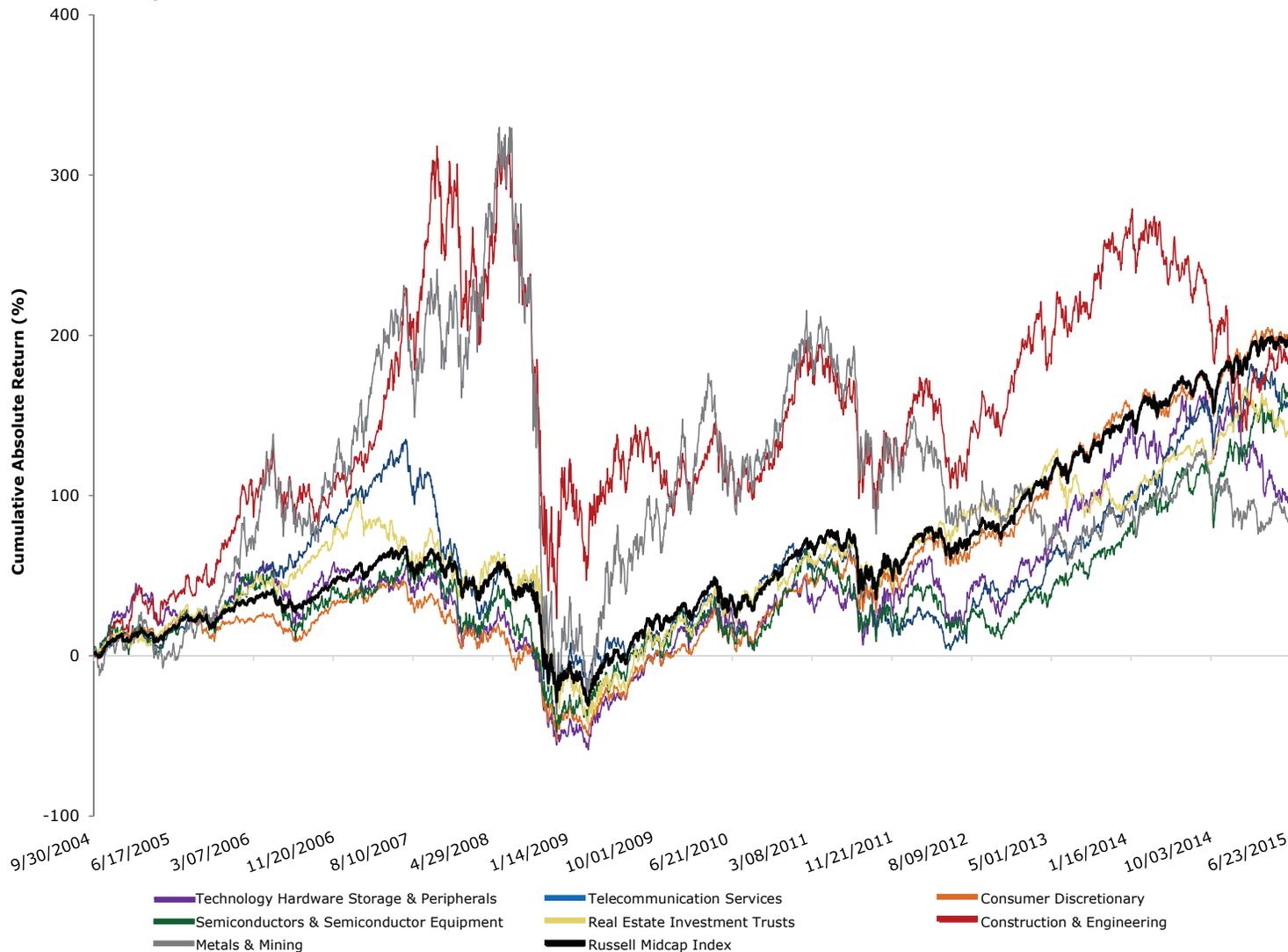
(12.31.14-06.30.15)



Source: FactSet Alpha Testing. The Non-Earners group is comprised of all companies within the Russell 2000 whose total earnings over the prior twelve months was negative. The Earners group is comprised of all companies within the Russell 2000 whose total earnings over the prior twelve months was non-negative. Daily group returns represent the market cap weighted returns of all constituents within the group; weights and groups were rebalanced daily and the total return number represents the cumulative total of compounded daily group returns over the time period.

Process Exclusions & Perennial Underweights– Mid Cap

(09.30.04-06.30.15)

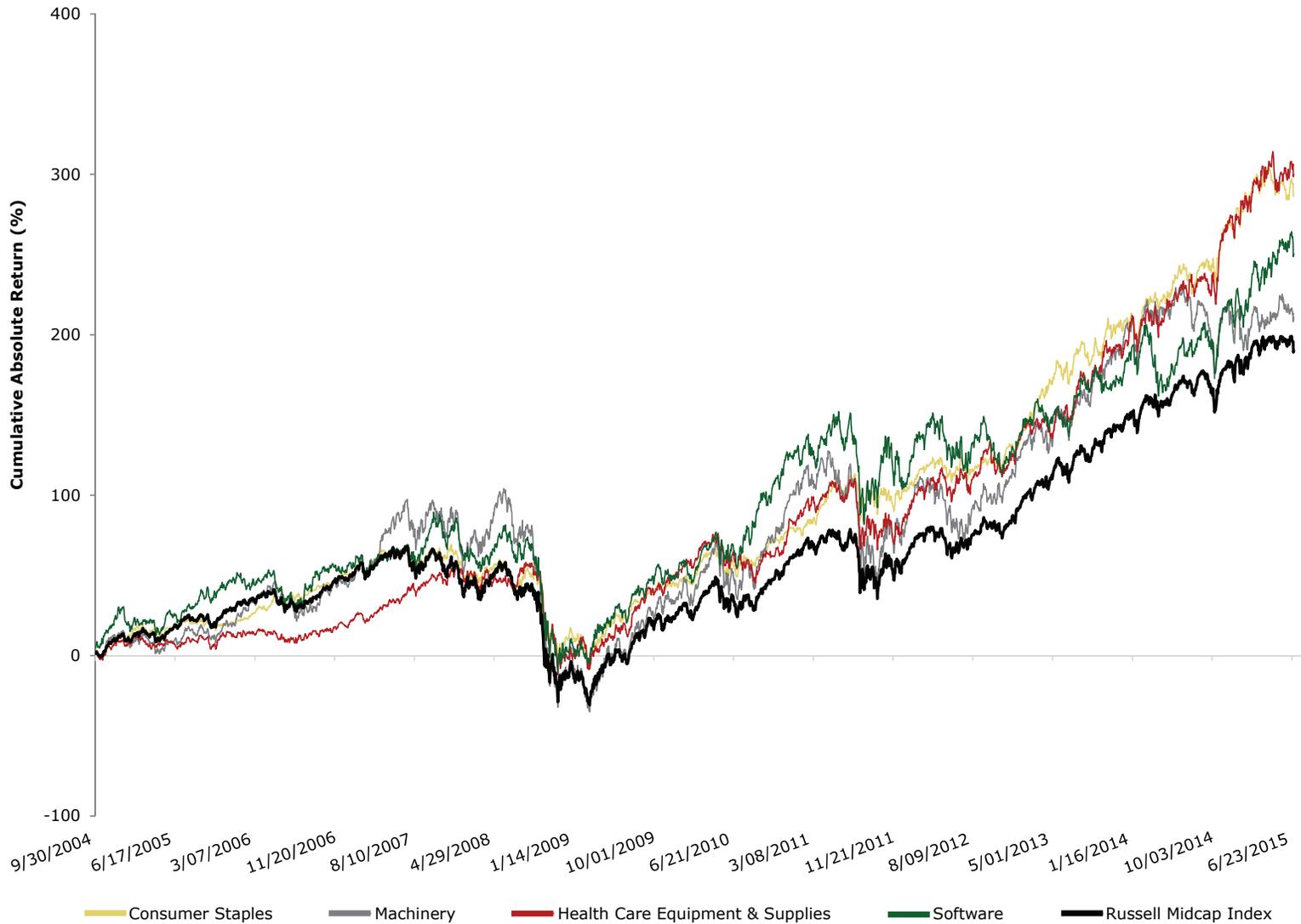


Note: Bold legend items are GICS Sectors, else GICS Industries .
 Source: Factset Research Systems. This information is presented as supplemental to the performance disclosure page included in this presentation.



Perennial Overweights – Mid Cap

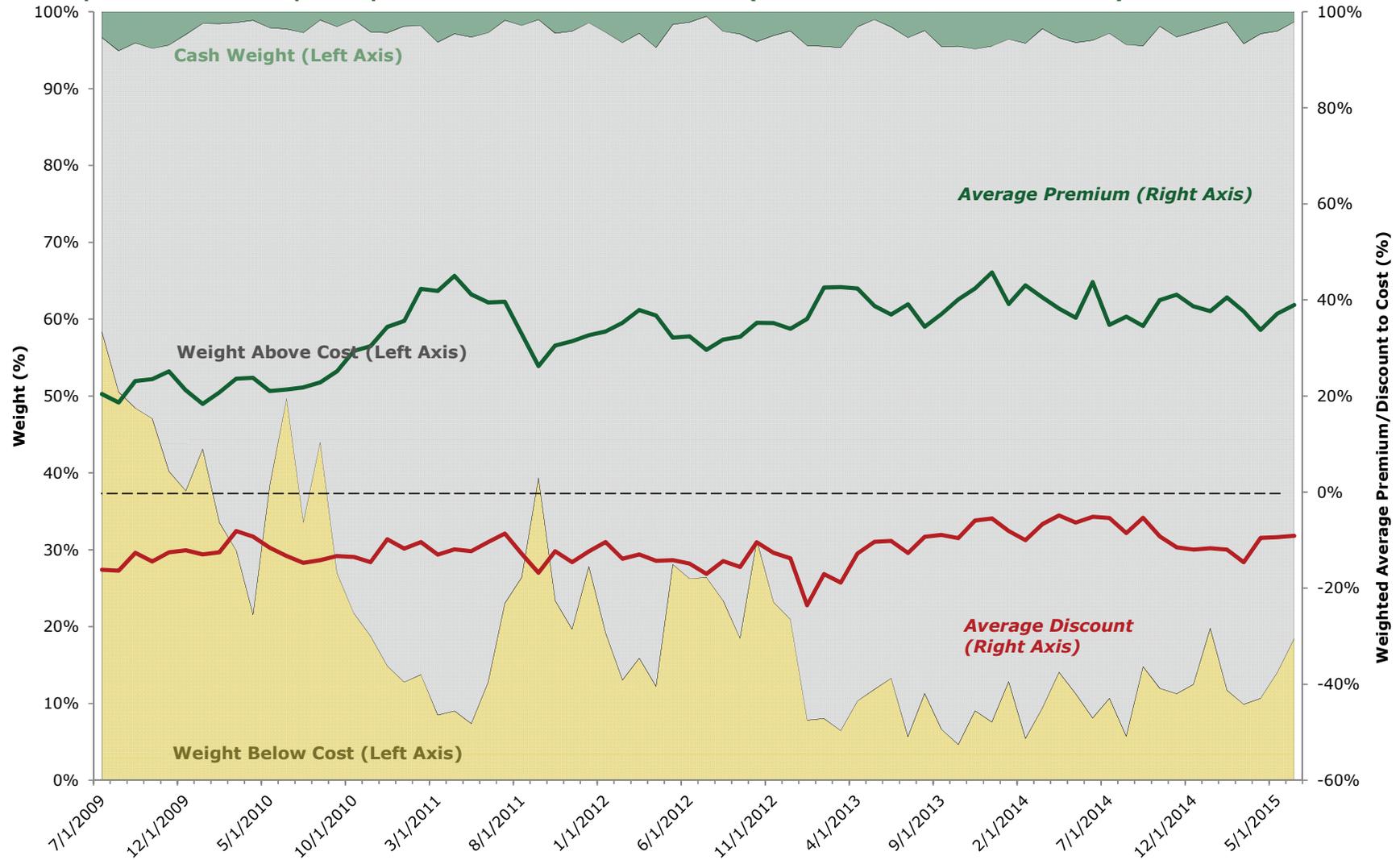
(09.30.04-06.30.15)



Note: Bold legend items are GICS Sectors, else GICS Industries .
Source: Factset Research Systems. This information is presented as supplemental to the performance disclosure page included in this presentation.

Breakdown of Capital Employed

Champlain Mid Cap Representative Account (07.31.09 – 06.30.15)



CHAMPLAIN INVESTMENT PARTNERS

Source: FactSet and Champlain Investment Partners. Analysis performed with MATLAB. Data from July 2009 as that is the inception of the representative account used. This information is presented as supplemental to the performance disclosure page included in this presentation.

Average Position Size* Over Time

Champlain Mid Cap Composite



*Portfolio average position size is total weight of non-cash holdings divided by the total number of non-cash holdings; cash is included in the calculation of the weight of each holding.

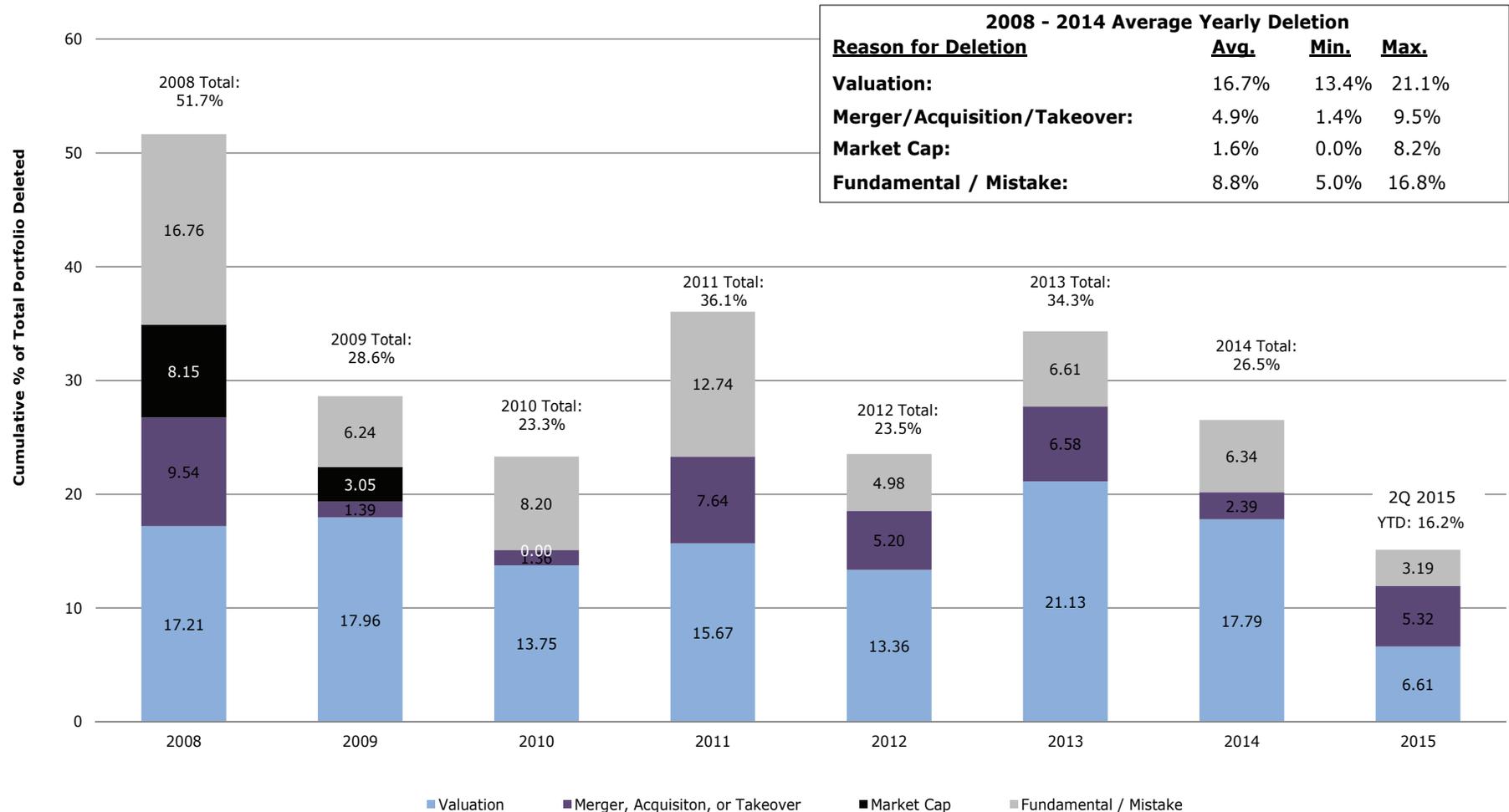
**In 2Q08 we increased the range of stocks we can own from 40-60 to 50-75. This somewhat higher number of names allows us to scale into and scale out of names in a more gradual or opportunistic manner and makes the mid cap approach more consistent with how we buy and sell names in our small cap strategy.

Source: Factset. This information is presented as supplemental to the performance disclosure page included in this presentation.



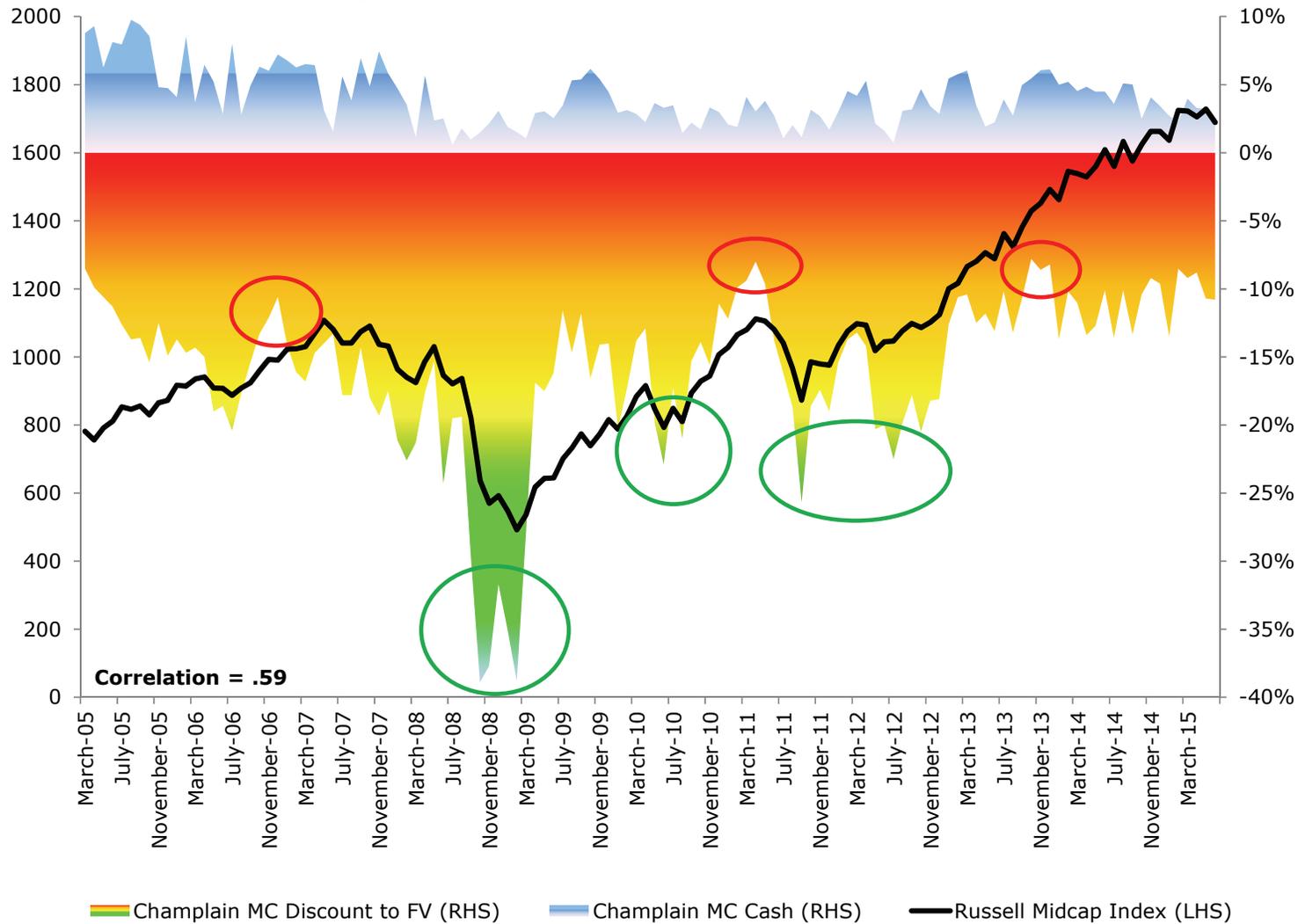
Champlain Mid Cap Portfolio Historical Deletion Analysis

2008 – 2Q 2015



Source: Champlain Investment Partners, FactSet. This information is presented as supplemental to the performance disclosure page included in this presentation.

Champlain Mid Cap Portfolio Discount to Fair Value* vs. Russell Midcap



*The Champlain portfolio's discount to fair value is a weighted average metric based on our estimate of intrinsic value for each security in the portfolio. The right hand side (RHS) of the chart displays the discount to our estimates of intrinsic value on a monthly basis through time.

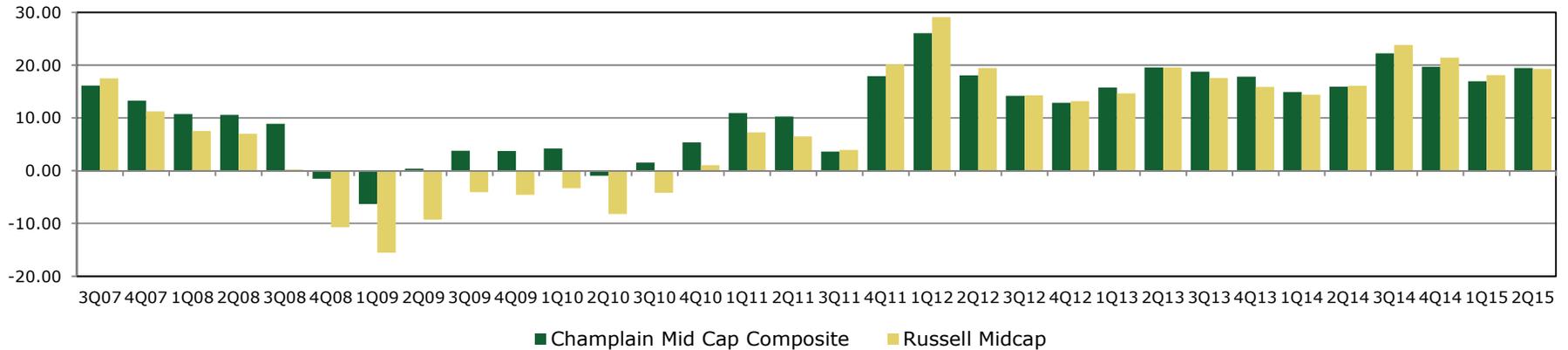
Source: Champlain Investment Partners, FactSet. Data as of 06.30.15. This information is presented as supplemental to the performance disclosure page included in this presentation.

CHAMPLAIN INVESTMENT PARTNERS

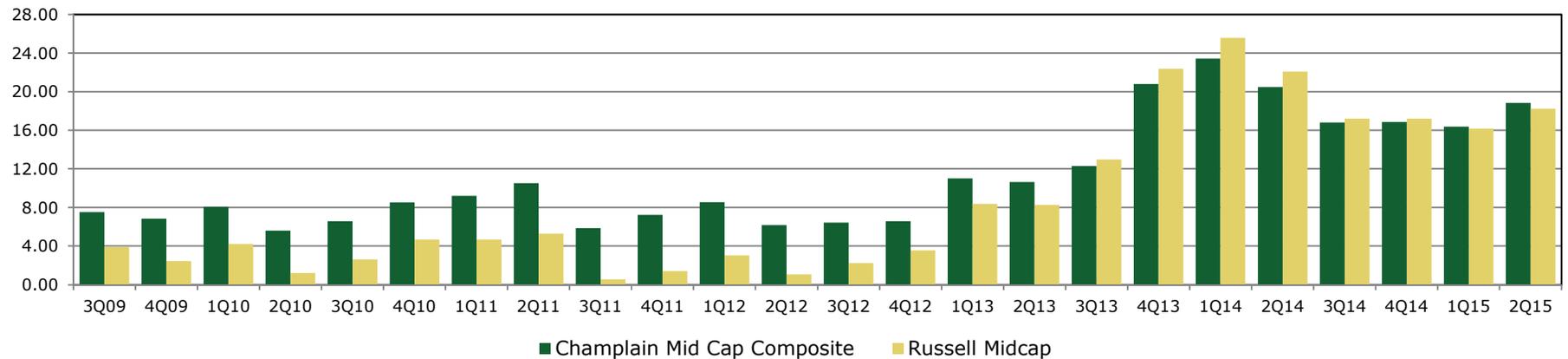
Annualized Rolling Returns – as of 06.30.15

Champlain Mid Cap Composite

Rolling 3 Year Quarterly Periods

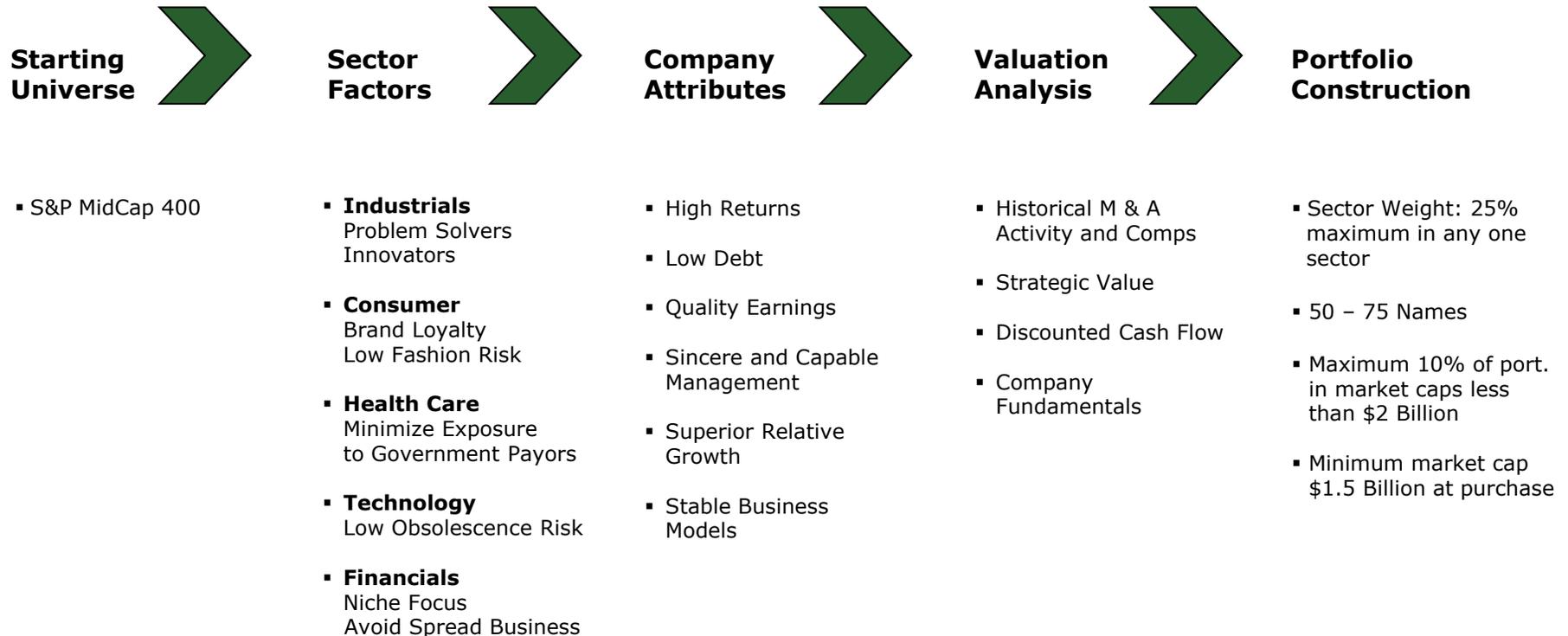


Rolling 5 Year Quarterly Periods



The returns are gross of advisory fees and other expenses. This information is presented as supplemental to the performance disclosure page included in this presentation.

Mid Cap Strategy Buy Discipline



Benefits: Manage Business Risk * Manage Valuation Risk * Manage Performance Risk * Increase Odds of Success

Mid Cap Strategy Sell Discipline

Sell

- Sell Stocks Above our Estimate of Fair Value
- Sell Mistakes
- Maximum 5% of Portfolio in Companies over \$20 Billion

Trim

- Trim when Position Size at Market > 5%
- Trim when Sector Weights Exceed Rules

Reevaluate

- Reevaluate Holdings when 25% Below Cost

Benefits

- Harvest Gains
- Control Losses
- Maintain Mid Cap Exposure
- Manage Company Specific Risk

Team

Meredith A. Ackel – Associate Client Service

Meredith joined Champlain in the summer of 2011. Her experience includes internships at Kelliher Samets Volk as a contact media associate and at a global wealth management firm, during a semester in Australia, as a part of their event management team. Meredith graduated magna cum laude from Saint Michael's College with a Bachelor of Science in Business Administration. Meredith earned the Claritas Investment Certificate in 2013. Claritas and Claritas Investment Certificate are Trademarks owned by CFA Institute.

Kelly S. Barnes – Associate Business, Finance, and Human Resources

Kelly brings more than 23 years of client service and systems experience to the Champlain team. Prior to joining Champlain in 2007, she was the administrative director of Coburn Insurance Agency where she was responsible for project and team management, as well as computer and systems support. Kelly graduated from LeMoyne College in Syracuse, New York with a Bachelor of Science in Business Administration.

Scott T. Brayman, CFA – Managing Partner & Chief Investment Officer

Scott has more than 29 years of investment management experience. He is a founding partner and leads the investment team at the firm. Prior to joining Champlain, Scott was a senior vice president at NL Capital Management, Inc. and served as a portfolio manager with Sentinel Advisors, Inc. He was responsible for managing small cap and core mid cap strategies. He was a portfolio manager and director of marketing for Argyle Capital Management in Allentown, Pennsylvania, before joining NL Capital Management, Inc. Scott began his career as a credit analyst with the First National Bank of Maryland.

Scott graduated cum laude from the University of Delaware with a Bachelor of Arts in Business Administration. He earned his Chartered Financial Analyst (CFA) designation in 1995 and is a member of the CFA Institute and the Vermont CFA Society.

Corey N. Bronner, CFA – Partner & Analyst

Corey has more than 8 years of financial services experience. Prior to joining Champlain in 2010, Corey was an analyst focusing primarily on the financial services industry at Duff & Phelps Corporation. He was a credit analyst with the commercial lending group at Merchants Bank, a subsidiary of Merchant Bancshares, Inc., before joining Duff & Phelps Corporation.

Corey graduated magna cum laude from the University of Vermont with a Bachelor of Science in Business Administration. Corey earned his Chartered Financial Analyst (CFA) designation in 2011 and is a member of the CFA Institute and the Vermont CFA Society.

Daniel B. Butler, CFA – Partner & Analyst

Dan has more than 18 years of investment management experience. He is a founding partner and a member of the firm's investment team specializing in technology research. Prior to joining Champlain, Dan was a vice president and analyst at NL Capital Management, Inc. From 1998 to 2004, he was a senior equity analyst for Principal Global Investors where he followed the technology sector for the firm's small cap portfolio managers. Additionally, Dan has held analyst positions at Raymond James Financial.

Dan graduated from University of Massachusetts with a Bachelor of Arts in Mathematics. He received his MBA from Indiana University. Dan earned his Chartered Financial Analyst (CFA) designation in 2001 and is a member of the CFA Institute and the Vermont CFA Society.

Team

Joseph M. Caligiuri – Associate Analyst

Joe joined Champlain in the spring of 2008 as an operations analyst. Joe moved to the investment team during the summer of 2010. His experience includes internships at Sheaffer & Roland Consulting Engineers as a business operations analyst and Sopher Investment Management as a research assistant. Joe graduated from Saint Michael's College with a Bachelor of Arts in Philosophy. Joe is a CFA Level III candidate.

Will F. Clavelle – Associate Operations and Compliance

Will joined Champlain in the winter of 2014 as an associate operations and compliance. Prior to joining Champlain, Will was a Product Specialist at Janus Capital Group. Will graduated from the University of Denver with a Bachelor of Science in International Business.

Joseph J. Farley - Senior Associate Analyst

Joe has more than 23 years of experience as a securities analyst, and has spent the past 12 years working in investment management. Prior to joining Champlain, Joe was a founder and portfolio manager of Kelvingrove Partners, LLC, an investment management firm focused on technology, media, and telecommunications. His investment management career began at Private Capital Management, in Naples FL, where he was the managing director of investment research and a portfolio manager. Joe spent over 10 years as a securities analyst on Wall Street, and held senior investment research and management roles at Morgan Stanley, Donaldson Lufkin & Jenrette, and UBS. Joe began his career as a market analyst with AT&T.

Joe earned Master and Bachelor of Arts degrees in Economics from the University at Albany, State University of New York.

Matthew S. Garcia, IACCP® – Partner & Compliance

Matthew has more than 7 years of financial services experience. Prior to joining Champlain in 2011, he was an associate in Goldman Sachs' Global Compliance division and previously was an analyst in that firm's legal department. Matthew's experience also includes internships with the offices of U.S. Senator Hillary Rodham Clinton, Mayor Michael R. Bloomberg and the U.S. Department of the Interior. Matthew graduated from Cornell University with a Bachelor of Arts in Government. He received his MBA from Harvard Business School. Matthew earned his Investment Adviser Certified Compliance Professional® (IACCP®) designation in 2014.

Frost W. Gay – Associate Operations

Frost was hired by Champlain in the summer of 2013 as an associate in client service and moved to operations in spring 2014. His prior experience includes an internship with the Vermont Democratic Party and a term spent abroad in Kenya. Frost graduated from Dartmouth College with a Bachelor of Arts in Government. Frost earned the Claritas Investment Certificate in 2014. Claritas and Claritas Investment Certificate are Trademarks owned by CFA Institute.

Erik C. Giard-Chase, CFA – Senior Associate Analyst

Erik joined Champlain as an intern in the spring of 2008, and he was hired as a quantitative analyst in the spring of 2009. Prior to joining Champlain, Erik was an intern at Wachovia Securities. Erik graduated cum laude from the University of Vermont with a Bachelor of Science in Mathematics. Erik earned his Chartered Financial Analyst (CFA) designation in 2013 and is a member of the CFA Institute and the Vermont CFA Society.

Team

Andrew J. Hanson – Associate Analyst

Andrew has more than 9 years of financial services experience. Prior to joining Champlain in 2010, Andrew managed IDC's U.S. PC Tracker, covered network and endpoint security, and supported the network, telecom, communications and channels research teams. Andrew graduated from Connecticut College with a Bachelor of Arts in International Relations. Andrew is a CFA Level III candidate.

Van Harissis, CFA – Partner & Analyst

Van has more than 30 years of investment management experience. He is a founding partner and a member of the firm's investment team specializing in consumer research. Prior to joining Champlain, Van was a senior vice president at NL Capital Management, Inc. and served as a portfolio manager with Sentinel Advisors, Inc. He was responsible for managing large cap core equity and balanced strategies. Van served as managing director and portfolio manager at Phoenix Investment Partners, Ltd., before joining NL Capital Management, Inc.

Van graduated cum laude from the University of Rochester with a Bachelor of Arts in Economics. He received his MBA degree, graduating cum laude, at Johnson Graduate School of Management, Cornell University. Van earned his Chartered Financial Analyst (CFA) designation in 1989 and is a member of the CFA Institute and the Vermont CFA Society.

Lauren C. Harris – Associate Investment Team Support

Lauren was hired at the end of 2014 to support Champlain's Chief Investment Officer and brings ten years of administrative experience to the firm. Prior to joining Champlain, Lauren was an Executive Assistant at various companies including: the Interactive Advertising Bureau, Ford Models, and Sony Music. Lauren graduated from the University of Michigan in Ann Arbor with a Bachelor of Arts in Mass Communication.

Deborah R. Healey – Partner & Head Trader

Deborah has over 28 years of trading experience. She is a founding partner and the firm's senior equity trader. Prior to joining Champlain, she was a vice president and small cap equity trader at NL Capital Management, Inc. Prior to this, she was with Putnam Investments as a senior vice president and senior equity trader where she was responsible for trading all equities within the financial, capital goods and conglomerates sectors. Before Putnam's move to sector trading, she handled all trading for several small cap managers. Deborah was an active participant in the design and implementation of Putnam's internal trading systems. She was a senior equity trader at Fidelity Investments before moving to Putnam. Deborah is a past president of the Boston Securities Traders Association.

Deborah graduated from Dartmouth College with a Bachelor of Arts in Government.

Angie M. Holbrook, CFA – Senior Associate Client Service

Angie joined Champlain in 2015 to assist with client service and consultant relations. Prior to assuming her current role, Angie was senior vice president, consultant relations at Pyramis Global Advisors, a Fidelity Investments company. In her 16 year tenure at Fidelity she also worked as a product manager responsible for marketing, competitive analysis, and product management for Fidelity's institutional fixed income products as well as an implementation project manager and an account associate at Fidelity Management Trust Company.

Angie earned her Bachelor of Science degree in Business Administration from the University of Vermont and her MBA degree from Boston College. Angie earned her Chartered Financial Analyst (CFA) designation in 2006 and is a member of the CFA Institute and the Boston and Chicago CFA Societies. She also holds the Financial Industry Regulatory Authority (FINRA) Series 7 and 63 licenses.

Team

Russell E. Hoss, CFA – Senior Associate Portfolio Manager

Rusty has more than 13 years of investment management experience. He is a portfolio manager on the firm's emerging markets investment team. Prior to joining Champlain in the summer of 2015, Rusty was a founder and managing partner at New Sheridan Advisors LLC, a boutique emerging and frontier markets investment specialist. Rusty also previously held positions as a research analyst at Alder Capital, a San Diego based hedge fund, and as a senior research analyst & director of equity research at ROTH Capital Partners.

Rusty served for 5 years as a Cost Analyst after earning his Bachelor of Science degree in Behavioral Sciences from the United States Air Force Academy. He received his MBA degree from Loyola Marymount University. Rusty earned his Chartered Financial Analyst (CFA) designation in 2004 and is a member of the CFA Institute and the Orange County CFA Society.

Richard W. Hoss – Senior Associate Analyst

Rick has more than 9 years of investment management experience. He is an analyst on the firm's emerging markets investment team. Prior to joining Champlain in the summer of 2015, Rick was a managing partner at New Sheridan Advisors LLC, a boutique emerging and frontier markets investment specialist. Prior to New Sheridan Advisors, Rick was a senior research analyst at ROTH Capital Partners, where he led research coverage on the Industrials sector.

Rick served for 6 years as an aircraft commander after earning his Bachelor of Science degree in Social Sciences from the United States Air Force Academy. He received his MBA degree from the University of Maryland.

Finn R. McCoy – Partner & Trader

Finn has more than 8 years of financial services experience. Finn joined Champlain in the summer of 2006 as an operations analyst. Finn moved to the trading desk in 2008. Finn's prior experience includes internships with the offices of United States Senators Patrick Leahy and James Jeffords, as well as a semester studying abroad in Buenos Aires, Argentina.

Finn graduated with honors with a Bachelor of Arts in Economics from the University of Vermont.

Mary E. Michel – Partner & Client Service

Mary has more than 27 years of financial services experience. She is a founding partner and is responsible for client service and consultant relations. Prior to joining Champlain, she was a consultant for NL Capital Management, Inc. working as an institutional relationship manager. Prior to this, she was a vice president at Funds Distributors, Inc. where she worked with Dresdner RCM Global Funds as a senior distribution strategist and relationship manager. Before this, she was at Warburg Pincus Asset Management, Inc. where she co-managed the marketing, sales and key accounts for the financial advisor channel.

Mary graduated from Syracuse University with a Bachelor of Arts in Political Science. She received her MBA from the University of Connecticut. Mary earned the Claritas Investment Certificate in 2013. Claritas and Claritas Investment Certificate are Trademarks owned by CFA Institute.

Team

Wendy K. Nunez – Partner & Chief Compliance Officer and Operations

Wendy has over 26 years of financial services experience. She is a founding partner and is responsible for compliance and operations at the firm. Prior to joining Champlain, Wendy was a registered principal at Equity Services, Inc., where she managed the home office operations of the broker-dealer. Prior to that, Wendy spent 14 years at Scudder Kemper Investments. In her most recent role at Scudder Kemper, Wendy was vice president of The Regulatory Oversight Group; her group was responsible for all non-routine regulatory interactions, oversight of the Code of Ethics, as well as the compliance audit function. Wendy also held management positions in distributor and advisor compliance and investment operations.

Wendy graduated from the University of Vermont with a Bachelor of Arts in Political Science. She received her MBA from Boston University.

Margaret C. O'Brien – Associate Client Service

Meg brings more than 10 years of client service experience to the firm. Prior to joining Champlain in 2010, Meg worked in operations management and customer service with Destination Hotels and Resorts. She also held positions in the nonprofit and development field. Meg graduated from the University of Colorado, Boulder with a Bachelor of Arts. Meg earned the Claritas Investment Certificate in 2013. Claritas and Claritas Investment Certificate are Trademarks owned by CFA Institute.

Judith W. O'Connell – Managing Partner & Chief Operating Officer

Judy has more than 24 years of financial services experience. She is a founding partner and has primary responsibility for the firm's day-to-day operations, client service and business development. Prior to joining Champlain, she was a senior vice president at NL Capital Management, Inc. where she directed client service, marketing and operations for the firm's institutional business. Before this, she was the director of mutual funds/intermediary markets at Dresdner RCM Capital Management in San Francisco, California, where she had overall responsibility for business management, operations, marketing, sales and product development functions for the mutual funds. Early in her career, she held management positions within investment operations, compliance and treasury at The Boston Company.

Judy graduated from the University of Massachusetts-Amherst with a Bachelor of Science in Finance.

David M. O'Neal, CFA – Partner & Analyst

David has more than 18 years of investment management experience. He is a founding partner and a member of the firm's investment team specializing in health care research. Prior to joining Champlain, David was vice president and health care equity analyst for the small cap and core mid cap strategies at NL Capital Management, Inc. From 1997 to 2002, he was a senior research analyst for Midwest Research/First Tennessee Securities. Additionally, David has over 12 years experience in the health care market as a hospital manager and health care consultant.

David graduated magna cum laude from Vanderbilt University with a Bachelor of Arts in Economics and Mathematics. He received his MBA from the University of Chicago. David earned his Chartered Financial Analyst (CFA) designation in 2002 and is a member of the CFA Institute and the Vermont CFA Society.

Team

Eric P. Ode – Partner & Business Management

Eric has more than 6 years of financial services experience. Eric first joined Champlain as a summer intern in 2012, and rejoined the firm in 2014. Prior to joining Champlain in 2014, Eric was a Vice President at Great Hill Partners where he was responsible for originating and evaluating investment opportunities in the business and financial services sectors. Previously, Eric was a Corporate Private Equity Associate at The Carlyle Group where he evaluated investment opportunities and worked with portfolio companies in the Aerospace, Defense and Government Services sectors. Prior to his time at The Carlyle Group, Eric worked at Credit Suisse as an Investment Banking Analyst in the Financial Sponsors group.

Eric received an AB in Economics from Harvard University and an MBA from The Wharton School at the University of Pennsylvania, where he was a Joseph Wharton Fellow.

Kate R. Saraceno – Associate Client Service Support

Kate brings more than 16 years of administrative experience to her role supporting Champlain's Chief Operating Officer. Prior to joining Champlain in 2014, Kate spent eight years at McKinsey & Company in roles in administration, professional development, and communications. She also worked as the Executive Assistant to the CEOs of two investment management firms in Boston. She is a graduate of Middlebury College with a Bachelor of Arts in Psychology.

Henry C. Sinkula – Associate Analyst

Henry joined Champlain in December 2013 as a Quantitative Analyst intern, and was hired as an Associate Quantitative Analyst in the spring of 2015. Prior to joining Champlain, Henry was an intern with the New Listings team within NASDAQ's Global Corporate Client Group. Henry graduated from the University of Vermont with a Bachelor's of Science in Finance and a Minor in Economics. Henry is a CFA Level I candidate.

Lisa L. Trubiano, CFA – Senior Associate Client Service

Lisa brings more than 29 years of financial services experience to the firm. Prior to joining Champlain in 2015, Lisa was a Vice President with Goldman Sachs in their institutional management division responsible for positioning equity and fixed income strategies to a broad range of institutional investors. Prior to Goldman, Lisa was a Senior Vice President at Dwight where she managed the consultant relations effort and was involved in new business development for their fixed income strategies. Previously, she managed the Mid-Atlantic sales and relationship management team for The Boston Company, a global equity firm. Lisa had a similar role at Putnam Investments in addition to managing the consultant relations effort in the eastern half of the country.

Lisa graduated from Babson College with an MBA, she received her Master's in Educational Media from Boston University and her Bachelor of Science from Ithaca College in Broadcasting and Film. Lisa earned her Chartered Financial Analyst (CFA) designation in 1999. She is a member of the CFA institute, she holds a board position with the Vermont CFA Society and is a member of the Boston Security Analysts Society.

Elizabeth J. Wykoff – Associate Office Administration

Elizabeth has more than 22 years of experience in office administration, client services, and administrative support. She is responsible for office management. Prior to joining Champlain in 2008, Elizabeth served as assistant to the Chief Operating Officer and founder of Monitor Group, a strategic consulting firm in Cambridge, Massachusetts.

Elizabeth attended Syracuse University.

Team

Jason L. Wyman, Ph.D. – Senior Associate Analyst

Jason has more than 7 years of investment management experience. He is a member of the firm’s investment team focusing on quantitative analysis. Prior to joining Champlain in 2012, he was a vice president at Dwight Asset Management where he developed and oversaw the firm’s quantitative risk management platform for forecasting portfolio volatility, projected tracking error and VAR.

Jason graduated summa cum laude from Middlebury College with a Bachelor of Arts in Physics. He earned his Ph.D. in Physics from the University of Chicago.

ShawnaLea Y. Zemanek – Associate Client Service

ShawnaLea brings more than 13 years of event management, marketing, office administration and client service experience to the firm. Prior to joining Champlain in 2012, ShawnaLea worked in hospitality and event management at Vermont resorts. She also worked in marketing and operations in the travel industry and nonprofit and development field. ShawnaLea graduated from Saint Michael’s College with a Bachelor of Arts in Journalism and Political Science. She received her MBA from the University of Phoenix.

Operational, Risk Management & Compliance Resources

- **Advent/Axys** – Portfolio accounting and performance system that interfaces with the order management system and custodian bank systems to allow straight through processing and automated reconciliation, ensuring accuracy of client account data. Champlain works closely with over 15 custodian banks, ensuring the accuracy of account information and the safekeeping of client assets.
- **Ashland Partners, LLP** – Verification of GIPS compliance including composite construction and performance reporting.
- **Assette** – A leading provider of client reporting solutions. Assette client reporting and presentation software enables us to easily combine data from Advent/Axys and FactSet to quickly produce customized reports and presentations.
- **Broadridge ProxyEdge®** – ProxyEdge is Broadridge's suite of electronic voting services that help simplify the management of institutional proxies. The system manages the process of meeting notifications, voting, tracking, mailing, reporting, record maintenance and even vote disclosure rules enacted by the SEC. Champlain uses ProxyEdge® to vote all of our proxies.
- **Code:Red** – A research management platform that aggregates various forms of research, data, articles, and other information sources. It enables the investment team to better collaborate on research, major trends, industry news, and a variety of other elements that support our portfolio management and stock selection process.
- **Eze Software** – An industry leading Order Management System. Eze Software enables us to monitor and analyze portfolios, route orders, receive executions, manage guidelines and restrictions, and integrate directly with our internal systems and external parties. Eze Software includes a front-end compliance module through which Champlain monitors account guidelines and restrictions.
- **FactSet** – Desktop access to comprehensive, highly detailed financial data on all publicly traded U. S. companies. Extensive screening capabilities and broad array of financial analysis tools including portfolio attribution.
- **Investment Advisers Association** – The IAA represents the interest of SEC-registered investment advisers through advocacy, compliance consulting and education.
- **MATLAB** – A high-level programming language and interactive environment for numerical computation, data visualization, and the development of proprietary custom software. Champlain uses it to automate internal reporting, translate data between different software vendor systems, build tools used by the investment team and trading desk, and produce original market research which informs the investment process.
- **MSCI ESG Research** – Provides in-depth research and analysis of the environmental, social and governance-related business practices of thousands of companies worldwide; Champlain utilizes MSCI ESG Manager to facilitate the creation of restricted lists for its socially responsible investor (SRI) clients.
- **National Regulatory Service** – An online compliance resource and tool that facilitates communication and training of Champlain staff.
- **Omgeo/Oasys and Alert** – Oasys and Alert provide the ability to automatically report and affirm trades through DTC, and to communicate current account delivery instructions to brokers.
- **SatuitCRM** – On-demand and on-premise vertical market sales force automation and client relationship management solution.
- **Schwab Compliance Technologies, Inc.** – Compliance automation software vendor; includes employee trading preclearance, insider trading surveillance, policy affirmations, employee disclosures, gifts and entertainment reporting, and political contribution preclearance and reporting.

Mid Cap Composite Performance (as of 06.30.15)

Annualized Returns %			
	Gross	Net	Russell Midcap
1 Year	10.32	9.54	6.63
3 Year	19.43	18.57	19.26
5 Year	18.83	17.98	18.23
7 Year	12.64	11.84	10.51
10 Year	12.02	11.18	9.40
Since Inception 03.25.04	12.16	11.28	10.18

Annual Returns %			
	Gross	Net	Russell Midcap
YTD 2015	6.94	6.55	2.35
2014	9.19	8.43	13.22
2013	38.92	37.88	34.76
2012	13.05	12.23	17.28
2011	4.04	3.31	-1.55
2010	22.18	21.37	25.48
2009	28.91	28.04	40.48
2008	-25.71	-26.13	-41.46
2007	16.55	15.54	5.69
2006	10.30	9.21	15.58
2005	13.04	11.90	12.70

CHAMPLAIN INVESTMENT PARTNERS

Mid Cap Composite Annual Disclosure (as of 06.30.15)

Year End	Total Firm Assets (millions)	Composite Assets		Annual Performance Results							
		USD (millions)	Number of Accounts	Composite Gross	Composite Net	Russell Midcap	S&P MidCap 400	Composite Dispersion	Composite 3 Year Standard Deviation	RMidcap 3 Year Standard Deviation	S&P MidCap 400 3 Year Standard Deviation
2014	6,604	2,460	28	9.19%	8.43%	13.22%	9.77%	0.12%	10.77%	10.14%	11.13%
2013	6,032	1,873	27	38.92%	37.88%	34.76%	33.50%	0.23%	13.57%	14.03%	15.02%
2012	4,396	1,336	27	13.05%	12.23%	17.28%	17.88%	0.15%	14.88%	17.20%	17.90%
2011	4,219	1,236	25	4.04%	3.31%	-1.55%	-1.73%	0.44%	17.87%	21.55%	21.85%
2010	4,146	1,079	25	22.18%	21.37%	25.48%	26.64%	0.25%	21.85%	26.46%	25.80%
2009	3,188	625	17	28.91%	28.04%	40.48%	37.38%	1.28%	20.46%	24.21%	23.50%
2008	1,803	117	7	-25.71%	-26.13%	-41.46%	-36.23%	N.A.	16.86%	19.36%	19.02%
2007	1,368	44	3	16.55%	15.54%	5.69%	7.97%	N.A.	7.62%	9.48%	10.37%
2006	587	0.60	1	10.30%	9.21%	15.58%	10.31%	N.A.	N.A.	N.A.	N.A.
2005	219	0.55	1	13.04%	11.90%	12.70%	12.55%	N.A.	N.A.	N.A.	N.A.
2004*	113	0.49	1	13.11%	12.20%	16.87%	13.61%	N.A.	N.A.	N.A.	N.A.

N.A. – Dispersion information is not statistically meaningful due to an insufficient number of portfolios in the composite for the entire year. Standard Deviation information is not presented as 36 monthly composite returns are not available to calculate the statistic.

*Results shown for the year 2004 represent partial period performance from March 26, 2004 through December 31, 2004.

Mid Cap Composite contains fully discretionary mid cap equity accounts and for comparison purposes is measured against the Russell Midcap and the S&P MidCap 400 indices. The Russell Midcap Index measures the performance of the mid cap segment of the U.S. equity universe. The S&P MidCap 400 covers mid cap equities which is approximately 7% of the domestic equity market. The strategy invests in a broadly diversified portfolio of approximately 50 to 75 common stocks of medium sized companies, and to a lesser extent small and large sized companies, which have attractive long-term fundamentals, superior appreciation potential and attractive valuations. The composition of Champlain's portfolio may differ significantly from the securities that comprise the index due to the firm's active investment process, sector allocations and valuation analysis, and smaller number of holdings. Champlain's Mid Cap investment program does not, and Champlain makes no attempt to, mirror the performance of the indices in the aggregate and the volatility of Champlain's Mid Cap investment program may be materially different from that of the referenced indices. Champlain's Mid Cap investment strategy may involve above-average portfolio turnover which could negatively impact the after-tax gain experienced by an investor.

Champlain Investment Partners, LLC claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Champlain Investment Partners, LLC has been independently verified for the periods September 17, 2004 through March 31, 2015.

Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The mid cap composite has been examined for the periods September 17, 2004 through March 31, 2015. The verification and performance examination reports are available upon request.

Champlain Investment Partners, LLC is an independent investment adviser. The firm maintains a complete list and description of composites, which is available upon request.

Results are based on fully discretionary accounts under management, including those accounts no longer with the firm. Past performance is not indicative of future results.

The U.S. Dollar is the currency used to express performance. Returns are presented gross and net of management fees and include the reinvestment of all income. Net returns are calculated based on actual fees. Actual returns are reduced by investment advisory fees including performance based fees and other expenses that may be incurred in the management of the account. The annual composite dispersion presented is an asset-weighted standard deviation calculated for the accounts in the composite the entire year. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

The investment management fee schedule for the composite is 0.85% on the first \$50 million, 0.75% on the next \$50 million, and 0.65% over \$100 million. Actual investment advisory fees incurred by clients may vary. Champlain's fees are described in Part 2 of its Form ADV.

The Mid Cap Composite was created September 17, 2004. Performance presented prior to September 17, 2004 occurred while the Portfolio Manager was affiliated with a prior firm and the Portfolio Manager was the only individual responsible for selecting the securities to buy and sell. Ashland Partners & Company LLP performed an examination of this track record; an Independent Accountant's Report is available upon request.

CHAMPLAIN INVESTMENT PARTNERS

Portfolio Holdings - Champlain Mid Cap Composite

(as of 06.30.15)

Consumer Discretionary

Advance Auto Parts, Inc.
Bed Bath & Beyond Inc.
Cabela's Incorporated
CST Brands, Inc.
John Wiley & Sons, Inc. Class A
Panera Bread Company Class A
Sally Beauty Holdings, Inc.
Tupperware Brands Corporation

Consumer Staples

Flowers Foods, Inc.
J. M. Smucker Company
McCormick & Company, Incorporated
Molson Coors Brewing Company Class B
TreeHouse Foods, Inc.

Energy

Core Laboratories NV
Denbury Resources Inc.
Frank's International NV

Financials

Allied World Assurance Company Holdings,AG
Arthur J. Gallagher & Co.
Commerce Bancshares, Inc.
Cullen/Frost Bankers, Inc.
Endurance Specialty Holdings Ltd.
Northern Trust Corporation
Prosperity Bancshares, Inc.(R)
Willis Group Holdings Plc

Health Care

Align Technology, Inc.
C. R. Bard, Inc.
Cepheid
Cooper Companies, Inc.
Edwards Lifesciences Corporation
Laboratory Corporation of America Holdings
Mettler-Toledo International Inc.
Sirona Dental Systems, Inc.
St. Jude Medical, Inc.
STERIS Corporation
Teleflex Incorporated
Waters Corporation

Industrials

Actuant Corporation Class A
CLARCOR Inc.
Donaldson Company, Inc.
Dover Corporation
Esterline Technologies Corporation
Fastenal Company
Parker-Hannifin Corporation
Rockwell Automation, Inc.

Information Technology

Altera Corporation
ANSYS, Inc.
Fortinet, Inc.
Guidewire Software, Inc.
Informatica Corporation
PTC Inc.
Red Hat, Inc.

SolarWinds, Inc.
Splunk Inc.
WEX Inc.
Workday, Inc. Class A
Xilinx, Inc.

Materials

Aptargroup, Inc.

Holdings are subject to change. References to specific issuers or securities are presented to illustrate the application of our investment philosophy only and are not intended to be considered recommendations by Champlain Investment Partners. The specific securities identified and described in this presentation do not represent all of the securities purchased, sold or recommended by Champlain, and it should not be assumed that investments in the securities identified were or will be profitable. Upon request, Champlain will provide a list of all securities purchased over the last year. This information is presented as supplemental to the performance disclosure page included in this presentation.

June 30, 2015



Tucson Supplemental Retirement System

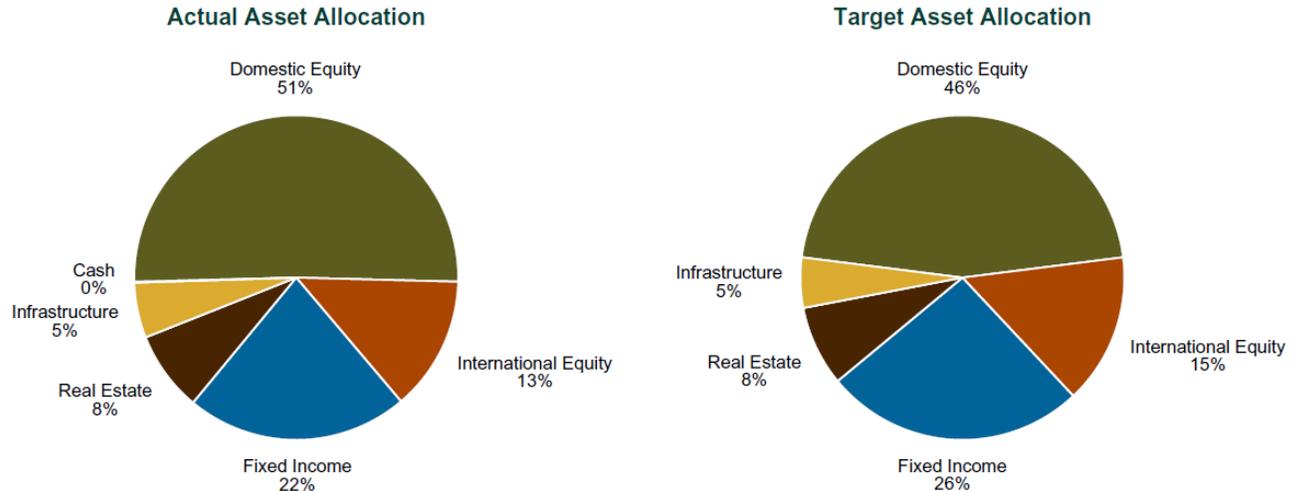
Investment Measurement Service
Quarterly Review

The following report was prepared by Callan Associates Inc. ("CAI") using information from sources that include the following: fund trustee(s); fund custodian(s); investment manager(s); CAI computer software; CAI investment manager and fund sponsor database; third party data vendors; and other outside sources as directed by the client. CAI assumes no responsibility for the accuracy or completeness of the information provided, or methodologies employed, by any information providers external to CAI. Reasonable care has been taken to assure the accuracy of the CAI database and computer software. Callan does not provide advice regarding, nor shall Callan be responsible for, the purchase, sale, hedge or holding of individual securities, including, without limitation securities of the client (i.e., company stock) or derivatives in the client's accounts. In preparing the following report, CAI has not reviewed the risks of individual security holdings or the conformity of individual security holdings with the client's investment policies and guidelines, nor has it assumed any responsibility to do so. Advice pertaining to the merits of individual securities and derivatives should be discussed with a third party securities expert. Copyright 2015 by Callan Associates Inc.

Tucson Supplemental Retirement System

Executive Summary for Period Ending June 30, 2015

Asset Allocation



Total Fund Performance

Returns for Periods Ended June 30, 2015

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 years
Total Fund Gross	0.76%	4.63%	12.86%	12.64%	7.07%
Total Fund Net	0.62%	4.17%	12.32%	12.07%	6.53%
Total Fund Benchmark*	0.14%	4.34%	11.27%	11.70%	6.82%

Fiscal Year Returns

	2015	2014	2013	2012	2011
Total Fund Gross	4.63%	19.64%	14.84%	2.40%	23.19%
Total Fund Net	4.17%	19.11%	14.21%	1.82%	22.52%
Total Fund Benchmark*	4.34%	16.97%	12.87%	3.04%	22.53%

* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

Recent Developments

- In August 2015, PIMCO announced they received a Wells notice from the SEC regarding the valuation of securities in the actively managed ETF vehicle of the PIMCO Total Return strategy (ticker: BOND). Specifically the Wells notice referenced the valuation of smaller sized positions in non-agency MBS purchased by the ETF during the period since inception on February 29, 2012 to June 30, 2012.

The potential concern is that PIMCO was buying difficult-to-value non-agency MBS in small sizes (in “odd lots”) at cheap prices and then valuing these securities at higher prices for the purposes of calculating a NAV for the ETF and calculating performance.

Note that a Wells notice represents a recommendation from SEC staff to commence civil enforcement action against PIMCO, not a verdict or finding of wrongdoing, or even technically an allegation of wrongdoing. It provides PIMCO a chance to respond to the issues that were brought up by the notice.

- In May 2015, Causeway Capital Management announced the departure of fundamental Portfolio Manager Kevin Durkin, effective August 31, 2015. Durkin has been with the team since 1999 at its predecessor firm Hotchkis and Wiley Capital Management. Following his departure, Ellen Lee will lead the strategy's energy research cluster while continuing her work in utilities. Lee joined the firm in 2007 as a research associate and was promoted to portfolio manager in January 2015.

Organizational Issues

- In May 2015, Aberdeen Asset Management PLC (Aberdeen) announced its plan to acquire FLAG Capital Management, a \$6 billion private equity and real estate manager with offices in Stamford, Boston, and Hong Kong. With this acquisition, Aberdeen will manage approximately \$21 billion in its alternatives platform. The transaction, subject to regulatory approval from the Hong Kong Securities and Futures Commission and the U.S. Department of Justice and the Federal Trade Commission, is expected to close in the third quarter of 2015.
- In August 2015, Aberdeen Asset Management recently announced the acquisition of Arden Asset Management LLC. Arden is a hedge fund of funds manager that advises on a range of multi-manager vehicles, including a daily liquidity 40 Act mutual fund. The acquisition will bring combined hedge fund assets under management at Aberdeen to \$11 billion with over 30 investment professionals. The Arden transaction comes on the heels of Aberdeen's acquisition of FLAG Capital Management, a private equity shop, in May 2015. The acquisitions are part of a larger effort to grow and broaden Aberdeen's global alternatives platform to better service clients.

Active Manager Performance

Fund	Peer Group Ranking		
	Last Year	Last 3 Years	Last 5 Years
PIMCO Stocks Plus	53	28	12
T. Rowe Price Large Cap Growth	47	7	[10]
Champlain Mid Cap	29	41	[47]
Pyramis Small Cap	10	13	11
Causeway International Value Equity	58	29	12
Aberdeen EAFE Plus	98	[99]	[86]
PIMCO Fixed Income	98	11	17
J.P. Morgan Strategic Property Fund	49	1	14
LaSalle Income and Growth Fund	20	68	86
JP Morgan Income and Growth Fund	30	5	4

* *Brackets indicate actual performance linked with manager composite*

- Aberdeen EAFE Plus – This product invests in non-U.S. stocks Aberdeen believes are high quality and reasonably priced. The first full quarter for TSRS's investment with Aberdeen was the second quarter of 2012 and over that period Aberdeen has returned 5.85% per annum while the MSCI ACWI ex-U.S. benchmark returned 9.44%. This has been a noticeably difficult period of performance for Aberdeen though it is not inconsistent with their philosophy to protect in down markets at the expense of lower upside in rising equity markets. This is evident in Aberdeen's low volatility of return versus peers and portfolio positioning in sectors and companies that have historically

exhibited more defensive characteristic such as consumer staples, industrials, and telecommunication. A period of less than three years is a short time-frame to examine an investment manager with a long-term view. Aberdeen's performance is shown on pages 61 & 62.

**Tucson Supplemental Retirement System
Statement of Pension Investment Policy and Objectives
Quantitative Watchlist Criteria**

— One-Year Performance (measured on a quarterly basis)

1. Fixed Income and Open-End Real Estate Portfolios
 - Underperform benchmark by 2.0% and bottom 25% in peer group for two consecutive quarters.

None

2. Passively Managed Portfolios
 - Underperform benchmark by 0.5%

None

3. Actively Managed Equity Portfolios
 - Underperform benchmark by 5.0% and bottom 25% in peer group for two consecutive quarters.

None

● Three-Year performance (annualized, measured on rolling quarterly basis)

1. Actively Managed Portfolios
 - Underperform benchmark and bottom 60% in peer group for two consecutive quarters.

Aberdeen EAFE Plus meets this criterion. As of 6/30/15, the three-year return for Aberdeen was 5.85% and ranked 99th percentile versus peer while the benchmark returned 9.44%. As of 3/31/15, the three-year return for Aberdeen was 4.72% and ranked 98th percentile versus peer while the benchmark returned 6.40%.

LaSalle meets this criterion. As of 6/30/15, the three-year return for LaSalle was 12.49% and ranked 68th percentile versus peers while the benchmark returned 13.11%. As of 3/31/15, the three-year return for LaSalle was 4.78% and ranked 94th percentile versus peers while the benchmark returned 12.66%. This fund is in the process of liquidation.

2. Passively Managed Portfolios
 - Underperform benchmark by 0.3%

None

*Steel River and Macquarie are infrastructure funds with no available peer group data. According to LaSalle, Income & Growth Fund IV's expected termination date is 10/1/2015; a final distribution of TSRS's remaining assets will occur subsequent to the termination date."

Gordon Weightman, CFA
Vice President

Paul Erlendson
Senior Vice President

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Reversion to the Mean

U.S. ECONOMY

2 The U.S. GDP resumed momentum, posting a 2.3% increase. Credit goes to the rise in consumer spending fueled by robust gains in employment and household wealth. Inflation remains well below the Fed's 2% target.

Returns Take a Semester Abroad

FUND SPONSOR

4 In the **Callan Fund Sponsor Database**, corporate funds (-0.21%) were the quarter's worst performers while Taft-Hartley plans (+0.33%) were the best at the median. Taft-Hartley funds benefited from a smaller exposure to fixed income versus their corporate peers.

Broad Market Quarterly Returns

U.S. Equity (Russell 3000)		+0.14%
Non-U.S. Equity (MSCI ACWI ex USA)		+0.72%
Emerging Equity (MSCI Em. Mkts.)		+0.82%
		-1.68%
U.S. Fixed (Barclays Aggregate)		-1.54%
Non-U.S. Fixed (Citi Non-U.S.)		+3.14%
Real Estate (NCREIF Property)		-0.48%
Hedge Funds (CS HFI)		+4.65%
Commodities (Bloomberg)		+0.01%
Cash (90-Day T-Bills)		+0.01%

Sources: Barclays, Citigroup, Credit Suisse Hedge Index, Merrill Lynch, MSCI, NCREIF, Russell Investment Group, S&P Dow Jones

Underwhelming

U.S. EQUITY

6 Large and small cap stocks showed slightly positive returns this quarter (**Russell 1000 Index**: +0.1% and **Russell 2000 Index**: +0.4%) while mid cap trailed considerably (**Russell Mid-Cap Index**: -1.5%). Growth maintained its lead over value in all capitalizations.

Greek Gloom

NON-U.S. EQUITY

9 Non-U.S. markets managed to end the quarter with a slight gain (**MSCI ACWI ex USA Index**: +0.72%) despite heightened concerns about Greece and China. Both the developed **MSCI World ex USA Index** (+0.48%) and the **MSCI Emerging Markets Index** (+0.82%) eked out meager returns.

Rates Move Higher

U.S. FIXED INCOME

12 The U.S. bond markets experienced a backup in interest rates as Treasuries sold off and spread sectors were mixed. The yield curve steepened. The **Barclays Aggregate Index** declined 1.68%. The **Barclays Corporate High Yield Index** was flat.

Deal or No Deal

NON-U.S. FIXED INCOME

15 The debt standoff in Greece and a bull market reversal in developed markets highlighted the sovereign bond market. The unhedged **Citi Non-U.S. World Government Bond Index (WGBI)** declined 1.54%, while the hedged WGBI plunged 3.20% due to a weakening U.S. dollar.

Mixed Messages

REAL ESTATE

17 The **NCREIF Property Index** advanced 3.14% (1.26% income return; 1.89% appreciation return). The **FTSE EPRA/NAREIT Developed REIT Index (USD)** declined 6.67% and domestic REITs tracked by the **FTSE NAREIT Equity REITs Index** dropped 9.95%.

A Seller's Market

PRIVATE EQUITY

19 Fundraising, venture investment, and IPOs for both buyout and venture leaped in the second quarter. Buyout investment was flat and M&A exit figures for both buyout and venture were mixed. High prices are muting private M&A volumes, but all other activity measures soared.

Momentum Whiplash

HEDGE FUNDS

20 The **Credit Suisse Hedge Fund Index** slipped 0.48%. The median manager in the **Callan Hedge Fund-of-Funds Database** inched ahead 0.23%. The quarter's most notable victim was Managed Futures (-10.61%).

TDFs Win Quarter, Asset Flows

DEFINED CONTRIBUTION

21 The **Callan DC Index™** gained 2.15%, trailing the typical 2035 target date fund (TDF), which rose 2.55%. DC plan balances grew by 2.76%. Nearly 66 cents of every dollar that moved within DC plans flowed to TDFs.

Reversion to the Mean

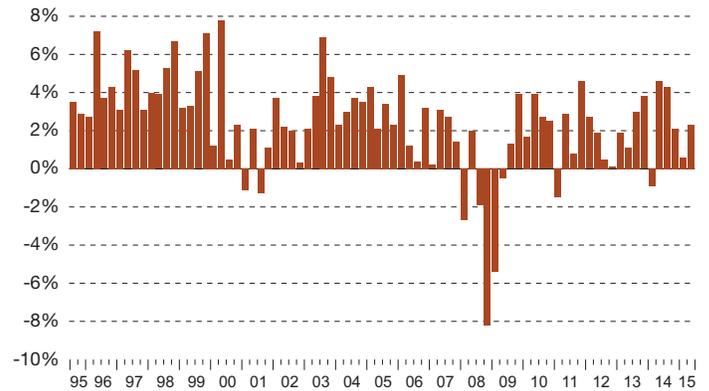
U.S. ECONOMY | Jay Kloepfer

After stalling in the first part of 2015, the U.S. economic expansion resumed in the second quarter with a 2.3% increase in GDP. Real GDP growth measurement for the first quarter proved to be a bumpy ride: the initial estimate of +0.2% was revised to a 0.7% loss, then to a slighter drop of 0.2%, and the most recent announcement swung back to black, albeit a scant +0.6%. However we measure it, the weakness in the first quarter was attributed to a strong dollar hurting exports, harsh winter weather interfering with general economic activity, and a sharp decline in oil drilling due to plunging oil prices. Labor stoppages in western ports added to the troubles. The resumption in growth in the second quarter came from a rise in consumption spending, fueled by robust gains in employment and household wealth. Consumer confidence rose through much of the quarter, although the events in Greece and China in June likely sapped some of that confidence. The housing market recovery continued to take shape, prodded by the same economic news that drove consumption (jobs, household wealth, and consumer confidence). While some of the data send mixed messages, growth in the U.S. economy is reverting to its underlying 2.5%-3% long-term average rate.

The job market posted solid gains during the first half of 2015, averaging 195,000 per month in the first quarter and 221,000 per month in the second. The year-over-year gain in jobs through June reached just short of three million, the largest gain for the July-June period since 2000. The unemployment rate fell to 5.3% in June. While these data confirm that the first-quarter GDP weakness was an anomaly, the Fed remains concerned about key characteristics of the U.S. labor market. Much of the improvement in the unemployment rate has been the result of discouraged workers leaving the labor force. The labor force participation rate fell to 62.6% in June, a 38-year low. Wage growth has been positive but modest, rising 2% year-over-year through June, suggesting continued slack in the labor market despite the reported job gains.

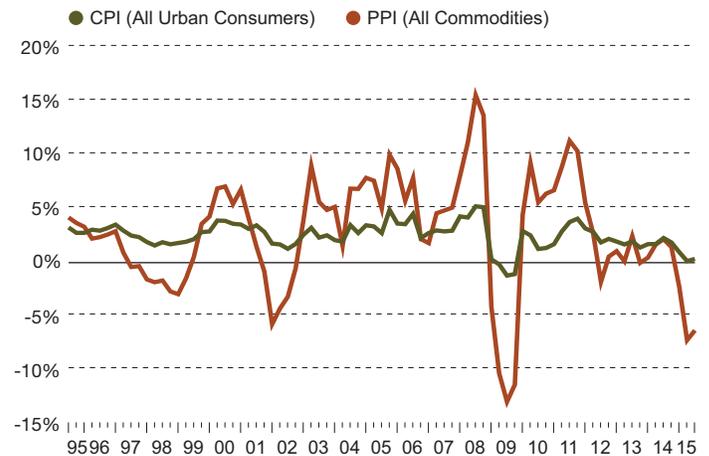
Quarterly Real GDP Growth

(20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

Inflation remains well below the Fed's 2% target. Headline CPI was flat in June compared to one year earlier due to sharply falling energy prices in the latter half of 2014. Core CPI, which excludes food and energy, was up 1.8% in June year-over-year, pushed up by health care and housing costs. The sharp drop in energy prices provided a windfall of sorts for consumers, enabling them to direct spending to other categories, such as cars and other durable goods.

Household net worth reached \$85 trillion in the first quarter of 2015, fueled by rising home prices and the strong U.S. stock market. Net worth is now 25% higher than its 2007 pre-financial-crisis peak. This improvement in net worth, combined with the solid job market gains, has led to a buoyed level of consumer confidence and resulted in broad consumer spending, strong auto sales, and perked up interest in the housing market. Home prices are rising everywhere, but at varying rates; gains have averaged 5% year-over-year over the past 12 months. Existing home sales rose 3.2% in June to a 5.49 million-unit annual rate, while new home sales are running at a 545,000-unit rate; both rates are multi-year highs, but substantially below the peaks set prior to 2007. Inventories remain tight, despite the rising prices. One factor is the existing supply of homes that remain under water relative to their mortgage; recent estimates place this inventory at five million.

Capital spending by sector was all over the map during the first half of 2015. Spending on buildings suddenly surged during the second quarter. Spending on R&D and software continues to grow at a solid rate, while spending on equipment has stalled over the past four quarters. These three sectors drove business investment spending for several years after the recession. Spending on mining and oil wells collapsed, formerly another source of recent robust investment growth. Taken as a whole, capital spending stumbled in the fourth quarter of 2014 and suffered a weaker-than-expected first half of 2015, most likely because economic growth was interrupted.

U.S. exports of goods plunged in the first quarter of 2015, sapped by the surging dollar and uncertain economic growth. However, imports continued to increase and the combined effect

The Long-Term View

Index	2015 2nd Qtr	Periods ended December 31, 2014			
		Year	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	0.14	12.56	15.63	7.94	9.78
S&P 500	0.28	13.69	15.45	7.67	9.62
Russell 2000	0.42	4.89	15.55	7.77	9.75
Non-U.S. Equity					
MSCI EAFE	0.62	-4.90	5.33	4.43	4.31
MSCI Emerging Markets	0.82	-1.82	2.11	8.78	8.83
S&P Ex-U.S. Small Cap	4.61	-3.42	8.52	6.84	5.48
Fixed Income					
Barclays Aggregate	-1.68	5.97	4.45	4.71	6.49
90-Day T-Bill	0.01	0.03	0.09	1.54	3.24
Barclays Long G/C	-7.22	19.31	9.81	7.36	8.49
Citi Non-U.S. Govt	-1.54	-2.68	0.85	2.64	6.21
Real Estate					
NCREIF Property	3.14	11.82	12.13	8.38	7.61
FTSE NAREIT Equity	-9.95	30.14	16.88	8.31	11.25
Alternatives					
CS Hedge Fund	-0.48	4.13	5.88	5.82	--
Cambridge PE*	--	22.88	17.40	14.02	15.56
Bloomberg Commodity	4.66	-17.01	-5.53	-1.86	--
Gold Spot Price	-0.96	-1.51	1.55	10.45	4.38
Inflation – CPI-U	1.07	0.76	1.69	2.12	2.52

*Private equity data is time-weighted return for period ended December 31, 2014.

Sources: Barclays, Bloomberg, Citigroup, Credit Suisse, FTSE, MSCI, NCREIF, Russell Investment Group, Standard & Poor's, Thomson/Cambridge.

of net exports (exports minus imports) subtracted 1.9% from GDP growth. Exports rebounded in the second quarter, as the impact of the dollar's surge stabilized and a modest recovery took hold in the euro zone. Exports rose by 5.3% and import growth slipped from 7.1% in the first quarter to 3.5% in the second; as a result, net exports no longer dragged on GDP growth.

Recent Quarterly Indicators

Economic Indicators	2Q15	1Q15	4Q14	3Q14	2Q14	1Q14	4Q13	3Q13
Employment Cost–Total Compensation Growth	2.0%	2.6%	2.2%	2.2%	2.0%	1.8%	2.0%	1.9%
Nonfarm Business–Productivity Growth	1.0%*	-3.1%	-2.1%	3.9%	2.9%	-4.7%	3.0%	3.4%
GDP Growth	2.3%	0.6%	2.1%	4.3%	4.6%	-0.9%	3.8%	3.0%
Manufacturing Capacity Utilization	77.2%	77.3%	77.8%	77.5%	77.1%	76.2%	76.4%	76.0%
Consumer Sentiment Index (1966=100)	94.2	95.5	89.8	83.0	82.8	80.9	76.9	81.6

*Estimate

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, IHS Economics, Reuters/University of Michigan

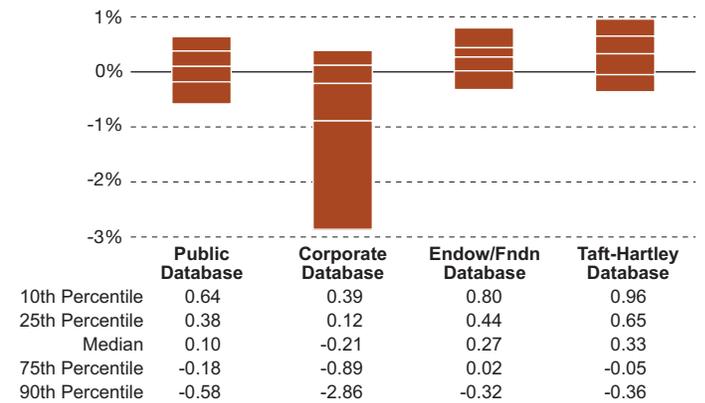
Returns Take a Semester Abroad

FUND SPONSOR | Kevin Nagy

Public markets experienced an up-and-down quarter, with equity indices exhibiting slight gains while fixed income was in the red. Non-U.S. equity markets (**MSCI ACWI ex USA Index: +0.72%**) were able to overcome uncertainty in Greece and a large sell-off in China to beat U.S. equity (**Russell 3000 Index: +0.14%**) for the second straight quarter. Both U.S. and non-U.S. fixed income markets suffered losses (**Barclays Aggregate: -1.68%**, **Citi Non-U.S. World Government Bond Index-Unhedged: -1.54%**).

As seen in the Callan Fund Sponsor Quarterly Returns chart, performance was tepid at best. Corporate funds were the worst performers across all percentiles shown, while Taft-Hartley plans (+0.33%) were the best at the median. The 10th percentile's performance displayed moderate dispersion, with Taft-Hartley plans (+0.96%) coming in first place and endowments/foundations (+0.80%) second. Dispersion in the bottom decile was highest, with endowments/foundations (-0.32%) in the lead and corporate plans (-2.86%) bringing up the rear.

Callan Fund Sponsor Quarterly Returns



Source: Callan

In terms of asset allocation and its impact on performance, Taft-Hartley funds benefited from a smaller exposure to fixed income when compared to their corporate peers. They were also helped by a strong performance from private real estate (**NCREIF Property Index: +3.14%**). Corporate funds were hurt by larger allocations to U.S. fixed income than the other fund

Database Median and Index Returns* for Periods ended June 30, 2015

Fund Sponsor	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Public Database	0.10	2.43	3.20	10.30	10.41	6.57
Corporate Database	-0.21	2.15	2.94	9.72	10.57	6.79
Endowments/Foundations Database	0.27	2.56	2.34	10.03	9.89	6.53
Taft-Hartley Database	0.33	2.64	4.10	10.74	10.81	6.28
Diversified Manager	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Asset Allocator Style	-0.25	1.46	3.89	9.98	10.51	6.77
U.S. Balanced Database	-0.19	2.00	2.76	11.30	11.55	6.65
Global Balanced Database	-0.89	1.44	-0.06	8.00	8.88	6.58
60% Russell 3000 + 40% Barclays Agg	-0.59	1.12	5.10	11.23	11.98	7.08
60% MSCI World + 40% Barclays Gbl Agg	-0.29	0.33	-2.04	8.04	8.72	5.50

*Returns less than one year are not annualized.

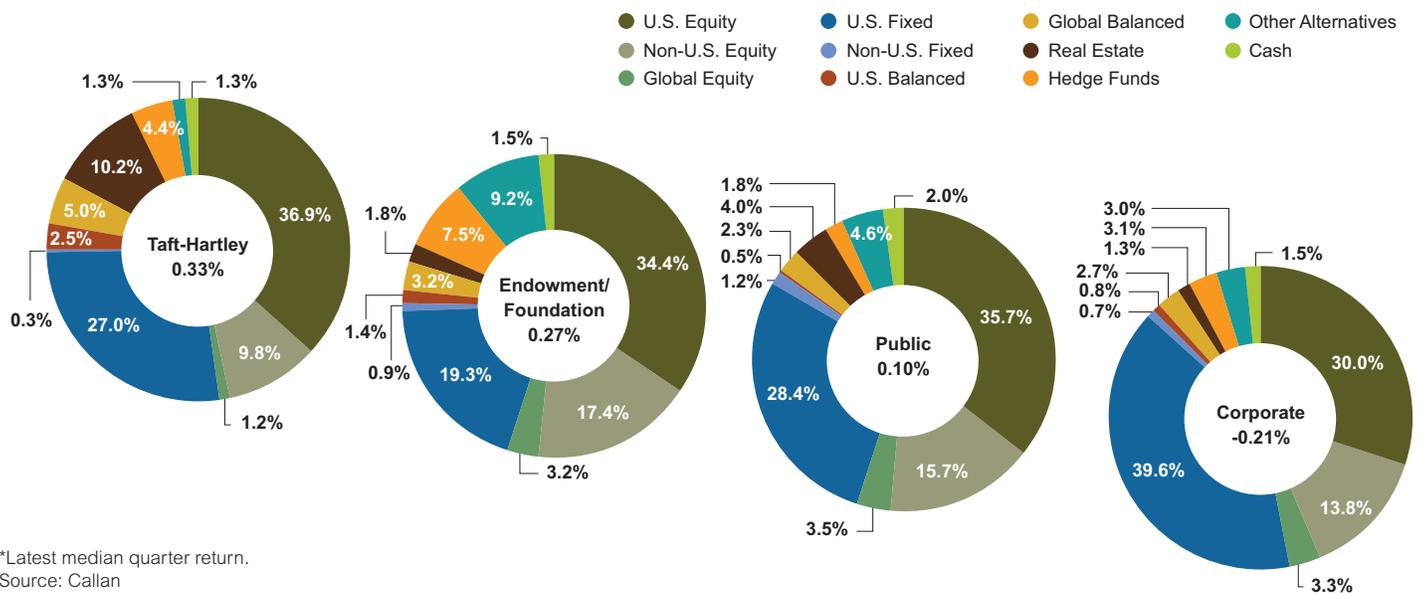
Sources: Callan, Barclays, MSCI, Russell Investment Group

types. As in the first quarter, corporate funds had the widest dispersion between top and bottom percentiles, due to some plans employing liability-driven investment (LDI) programs.

Taft-Hartley funds were the top performers in all noted time periods except for the 10-year period, which went to corporate funds. All fund types for that long-term time period displayed very similar performance in the 6% to 7% range.

Despite trailing in the most recent quarter, the U.S.-focused 60% Russell 3000 + 40% Barclays Aggregate (-0.59%) has outperformed the global 60% MSCI World + 40% Barclays Global Aggregate benchmark (-0.29%) for every other time period. Callan's U.S. Balanced Database group has also outperformed the Global Balanced Database group in every period shown.

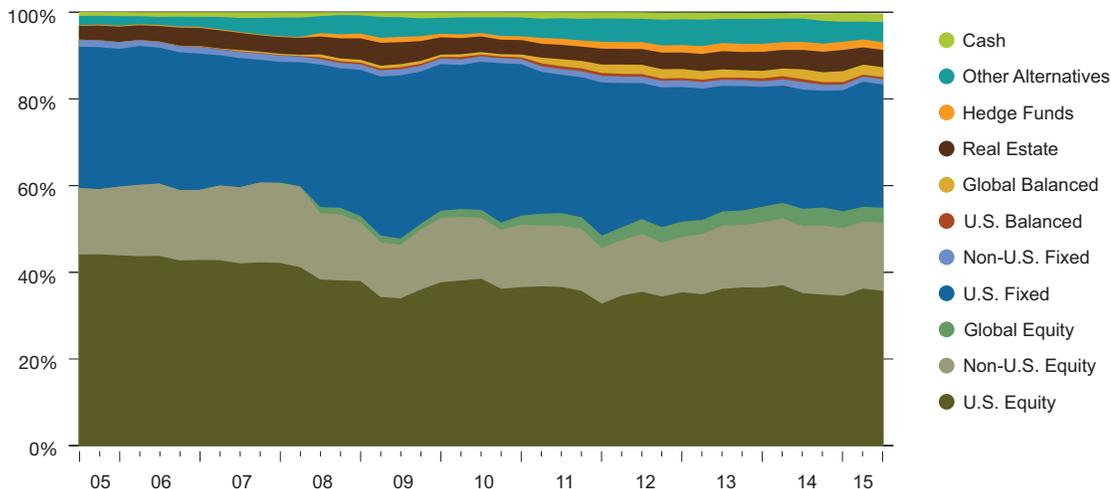
Callan Fund Sponsor Average Asset Allocation



*Latest median quarter return. Source: Callan

Callan Public Fund Database Average Asset Allocation

(10 Years)



Source: Callan

Underwhelming

U.S. EQUITY | Lauren Mathias, CFA

The second quarter got off to a promising start through April and May. In June, however, the **S&P 500 Index** dropped almost 2%, reducing U.S. equity results for the three-month period to 0.28%. Before declining, market indices reached new peaks—most notably the NASDAQ Composite surpassed the all-time high it previously set in March 2000.

Despite underwhelming equity results, the U.S. economy does have some tailwinds. June’s unemployment rate declined to 5.3%, housing improved as more Americans took out mortgages, and consumer confidence ticked higher. However, the Fed’s concerns about economic growth persisted, further delaying a potential increase in interest rates. Underlying U.S. fundamentals appear solid, with corporate profit margins near highs and leverage well below historical averages. This is reflected in valuations with current P/E ratios across market capitalizations above 20-year averages.

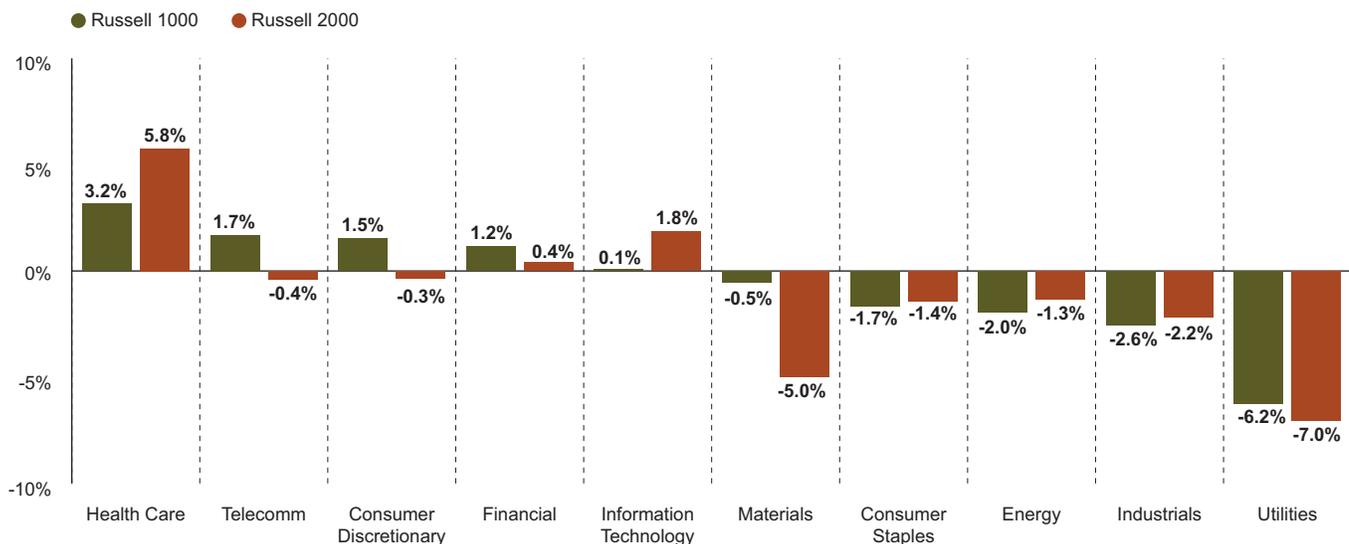
Large and small cap stocks showed slightly positive returns this quarter (**Russell 1000 Index**: +0.1% and **Russell 2000 Index**: +0.4%) while mid cap trailed considerably (**Russell Mid-Cap**

Index: -1.5%). Growth maintained its lead over value in all capitalizations, but most dramatically in small cap (**Russell 2000 Growth Index**: +2.0% and **Russell 2000 Value Index**: -1.2%). Small cap growth continued to beat small cap value in all annualized time periods of less than 10 years. Micro caps and mega caps both advanced (**Russell Microcap Index**: +2.8% and **Russell Top 50**: +1.5%).

Sectors exhibited divergent quarterly results across market capitalizations. Small cap Materials declined sharply versus a slight dip in large cap. Health Care boosted both large and small market caps but was much stronger in small cap. Utilities were the worst-performing sector across capitalizations as interest-rate-sensitive securities declined. On a positive note, M&A activity remained strong, with deal flow increasing across most sectors.

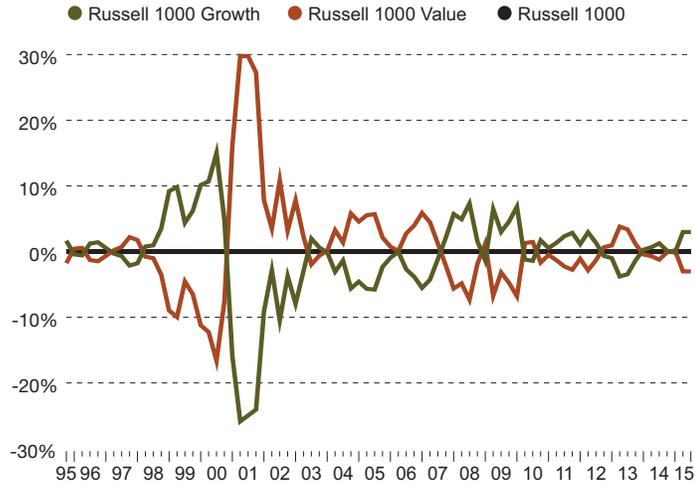
Notably, active management is having the most successful year since the financial crisis; almost half of active large cap managers have outperformed in 2015 thus far. This contrasts with assets that continue to flow to passive strategies, which have grown to be one-third of U.S. equity AUM.

Economic Sector Quarterly Performance



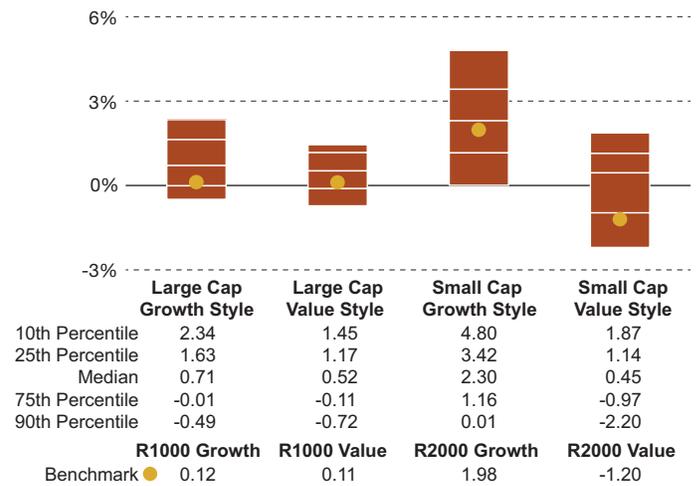
Source: Russell Investment Group

Rolling One-Year Relative Returns (vs. Russell 1000)



Source: Russell Investment Group

Callan Style Group Quarterly Returns



Sources: Callan, Russell Investment Group

U.S. Equity Index Characteristics as of June 30, 2015

	S&P 500	Rus 3000	Rus 1000	Rus Midcap	Rus 2500	Rus 2000
Cap Range Min (\$mm)	1,735	24	354	354	24	24
Cap Range Max (\$bn)	722.58	722.58	722.58	28.09	10.80	4.70
Number of Issues	502	3,004	1,029	829	2,494	1,975
% of Russell 3000	80%	100%	92%	28%	19%	8%
Wtd Avg Mkt Cap (\$bn)	127.97	103.44	112.50	12.16	4.06	1.89
Price/Book Ratio	2.7	2.6	2.7	2.5	2.2	2.1
Forward P/E Ratio	16.4	17.2	16.9	19.0	19.8	20.9
Dividend Yield	2.1%	1.9%	2.0%	1.6%	1.4%	1.3%
5-Yr Earnings (forecasted)	10.3%	11.2%	11.1%	12.9%	13.0%	13.5%

Sources: Russell Investment Group, Standard & Poor's

U.S. EQUITY (Continued)

Style Median and Index Returns* for Periods ended June 30, 2015

Large Cap Equity	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Large Cap Core Style	0.42	1.82	8.00	18.21	17.89	8.39
Large Cap Growth Style	0.71	4.57	11.86	18.87	18.54	9.37
Large Cap Value Style	0.52	0.86	5.23	18.26	17.08	7.69
Aggressive Growth Style	1.49	6.77	10.44	17.74	17.31	9.83
Contrarian Style	0.40	0.65	5.46	17.91	16.74	7.94
Yield-Oriented Style	-0.15	0.02	4.25	15.70	15.99	8.28
Russell 3000	0.14	1.94	7.29	17.73	17.54	8.15
Russell 1000	0.11	1.71	7.37	17.73	17.58	8.13
Russell 1000 Growth	0.12	3.96	10.56	17.99	18.59	9.10
Russell 1000 Value	0.11	-0.61	4.13	17.34	16.50	7.05
S&P Composite 1500	0.17	1.57	7.31	17.41	17.39	8.08
S&P 500	0.28	1.23	7.42	17.31	17.34	7.89
NYSE	-0.20	0.94	0.79	14.49	15.46	7.67
Dow Jones Industrials	-0.29	0.03	7.21	13.77	15.41	8.32
Mid Cap Equity	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Mid Cap Core Style	-1.08	4.51	7.73	21.22	19.70	10.21
Mid Cap Growth Style	0.57	6.52	10.75	18.44	18.36	10.48
Mid Cap Value Style	-1.45	1.76	4.46	19.31	17.63	9.77
Russell Midcap	-1.54	2.35	6.63	19.26	18.23	9.40
S&P MidCap 400	-1.06	4.20	6.40	18.60	17.82	9.74
Small Cap Equity	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Small Cap Core Style	0.55	5.53	7.98	20.57	19.28	9.55
Small Cap Growth Style	2.30	8.37	11.25	19.92	19.56	10.35
Small Cap Value Style	0.45	3.09	4.44	18.61	17.48	8.99
Russell 2000	0.42	4.75	6.49	17.81	17.08	8.40
S&P SmallCap 600	0.19	4.16	6.72	18.81	18.44	9.27
NASDAQ	2.03	5.90	14.44	20.94	20.26	10.42
Smid Cap Equity	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Smid Cap Broad Style	0.58	7.08	8.81	19.15	18.93	10.06
Smid Cap Growth Style	1.82	8.64	10.75	19.12	19.75	10.14
Smid Cap Value Style	-0.66	2.77	4.88	19.11	17.63	9.90
Russell 2500	-0.34	4.81	5.92	18.66	17.85	9.09
S&P 1000	-0.68	4.20	6.51	18.68	18.02	9.58
Russell 3000 Sectors	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Consumer Discretionary	1.36	6.10	14.73	22.99	23.12	9.98
Consumer Staples	-1.65	-0.42	9.54	14.64	17.00	10.82
Energy	-1.94	-4.13	-24.31	5.19	10.03	6.42
Financials	1.08	0.40	9.09	19.28	14.17	1.40
Health Care	3.38	11.45	26.47	28.19	24.58	12.03
Industrials	-2.53	-2.14	1.70	17.95	17.40	8.58
Information Technology	0.20	1.88	11.20	16.89	17.65	9.88
Materials	-0.97	0.03	-2.31	13.20	14.59	9.38
Telecommunications	1.63	3.56	1.69	7.56	14.16	7.32
Utilities	-6.31	-10.58	-3.88	8.54	12.65	7.02

*Returns less than one year are not annualized.

Sources: Callan, Dow Jones & Company, Russell Investment Group, Standard & Poor's, The NASDAQ Stock Market

Greek Gloom

NON-U.S. EQUITY | Irina Sushch

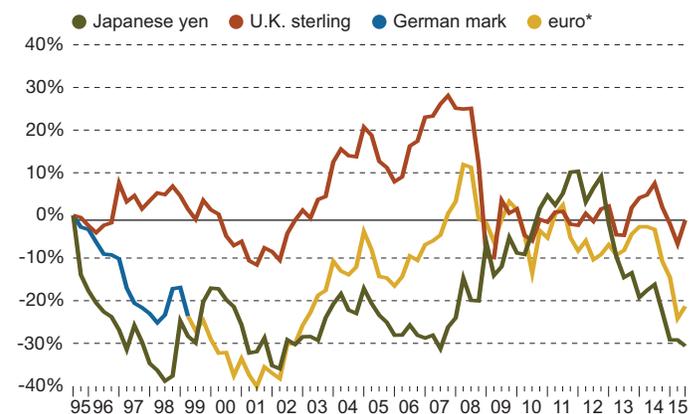
Non-U.S. markets managed to eke out a slightly positive return (**MSCI ACWI ex USA Index: +0.72%**) despite heightened concerns about Greece and China. Even with a “Grexit” looming, China threatened to steal the spotlight—its Shanghai Composite Index dropped nearly 20% in the final weeks of the quarter. Before nosediving, the Index was at a seven-year high and up roughly 150% from year-end 2013.

Both the developed **MSCI World ex USA Index (+0.48%)** and the **MSCI Emerging Markets Index (+0.82%)** delivered meager returns. Small cap stocks continued to climb amid the macro chaos (**MSCI ACWI ex USA Small Cap Index: +4.22%**). In international sectors, Energy (+2.59%) was boosted by rising oil prices. Telecommunications (+3.58%) gained on significant M&A activity. Information Technology (-2.56%) was the weakest sector, dragged down by low earnings in the first quarter. Global uncertainty, stunted earnings, and rising rates undermined the remaining non-U.S. sectors.

European stocks failed to impress (**MSCI Europe Index: +0.36%**). Greece continued to dampen investors’ spirits, ending the quarter with a missed €1.55 billion payment to the International Monetary Fund. Germany slipped 5.59%, red across every sector due to slowing GDP growth. Health Care was a big detractor (European Health Care: -1.19%). Information Technology (-2.44%) and Industrials (-1.60%) stocks struggled.

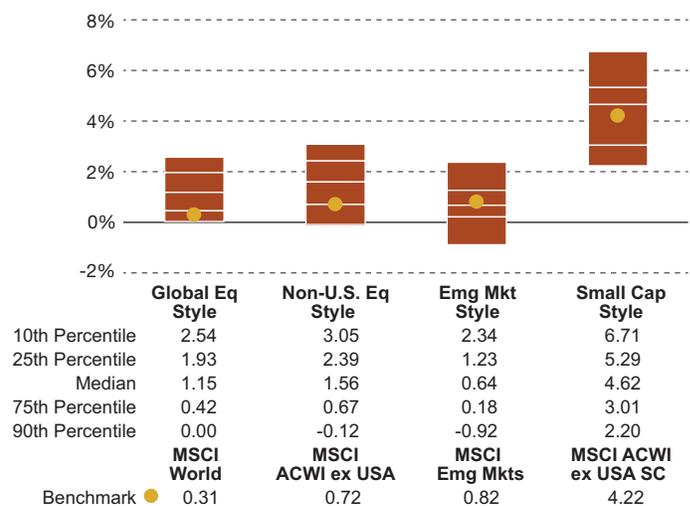
The **MSCI Pacific Index (+1.14%)** surpassed Europe by 78 bps, owing mainly to upbeat markets in Hong Kong (+5.56%) and Japan (+3.09%). Hong Kong experienced a flood of investment from China. Japan’s GDP grew at an annualized 3.9% in the first quarter of 2015, and Japanese Financials were up 9.36% as banks benefitted from aggressive central bank policies. New Zealand (-13.08%) and Australia (-6.19%) fell deep into the red as their major exports (dairy and metals,

Major Currencies’ Cumulative Returns (vs. U.S. Dollar)



*euro returns from 1Q99
Source: MSCI

Callan Style Group Quarterly Returns



Sources: Callan, MSCI

respectively), were heavily affected by the mounting crisis in China’s stock market. So far in 2015, the kiwi has fallen 13.3% against the U.S. dollar. Financials in Australia (-7.79%) were hammered by sluggish growth in the second quarter.

NON-U.S. EQUITY (Continued)

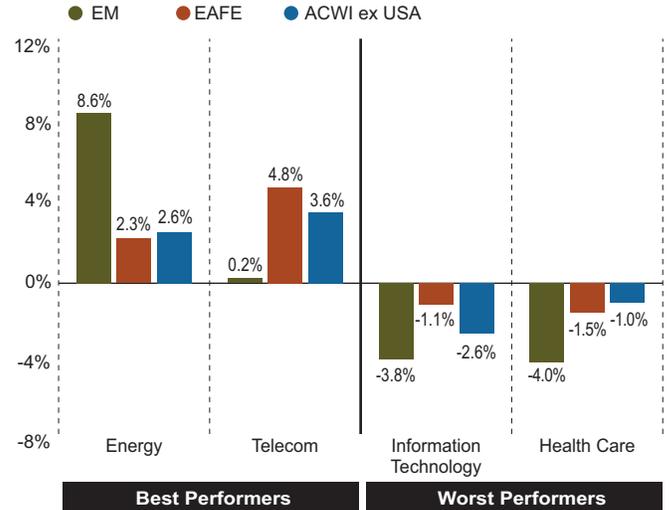
Although emerging market Energy stocks rose 8.62% due to climbing oil prices, the **MSCI Emerging Markets Index** (+0.82%) was hindered by Information Technology (-3.84%). **MSCI Emerging Markets Asia** (-0.04%) was chock full of negative stories. Indonesia (-13.82%), Malaysia (-7.88%), and Thailand (-3.30%) all experienced lethargic economic growth. Tech stocks impeded equity markets in South Korea and Taiwan. In India, subsiding growth along with lower-than-expected IT sales made for a weak quarter (-3.61%). China managed to gain 6.21% due to even lower interest rates and less restrictive real estate policies. However, China's markets were volatile throughout the quarter and crashed in the final two weeks. Russia (+7.70%) and Brazil (+7.02%) were bright spots, both buoyed by climbing commodity prices. Brazil's government is promising budget cuts, and Russia further cut interest rates to 11.5%. In Greece, equities gained 5.35% for the quarter in spite of the ongoing debt crisis, which damaged returns across the globe.

Quarterly Return Attribution for EAFE (U.S. Dollar)

Country	Total	Local	Currency	Wtg
Australia	-6.19%	-6.75%	0.61%	6.87%
Austria	3.18%	-0.54%	3.74%	0.17%
Belgium	1.04%	-2.60%	3.74%	1.30%
Denmark	2.36%	-1.48%	3.89%	1.66%
Finland	-3.89%	-7.36%	3.74%	0.82%
France	0.31%	-3.31%	3.74%	9.69%
Germany	-5.59%	-8.99%	3.74%	8.89%
Hong Kong	5.56%	5.56%	0.01%	3.25%
Ireland	8.52%	4.60%	3.74%	0.37%
Israel	-1.50%	-6.57%	5.42%	0.60%
Italy	2.49%	-1.21%	3.74%	2.41%
Japan	3.09%	5.19%	-1.99%	22.88%
Netherlands	2.81%	-0.90%	3.74%	2.77%
New Zealand	-13.08%	-3.62%	-9.81%	0.13%
Norway	3.31%	0.86%	2.44%	0.64%
Portugal	2.00%	-1.68%	3.74%	0.15%
Singapore	-0.06%	-1.86%	1.87%	1.43%
Spain	-2.05%	-5.58%	3.74%	3.51%
Sweden	-2.95%	-6.63%	3.94%	2.93%
Switzerland	1.01%	-2.82%	3.93%	9.23%
U.K.	2.99%	-2.79%	5.94%	20.29%

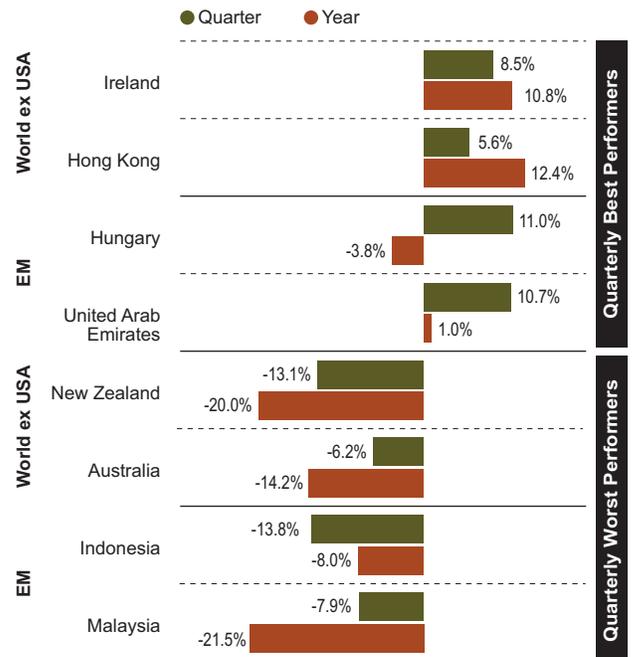
Sources: MSCI, Russell Investment Group, Standard & Poor's.

Quarterly Returns: Strong and Struggling Sectors



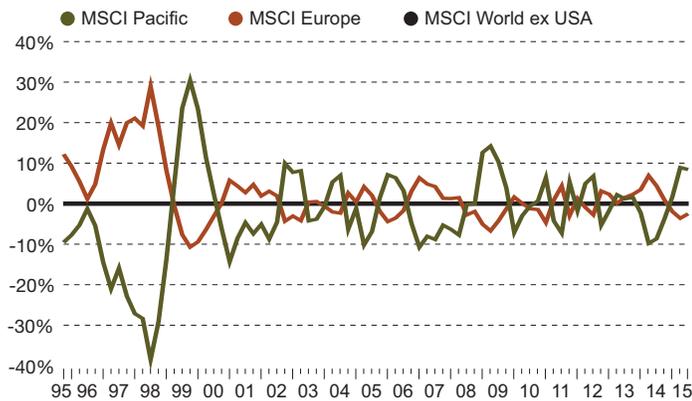
Source: MSCI

Quarterly and Annual Country Performance Snapshot



Source: MSCI

Rolling One-year Relative Returns (vs. MSCI World ex USA)



Source: MSCI

Regional Quarterly Performance

(U.S. Dollar)



Source: MSCI

Style Median and Index Returns* for Periods ended June 30, 2015

Non-U.S. Equity	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Non-U.S. Equity Style	1.56	6.63	-1.66	12.62	10.47	6.45
MSCI EAFE	0.62	5.52	-4.22	11.97	9.54	5.12
MSCI EAFE (local)	-1.82	8.82	11.78	18.08	11.27	5.41
MSCI ACWI ex USA	0.72	4.35	-4.85	9.92	8.23	6.01
MSCI ACWI ex USA Growth	0.74	5.67	-1.70	10.54	8.84	6.37
MSCI ACWI ex USA Value	0.71	2.97	-7.98	9.25	7.58	5.91
Global Equity	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Global Equity Style	1.15	4.24	3.60	15.39	13.79	7.63
MSCI World	0.31	2.63	1.43	14.27	13.10	6.38
MSCI World (local)	-0.69	4.14	8.41	17.01	13.79	6.36
MSCI ACWI	0.52	2.97	1.23	13.61	12.52	6.96
Regional Equity	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
MSCI Europe	0.36	3.82	-7.65	12.37	10.02	5.03
MSCI Europe (local)	-3.91	7.25	6.99	15.16	10.37	5.49
MSCI Japan	3.09	13.62	8.31	13.30	8.80	4.23
MSCI Japan (local)	5.19	15.96	30.83	30.66	16.09	5.27
MSCI Pacific ex Japan	-2.48	0.58	-6.79	7.53	8.70	7.94
MSCI Pacific ex Japan (local)	-2.99	4.75	6.96	14.39	9.59	7.45
Emerging/Frontier Markets	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Emerging Market Style	0.64	2.35	-5.34	4.86	4.67	8.97
MSCI Emerging Markets	0.82	3.12	-4.77	4.08	4.03	8.46
MSCI Emerging Markets (local)	0.82	5.80	6.63	9.01	7.30	10.06
MSCI Frontier Markets	-0.05	-3.15	-13.93	12.96	7.29	0.42
Non-U.S. Small Cap Equity	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Non-U.S. Small Cap Style	4.62	10.78	0.38	17.42	14.21	9.08
MSCI World ex USA Small Cap	4.16	8.36	-3.96	13.60	11.10	6.30
MSCI ACWI ex USA Small Cap	4.22	8.32	-3.07	12.32	9.72	7.38
MSCI Emerging Market Small Cap	4.50	8.25	0.34	7.98	5.04	10.10

*Returns less than one year are not annualized.

Sources: Callan, MSCI

Rates Move Higher

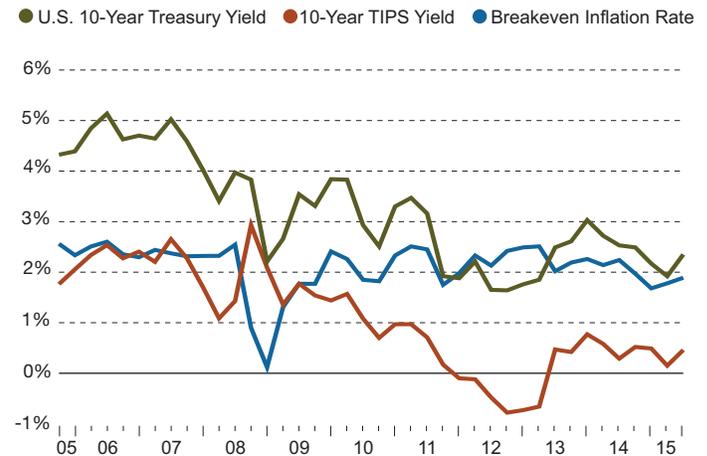
U.S. FIXED INCOME | Kevin Machiz, CFA, FRM

Interest rates moved higher in the second quarter given upward pressure from global interest rates as deflationary fears showed signs of relenting. The yield curve steepened after five consecutive quarters of flattening. The **Barclays Aggregate Index** fell 1.68%.

Short-term rates remained stable, as the Fed continued to peg the federal funds and discount rates at 0.00%–0.25% and 0.75%, respectively. The 10-year U.S. Treasury yield rose 43 bps. Yields on longer-term bonds increased even more (30-year U.S. Treasury yield: +59 bps).

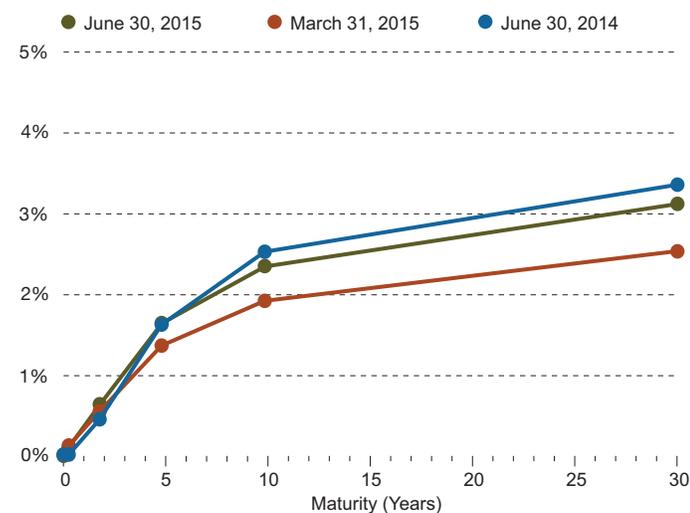
The market's expectation for the first hike in the fed funds rate settled around the end of 2015. The breakeven inflation rate (the difference between nominal and real yields) on the 10-year Treasury increased 12 bps to 1.89% as TIPS outperformed nominal Treasuries.

Historical 10-Year Yields



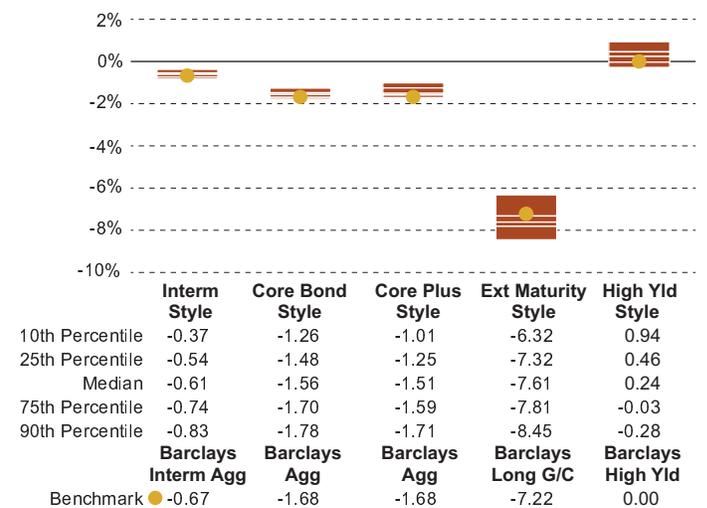
Source: Bloomberg

U.S. Treasury Yield Curves



Source: Bloomberg

Callan Style Group Quarterly Returns



Sources: Barclays, Callan

Fixed Income Index Quarterly Returns

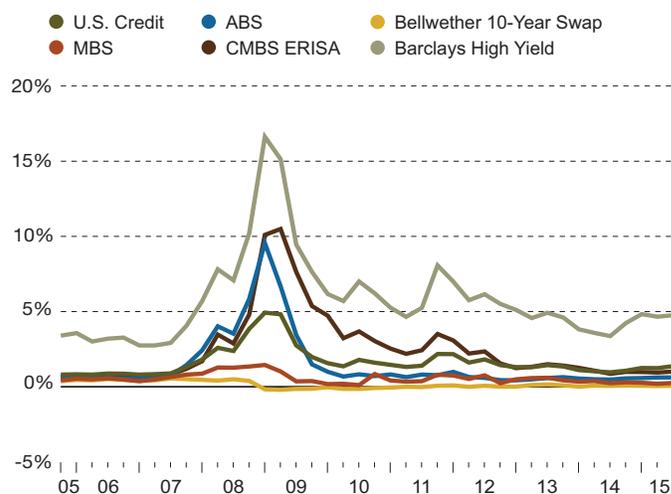


Source: Barclays

Relative to like-duration Treasuries, non-Treasury sectors saw scant gains (MBS: +0.05%; ABS: +0.21%) or negative results. Investment-grade corporate spreads widened with Utilities, Financials, and Industrials underperforming Treasuries by 1.41%, 0.61%, and 0.94% respectively.

High yield corporate bonds were among the best performers in the U.S. fixed income market as some energy companies rebounded strongly. The **Barclays Corporate High Yield Index** ended the quarter unchanged. New issue activity is on pace with the previous three calendar years. Year-to-date, there was approximately \$191 billion in new issuance of high yield bonds.

Effective Yield Over Treasuries



Source: Barclays

U.S. Fixed Income Index Characteristics as of June 30, 2015

Barclays Indices	Yield to Worst	Mod Adj Duration	Avg Maturity	% of Barclays G/C	% of Barclays Agg
Barclays Aggregate	2.39	5.63	7.87		100.00%
Barclays Govt/Credit	2.24	6.09	8.33	100.00%	69.31%
Intermediate	1.74	3.94	4.28	79.77%	55.29%
Long-Term	4.20	14.58	24.32	20.23%	14.02%
Barclays Govt	1.47	5.44	6.68	56.76%	39.34%
Barclays Credit	3.25	6.95	10.51	43.24%	29.97%
Barclays MBS	2.78	4.61	7.06		28.11%
Barclays ABS	1.45	2.46	2.63		0.58%
Barclays CMBS	2.49	4.61	5.14		1.94%
Barclays Corp High Yield	6.57	4.36	6.41		

Source: Barclays

U.S. FIXED INCOME (Continued)

Style Median and Index Returns* for Periods ended June 30, 2015

Broad Fixed Income	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Core Bond Style	-1.56	0.14	2.12	2.46	3.97	4.94
Core Bond Plus Style	-1.51	0.37	1.92	3.23	4.97	5.42
Barclays Aggregate	-1.68	-0.10	1.86	1.83	3.35	4.44
Barclays Govt/Credit	-2.10	-0.30	1.69	1.76	3.52	4.38
Barclays Govt	-1.50	0.08	2.27	0.93	2.63	3.99
Barclays Credit	-2.88	-0.78	0.93	3.03	4.93	5.12
Citi Broad Investment Grade	-1.66	-0.06	1.87	1.83	3.31	4.53
Long-Term	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Extended Maturity Style	-7.61	-4.59	1.59	3.06	7.20	6.56
Barclays Long Govt/Credit	-7.22	-4.11	2.32	2.61	6.79	6.18
Barclays Long Govt	-8.10	-4.52	6.20	1.25	6.23	6.12
Barclays Long Credit	-7.26	-4.42	-0.37	3.44	7.04	6.02
Citi Pension Discount Curve	-11.07	-6.78	2.36	2.72	8.74	6.93
Intermediate-Term	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Intermediate Style	-0.61	0.79	1.70	1.96	3.09	4.54
Barclays Intermediate Aggregate	-0.67	0.64	1.89	1.74	2.89	4.22
Barclays Intermediate Govt/Credit	-0.62	0.82	1.68	1.60	2.79	4.02
Barclays Intermediate Govt	-0.43	0.82	1.79	0.90	2.06	3.67
Barclays Intermediate Credit	-0.94	0.82	1.51	2.88	4.19	4.80
Short-Term	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Defensive Style	0.11	0.76	1.08	1.09	1.50	3.05
Active Duration Style	-0.85	0.64	1.70	1.97	3.39	4.57
Money Market Funds (net of fees)	0.00	0.00	0.01	0.01	0.01	1.32
ML Treasury 1–3-Year	0.15	0.67	0.88	0.66	0.82	2.52
90-Day Treasury Bills	0.01	0.01	0.02	0.06	0.08	1.42
High Yield	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
High Yield Style	0.24	2.84	0.24	7.06	8.76	7.90
Barclays Corporate High Yield	0.00	2.53	-0.40	6.81	8.61	7.89
ML High Yield Master	-0.04	2.49	-0.53	6.74	8.38	7.67
Mortgage/Asset-Backed	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Mortgage Style	-0.59	0.60	2.66	2.44	3.53	4.87
Barclays MBS	-0.74	0.31	2.28	1.92	2.89	4.56
Barclays ABS	0.17	1.08	1.64	1.38	2.48	3.32
Barclays CMBS	-1.06	0.69	1.91	3.28	5.53	5.12
Municipal	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Barclays Muni	-0.89	0.11	3.00	3.10	4.50	4.45
Barclays Muni 1–10-Year	-0.51	0.32	1.74	2.10	3.22	3.89
Barclays Muni 3-Year	-0.02	0.39	0.57	1.17	1.71	2.97
TIPS	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Barclays TIPS Full Duration	-1.06	0.34	-1.73	-0.76	3.29	4.13
Barclays TIPS 1-10 Year	-0.15	1.06	-1.95	-0.54	2.36	3.70

*Returns of less than one year are not annualized.

Sources: Barclays, Callan, Citigroup, Merrill Lynch

Deal or No Deal

NON-U.S. FIXED INCOME | Kyle Fekete

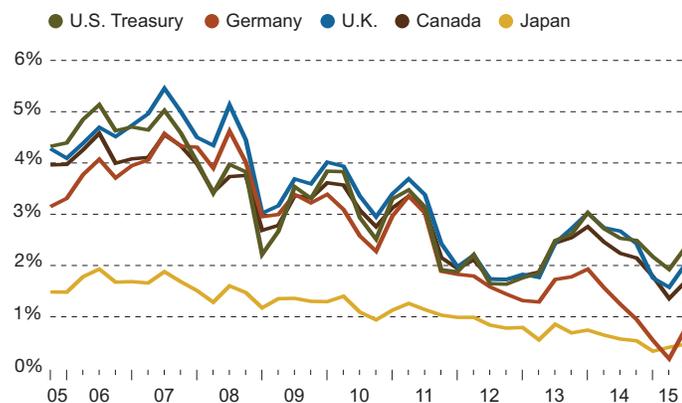
The developed fixed income markets were characterized by rising interest rates, reversing the downward trend over the past several quarters. In a dramatic reversal, yield on German bunds climbed to 0.76% in June, up from the all-time low of 0.05% in mid-April. Rising interest rates were spurred by brighter news in Europe as both hiring and private sector growth approached four-year highs. In Europe, a whiff of inflation in May (+0.2% month-over-month) provided some evidence that the European Central Bank's asset purchase program was working.

Concerns around Greece spread negativity throughout the markets; Italy and Spain were especially hard-hit. Unhedged returns

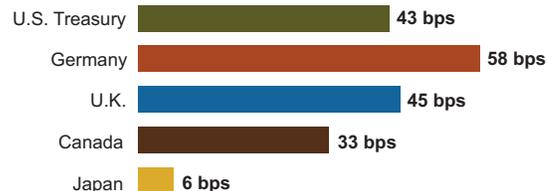
in developed markets were generally negative in U.S. dollar terms (**Citi Non-U.S. World Government Bond Index: -1.54%**). On a hedged basis, all developed markets dropped as the U.S. dollar lost ground versus most developed market currencies (**Citi Non-U.S. World Government Bond Index: -3.20%**).

Emerging market dollar-denominated debt retreated as the **JPM EMBI Global Diversified Index** dipped 0.34% in spite of strong gains in Ukraine (+36.49%) and Venezuela (+12.73%). Ukraine is negotiating with foreign bondholders to restructure its debt. In spite of the strong quarter, it remains down 4.04% year-to-date and 36.77% over the last 12 months. The local

10-Year Global Government Bond Yields



Change in 10-Year Yields from 1Q15 to 2Q15



Source: Bloomberg

Quarterly Return Attribution for Non-U.S. Gov't Indices (U.S. Dollar)

Country	Total	Local	Currency	Wtg
Australia	-2.18%	-2.77%	0.61%	1.95%
Austria	-1.56%	-5.11%	3.74%	1.89%
Belgium	-2.51%	-6.02%	3.74%	2.98%
Canada	-0.01%	-1.43%	1.45%	2.54%
Denmark	-3.10%	-6.73%	3.89%	0.81%
Finland	-0.41%	-4.00%	3.74%	0.68%
France	-1.63%	-5.18%	3.74%	11.23%
Germany	-0.94%	-4.52%	3.74%	8.88%
Ireland	-0.84%	-4.42%	3.74%	0.92%
Italy	-2.71%	-6.22%	3.74%	11.23%
Japan	-2.25%	-0.26%	-1.99%	32.73%
Malaysia	-1.22%	0.64%	-1.84%	0.62%
Mexico	-2.48%	0.44%	-2.91%	1.18%
Netherlands	-1.29%	-4.85%	3.74%	3.04%
Norway	1.67%	-0.74%	2.44%	0.34%
Poland	-2.02%	-2.81%	0.81%	0.67%
Singapore	1.14%	-0.72%	1.87%	0.45%
South Africa	-1.79%	-1.61%	-0.18%	0.64%
Spain	-2.49%	-6.01%	3.74%	6.21%
Sweden	0.34%	-3.46%	3.94%	0.58%
Switzerland	3.55%	-0.37%	3.93%	0.37%
U.K.	2.00%	-3.72%	5.94%	10.07%

Source: Citigroup

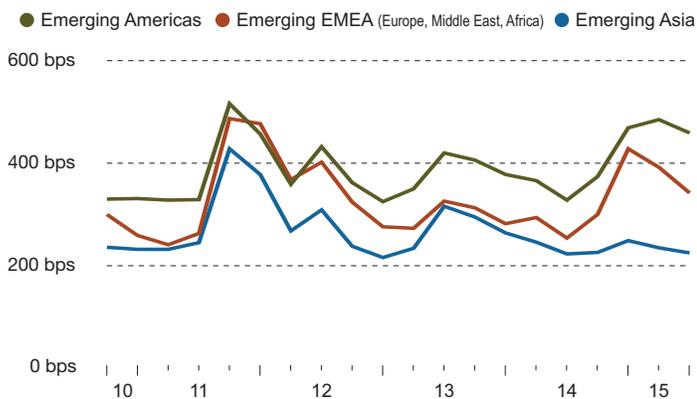
NON-U.S. FIXED INCOME (Continued)

bond **JPM GBI-EM Global Diversified Index** also declined (-0.96%). Russia was again the best performer among emerging markets, up nearly 12% for the quarter and 29% year-to-date. Brazil's (+6%) local bonds continued to bounce back from a sell-off earlier in the year, while Turkey and Indonesia fell 5% for the quarter.

Greece missed a large payment to the International Monetary Fund on June 30, which weighed heavily on investor sentiment. Negotiations between Greece and its lenders continued but remained uncertain. Trading on Greek bonds halted; however, indications from dealers estimated two-year Greek debt yields at about 50% and 10-year debt at nearly 20%.

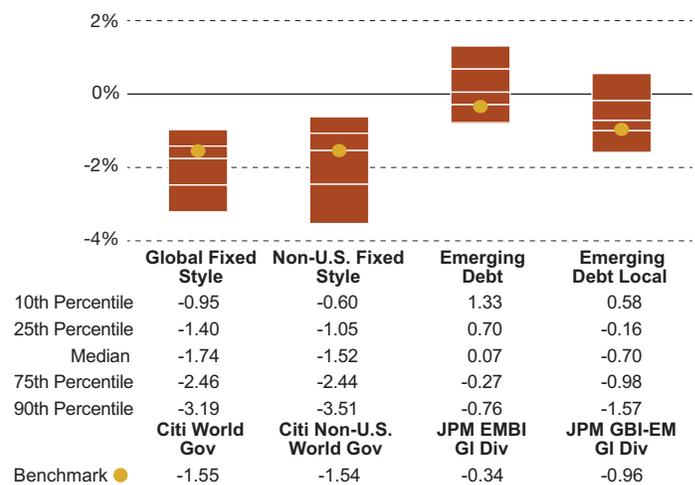
Emerging Spreads Over Developed

(By Region)



Source: Barclays

Callan Style Group Quarterly Returns



Sources: Callan, Citigroup, JPMorgan Chase & Co.

Style Median and Index Returns* for Periods ended June 30, 2015

Global Fixed Income	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Global Style	-1.74	-3.03	-6.49	-0.51	2.51	4.17
Citi World Govt	-1.55	-4.02	-9.02	-2.45	1.05	3.07
Citi World Govt (Local)	-2.67	-0.61	3.67	3.36	3.56	3.54
Barclays Global Aggregate	-1.18	-3.08	-7.09	-0.81	2.07	3.54
Non-U.S. Fixed	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Non-U.S. Style	-1.52	-5.47	-12.50	-2.19	1.70	3.52
Citi Non-U.S. World Govt	-1.54	-5.83	-13.49	-3.88	0.33	2.63
Citi Non-U.S. World Govt (Local)	-3.20	-0.91	4.20	4.37	3.93	3.47
European Fixed	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Citi Euro Govt Bond	-1.87	-9.15	-15.07	2.27	3.25	3.49
Citi Euro Govt Bond (Local)	-5.41	-1.34	2.49	6.16	4.85	4.16
Emerging Markets Fixed	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
JPM EMBI Global Diversified	-0.34	1.67	0.51	4.30	6.77	7.45
JPM GBI-EM Global Diversified	-0.96	-4.88	-15.39	-3.78	0.94	5.91

*Returns less than one year are not annualized.

Sources: Callan, Citigroup, JPMorgan Chase

Mixed Messages

REAL ESTATE | Mike Pritts

It was a difficult second quarter for U.S. REIT indices as pressure weighed heavily on global prices in anticipation of increased government bond yields. Continued low oil prices caused lingering concerns in U.S. oil-producing sub-markets. Credit markets appeared open, although slowing to a degree. The Fed stated in its June FOMC minutes that financing for commercial real estate remained broadly available, although the expansion of commercial real estate loans on banks' books slowed in April and May. Spreads widened in the commercial mortgage-backed securities (CMBS) market, which can be attributed to a lack of liquidity and potential interest rate hikes.

The **NCREIF Property Index** advanced 3.14% and recorded a 1.26% income return and a 1.89% appreciation return. The NCREIF Property Index cash flow return was 0.87% for the quarter and 3.43% for the trailing four quarters. During the first quarter, there were 134 asset trades, representing \$7.1 billion of overall transactional volume. This remains ahead of the \$5.3 billion 10-year quarterly transaction average. The peak quarterly transaction volume over the prior 10-year period was \$8.7 billion in the second quarter of 2007.

Pricing growth continued to characterize asset trades as equal-weighted transactional capitalization rates dropped to 5.5%. This reflects the lowest measure of the Index since the fourth quarter of 2007. Over the course of the prior cycle, quarterly equal-weighted transactional capitalization rates dipped to a low of 5.46% in the fourth quarter of 2007 and expanded to a peak of 8.46% in the third quarter of 2009. During the second quarter of 2015, appraisal capitalization rates slightly increased from 4.73% to 4.81%. As markets peaked over the prior cycle, appraisal capitalization rates declined to a low of 4.89% in the third quarter of 2008.

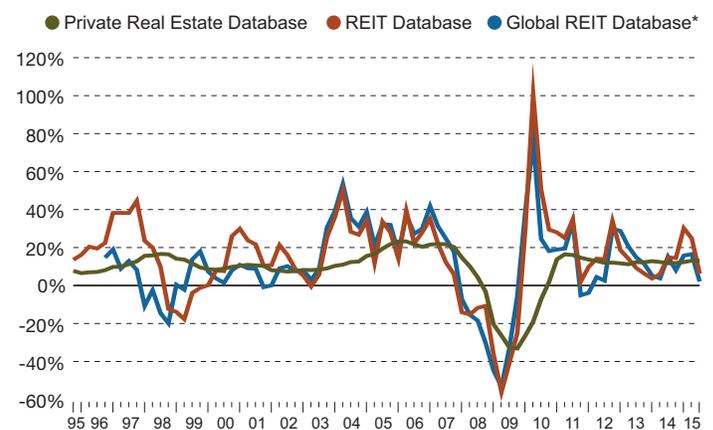
On a preliminary basis, the **NCREIF Open End Diversified Core Equity Index** produced a 3.82% total return, comprising

a 1.19% income return and a 2.62% appreciation return. In the listed real estate market, the **FTSE EPRA/NAREIT Developed REIT Index** (USD) declined 6.67% and domestic REITs tracked by the **FTSE NAREIT Equity REITs Index** dropped 9.95%.

In the U.S., all sectors declined. Self-Storage (-5.0%) led sector performance, followed by Lodging (-6.2%), Residential (-6.4%), Office (-11.2%), Malls (-11.4%), Industrial (-12.6%), and Healthcare (-14.3%). Domestic REITs raised \$17.6 billion (two initial public offerings, \$436 million; 28 secondary offerings, \$6.7 billion; two preferred equity offerings, \$391 million; and 21 unsecured debt offerings, \$10.2 billion).

In core Europe, falling unemployment rates, additional rounds of European Central Bank stimulus, and a general inflow of funds have led to a compression of prime office market capitalization rates—but spreads remain wide over sovereign yields. The central London office market continues to have high occupancy rates supported by strong employment growth and tight supply. Overall, European office vacancy rates have continued to decline, led by central London, major German cities, and second-tier markets.

Rolling One-Year Returns



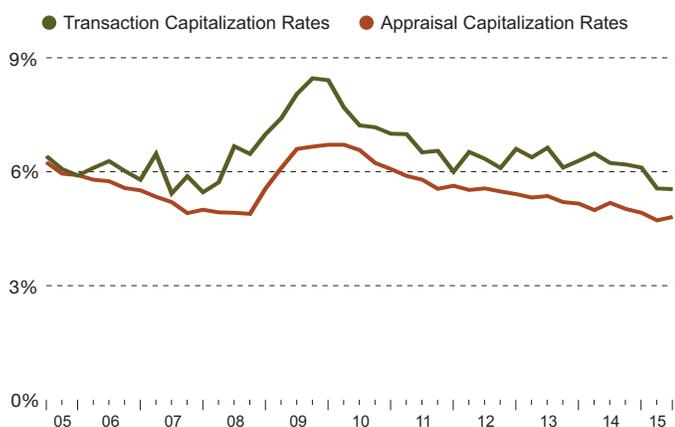
*Global REIT returns from 3Q96
Source: Callan

REAL ESTATE (Continued)

In Japan the yen's depreciation led to a very active second quarter for real estate markets, which caused further capitalization rate compression in first-tier cities. Transaction volumes in both China and Australia were muted as macro concerns over Chinese market corrections escalated. A weak Australian dollar attracted overseas investors, particularly from within the Asia Pacific region.

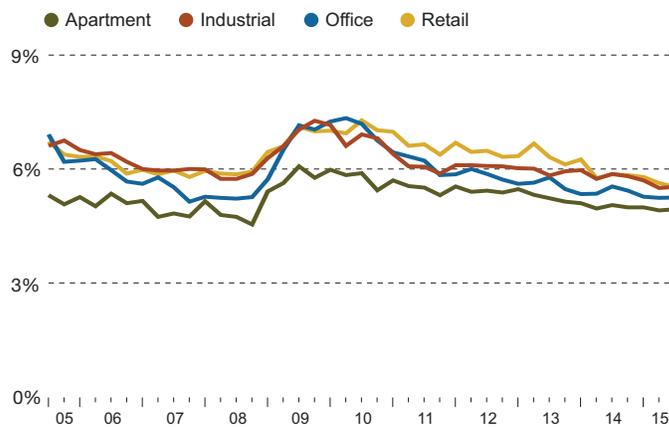
CMBS issuance reached \$27.5 billion in the first quarter of the year, ahead of the \$27.0 billion of issuance volume from the quarter prior and \$20.5 billion in the second quarter of 2014. Total issuance for the trailing 12 months was \$107.7 billion, nearing rolling one-year issuance volumes not seen since May 2008. Quarterly issuance volume between 2005 and 2007 ranged from \$33.0 billion to a high of \$73.6 billion in the second quarter of 2007.

NCREIF Transaction and Appraisal Capitalization Rates



Source: NCREIF
Note: Transaction capitalization rate is equal-weighted.

NCREIF Capitalization Rates by Property Type



Source: NCREIF
Note: Capitalization rates are appraisal-based.

Callan Database Median and Index Returns* for Periods ended June 30, 2015

	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Private Real Estate						
Real Estate Database (net of fees)	3.04	6.19	13.75	12.80	13.83	5.57
NCREIF Property	3.14	6.83	12.98	11.63	12.72	8.16
NFI-ODCE (value wtd. net)	3.15	6.41	12.92	11.91	13.24	5.81
Public Real Estate						
REIT Database	-9.53	-5.30	5.54	9.77	15.08	8.15
FTSE NAREIT Equity	-9.95	-5.67	4.33	8.93	14.28	7.01
Global Real Estate						
Global REIT Database	-6.37	-1.96	2.02	10.40	13.16	7.17
FTSE EPRA/NAREIT Developed REIT	-6.67	-2.78	0.41	9.50	12.38	6.20

*Returns less than one year are not annualized.
All REIT returns are reported gross in USD.
Sources: Callan, NAREIT, NCREIF, The FTSE Group. NCREIF statistics are the product of direct queries and may fluctuate over time.

A Seller's Market

PRIVATE EQUITY | Gary Robertson

In fundraising, *Private Equity Analyst* reports that new second-quarter commitments totaled \$87.1 billion with 231 new partnerships formed, up 55% from the first quarter's \$56.2 billion and 147 partnerships formed. If this momentum continues, 2015 could cross the \$300 billion mark. The 10 partnerships that raised the most capital so far in 2015 account for 67% of the first-half total; Blackstone VII was the largest at \$17.5 billion.

According to *Buyouts*, the investment pace by funds into companies in the second quarter totaled 358 transactions, up slightly from 333 deals in the first quarter of 2015. The announced aggregate dollar volume was \$24.3 billion, down from \$34.9 in the first quarter. Nine deals with announced values of \$1 billion or more closed in the second quarter, the largest being the \$4.1 billion Life Time Fitness and \$3.4 billion Riverbed Technology take-private transactions.

According to the National Venture Capital Association, second-quarter investments in venture capital companies totaled \$17.5 billion in 1,189 rounds of financing—the largest dollar volume since the fourth quarter of 2000. The dollar volume and number of rounds both increased compared to the first quarter's \$13.5 billion and 1,048 rounds. The largest was a \$1.5 billion expansion round by Airbnb.

Regarding exits, *Buyouts* reports that 135 private M&A exits of buyout-backed companies occurred during the second quarter, with 49 deals disclosing values totaling \$35.8 billion. The M&A exit count

Funds Closed January 1 to June 30, 2015

Strategy	No. of Funds	Amt (\$mm)	Percent
Venture Capital	151	21,523	15%
Buyouts	139	93,821	65%
Subordinated Debt	17	3,814	3%
Distressed Debt	19	10,793	8%
Secondary and Other	13	6,250	4%
Fund-of-funds	39	7,103	5%
Totals	378	143,304	100%

Source: Private Equity Analyst

was about even with the first quarter, which had 136 private exits but a slightly higher announced value of \$36.9 billion. Buyout-backed IPOs jumped to 17 issues in the second quarter floating \$6.6 billion, up from the six IPOs totaling \$1.1 billion in the first quarter.

Venture-backed M&A exits totaled 70 transactions, with 14 disclosing a total dollar volume of \$4.1 billion. The number of exits declined from the first quarter's 94 company sales, but the announced dollar volume increased from \$2.2 billion. There were 27 VC-backed IPOs in the second quarter with a combined float of \$3.4 billion, 10 more than the first quarter's 17 IPOs and more than double the total issuance of \$1.4 billion.

Please see our upcoming issue of *Private Markets Trends* for more in-depth coverage.

Note: Transaction count and dollar volume figures across all private equity measures are preliminary figures and are subject to update in subsequent versions of *Capital Market Review* and other Callan publications.

Private Equity Performance Database (%)

(Pooled Horizon IRRs through December 31, 2014*)

Strategy	3 Months	Year	3 Years	5 Years	10 Years	15 Years	20 Years
All Venture	11.8	23.9	18.7	16.5	10.4	5.3	28.0
Growth Equity	0.8	11.1	14.2	14.0	12.6	10.5	15.0
All Buyouts	2.3	9.6	15.2	14.4	12.7	11.4	13.2
Mezzanine	1.9	11.0	12.3	11.9	10.6	8.0	10.3
Distressed	0.2	7.5	14.5	12.5	10.7	11.3	11.6
All Private Equity	3.3	11.8	15.5	14.4	12.0	9.8	14.6
S&P 500	4.9	13.7	20.4	15.5	7.7	4.2	9.9

Private equity returns are net of fees.

Sources: Standard & Poor's, Thomson/Cambridge

*Most recent data available at time of publication

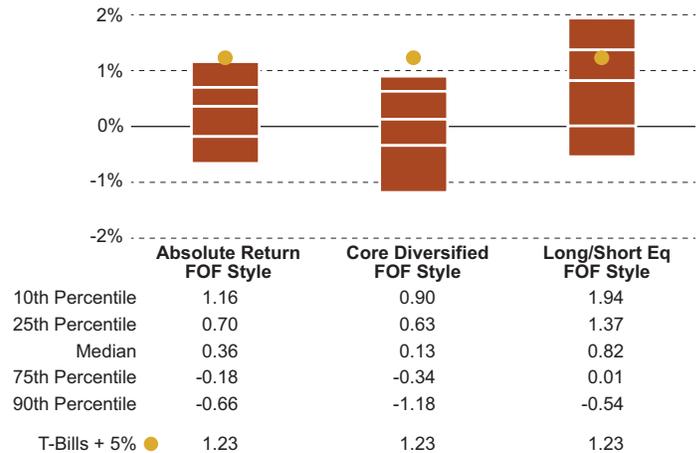
Momentum Whiplash

HEDGE FUNDS | Jim McKee

While Greece skidded toward default at quarter's end, the rest of the world's policy makers desperately tried to keep their respective economies on a growth track. As China's nascent stock market surged and rolled over, President Xi Jinping continued his formidable challenge to downshift its investment-led economy to a consumer-powered one. Facing tighter labor markets and greater consumer confidence at home, the U.S. Federal Reserve steered markets resolutely toward rate hikes. After rising early in the quarter, markets backpedaled at the end, with most finishing nearly unchanged. Giving up first-quarter gains, the 10-year Treasury fell 3.05%. The **Barclays High Yield Index** (+0.00%) absorbed widening spreads with its carry.

Illustrating raw hedge fund performance without implementation costs, the **Credit Suisse Hedge Fund Index (CS HFI)** slipped 0.48%. As a proxy to actively managed hedge fund portfolios, the median manager in the **Callan Hedge Fund-of-Funds Database** moved ahead 0.23%, net of all fees. Within the CS HFI, those chasing momentum were hurt badly while those focused on fundamentals survived unscathed, more or less. The quarter's most notable victim was *Managed Futures* (-10.61%). The best-performing strategies for the quarter were

Callan Style Group Quarterly Returns



Sources: Callan, Merrill Lynch

Convertible Arb (+2.49%), *Equity Market Neutral* (+2.12%), and *Risk Arb* (+1.70%). Despite meager fuel from market beta, *Long/Short Equity* gained 1.66%.

Within Callan's Hedge Fund-of-Funds Database, market exposures provided little traction in the second quarter. Nevertheless, the median *Callan Long/Short Equity FOF* (+0.82%) edged out the *Callan Absolute Return FOF* (+0.36%).

Database Median and Index Returns* for Periods ended June 30, 2015

	Quarter	2 Quarters	Year	3 Years	5 Years	10 Years
Hedge Fund-of-Funds Database	0.23	2.45	3.57	7.08	5.61	4.78
CS Hedge Fund Index	-0.48	1.99	3.28	7.08	6.17	5.89
<i>CS Equity Market Neutral</i>	2.12	-0.40	-1.07	3.21	3.31	-1.20
<i>CS Convertible Arbitrage</i>	2.49	2.97	-1.05	3.61	4.82	5.05
<i>CS Fixed Income Arbitrage</i>	0.90	0.75	1.70	5.00	6.23	4.04
<i>CS Multi-Strategy</i>	0.24	3.24	6.45	9.00	8.45	6.86
<i>CS Distressed</i>	-0.35	-0.10	-3.74	8.33	6.37	6.13
<i>CS Risk Arbitrage</i>	1.70	2.39	-2.04	2.71	2.57	3.96
<i>CS Event Driven Multi-Strategy</i>	0.73	2.89	-1.31	8.67	5.67	6.55
<i>CS Long/Short Equity</i>	1.66	3.53	6.01	10.84	7.82	6.69
<i>CS Dedicated Short Bias</i>	-4.83	-8.88	-8.12	-17.00	-15.71	-9.68
<i>CS Global Macro</i>	-1.80	2.59	4.79	4.84	5.99	7.68
<i>CS Managed Futures</i>	-10.61	-4.07	12.86	2.92	2.87	3.96
<i>CS Emerging Markets</i>	1.42	2.80	4.52	7.07	5.58	6.61

*Returns less than one year are not annualized. Sources: Callan, Credit Suisse

TDFs Win Quarter, Asset Flows

DEFINED CONTRIBUTION | James O'Connor

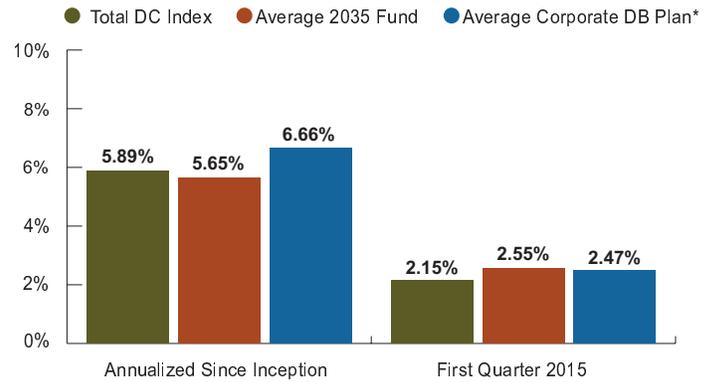
The Callan DC Index™ started the year off on a reasonably sound note, gaining 2.15% for the first quarter. Still, that performance trailed the typical 2035 target date fund (TDF), which gained 2.55%. TDFs benefited from a much higher exposure to non-U.S. equity—one of the best-performing asset classes during the period. Corporate DB plans performed more or less in line with 2035 TDFs, but have outperformed both TDFs and the DC Index since inception by an annualized margin of 1.01% and 0.77%, respectively.

DC plan balances grew by 2.76% in the first quarter, driven primarily by market performance. Inflows added 60 bps to total growth. Since inception, plan sponsor and participant contributions have had a significant impact on balances and are responsible for approximately one-third of the total growth in balances (2.54% annualized).

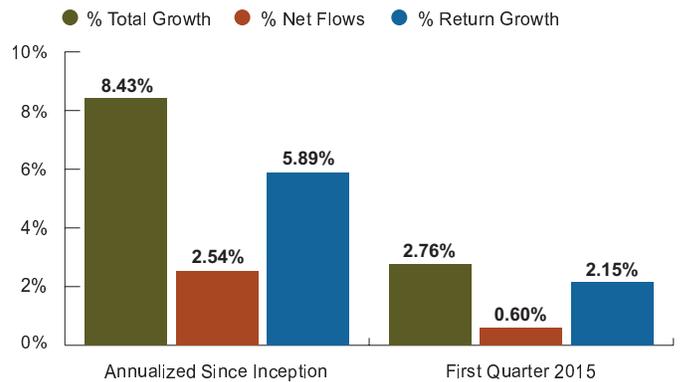
Nearly 66 cents of every dollar that moved within DC plans during the first quarter flowed to TDFs. However, U.S. fixed income and U.S. large cap also made respectable showings in terms of inflows—largely at the expense of stable value. Approximately 43% of outflows came from this asset class during the quarter. This follows five successive quarters of stable value fund outflows. Still, overall turnover was modest at 0.32%, significantly below the historical average of 0.67%.

The Callan DC Index™ is an equally weighted index tracking the cash flows and performance of nearly 90 plans, representing more than one million DC participants and over \$140 billion in assets. The Index is updated quarterly and is available on Callan's website, as is the quarterly DC Observer newsletter.

Investment Performance*



Growth Sources*



Net Cash Flow Analysis (First Quarter 2015)* (Top Two and Bottom Two Asset Gatherers)

Asset Class	Flows as % of Total Net Flows
Target Date Funds	65.77%
U.S. Fixed Income	12.45%
Company Stock	-25.21%
Stable Value	-42.58%
Total Turnover	0.32%

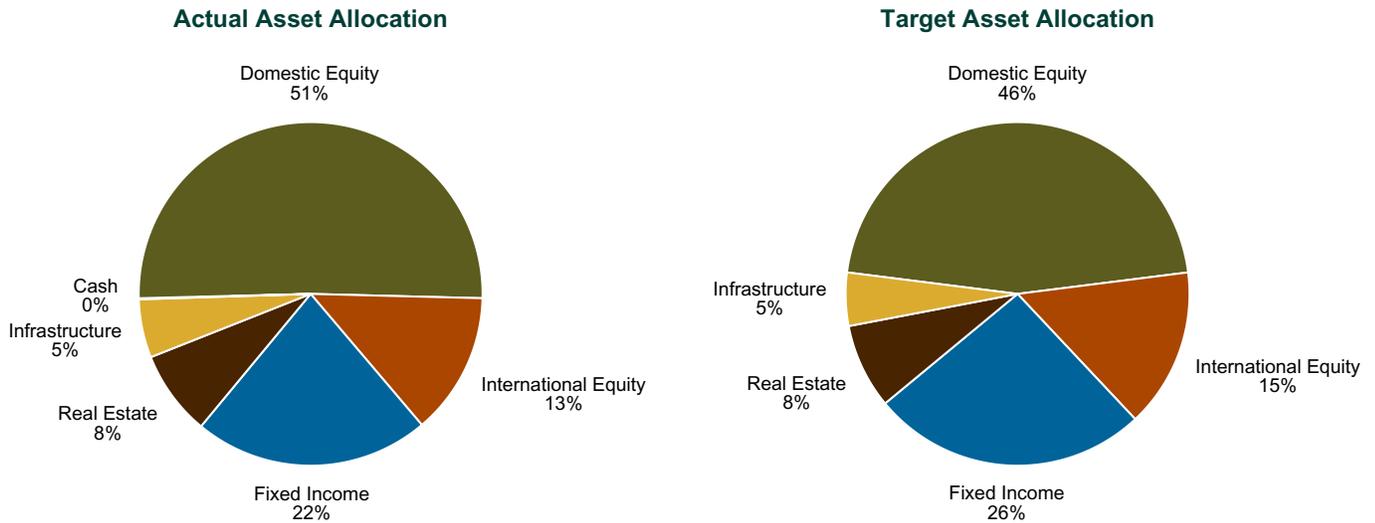
1 Total Index "turnover" measures the percentage of total invested assets (transfers only, excluding contributions and withdrawals) that moved between asset classes.

Source: Callan DC Index

*Notes: DC Index inception date is January 2006. DB plan performance is gross of fees. Data provided here is the most recent available at time of publication.

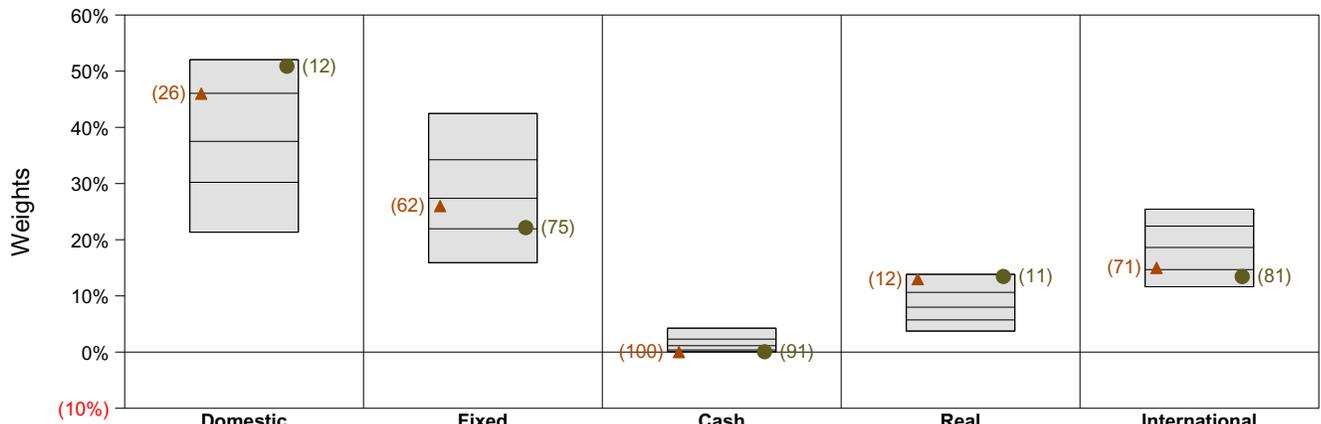
Actual vs Target Asset Allocation As of June 30, 2015

The top left chart shows the Fund's asset allocation as of June 30, 2015. The top right chart shows the Fund's target asset allocation as outlined in the investment policy statement. The bottom chart ranks the fund's asset allocation and the target allocation versus the Public Fund Sponsor Database.



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	374,186	50.9%	46.0%	4.9%	35,871
International Equity	98,860	13.4%	15.0%	(1.6%)	(11,460)
Fixed Income	162,948	22.2%	26.0%	(3.8%)	(28,274)
Real Estate	58,760	8.0%	8.0%	0.0%	(77)
Infrastructure	40,220	5.5%	5.0%	0.5%	3,447
Cash	493	0.1%	0.0%	0.1%	493
Total	735,468	100.0%	100.0%		

Asset Class Weights vs Public Fund Sponsor Database



	Domestic Equity	Fixed Income	Cash	Real Estate	International Equity
10th Percentile	52.04	42.47	4.26	13.84	25.44
25th Percentile	46.06	34.23	2.31	10.63	22.42
Median	37.51	27.37	1.14	7.99	18.62
75th Percentile	30.22	21.95	0.38	5.73	14.68
90th Percentile	21.34	15.91	0.07	3.74	11.63
Fund ●	50.88	22.16	0.07	13.46	13.44
Target ▲	46.00	26.00	0.00	13.00	15.00
% Group Invested	98.78%	96.95%	71.34%	49.39%	98.17%

* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of June 30, 2015, with the distribution as of March 31, 2015. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

Asset Distribution Across Investment Managers

	June 30, 2015		Net New Inv.	Inv. Return	March 31, 2015	
	Market Value	Weight			Market Value	Weight
Domestic Equity	\$374,186,397	50.88%	\$(8,788,264)	\$4,118,047	\$378,856,614	51.21%
Large Cap Equity	\$287,148,993	39.04%	\$(7,624,166)	\$1,318,479	\$293,454,680	39.66%
Alliance S&P Index	86,801,529	11.80%	(1,511,435)	275,202	88,037,763	11.90%
PIMCO StocksPLUS	42,899,182	5.83%	0	(1,455)	42,900,637	5.80%
BlackRock Russell 1000 Value	78,627,940	10.69%	(1,007,897)	156,685	79,479,152	10.74%
T. Rowe Price Large Cap Growth	78,820,342	10.72%	(5,104,834)	888,048	83,037,127	11.22%
Small/Mid Cap Equity	\$87,037,404	11.83%	\$(1,164,098)	\$2,799,567	\$85,401,935	11.54%
Champlain Mid Cap	43,140,326	5.87%	(87,598)	1,164,060	42,063,864	5.69%
Pyramis Small Cap	43,897,078	5.97%	(1,076,499)	1,635,507	43,338,071	5.86%
International Equity	\$98,860,320	13.44%	\$(182,417)	\$17,842	\$99,024,895	13.38%
Causeway International Value Equity	57,595,871	7.83%	(96,832)	603,400	57,089,303	7.72%
Aberdeen EAFE Plus	41,264,449	5.61%	(85,585)	(585,558)	41,935,592	5.67%
Fixed Income	\$162,947,612	22.16%	\$280,255	\$(2,820,512)	\$165,487,869	22.37%
BlackRock U.S. Debt Fund	61,449,037	8.36%	(8,594)	(1,037,069)	62,494,700	8.45%
PIMCO Fixed Income	101,498,576	13.80%	288,850	(1,783,443)	102,993,169	13.92%
Real Estate	\$58,760,226	7.99%	\$(798,152)	\$2,347,394	\$57,210,984	7.73%
JP Morgan Strategic Property Fund	42,272,631	5.75%	(98,504)	1,509,330	40,861,805	5.52%
LaSalle Income and Growth Fund*	62,000	0.01%	(648,156)	12,163	697,994	0.09%
JP Morgan Income and Growth Fund	16,425,595	2.23%	(51,491)	825,901	15,651,185	2.12%
Infrastructure	\$40,220,260	5.47%	\$(501,638)	\$2,031,355	\$38,690,544	5.23%
Macquarie European Infrastructure	20,839,504	2.83%	(366,044)	1,321,846	19,883,702	2.69%
SteelRiver Infrastructure	19,380,756	2.64%	(135,594)	709,509	18,806,842	2.54%
Cash Composite	\$493,410	0.07%	\$(109,519)	\$()	\$602,929	0.08%
Cash	493,410	0.07%	(109,519)	()	602,929	0.08%
Total Plan	\$735,468,225	100.0%	\$(10,099,735)	\$5,694,126	\$739,873,834	100.0%

*Note(s): According to LaSalle, Income & Growth Fund IV's expected termination date is 10/1/2015; a final distribution of TSRS's remaining assets will occur subsequent to the termination date.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2015. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2015

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Gross of Fees					
Domestic Equity	1.05%	9.01%	19.42%	18.62%	8.07%
Total Domestic Equity Target (1)	0.14%	7.15%	17.64%	17.50%	8.20%
Large Cap Equity	0.40%	7.96%	18.88%	18.08%	7.39%
S&P 500 Index	0.28%	7.42%	17.31%	17.34%	7.89%
Alliance S&P Index	0.28%	7.43%	17.25%	17.26%	7.94%
PIMCO StocksPLUS S&P 500 Index	(0.00%)	7.57%	19.56%	19.74%	-
	0.28%	7.42%	17.31%	17.34%	7.89%
BlackRock Russell 1000 Value Index	0.18%	4.34%	17.46%	16.61%	7.20%
Russell 1000 Value Index	0.11%	4.13%	17.34%	16.50%	7.05%
T. Rowe Price Large Cap Growth	0.94%	12.35%	21.55%	20.60%	10.47%
Russell 1000 Growth Index	0.12%	10.56%	17.99%	18.59%	9.10%
Small/Mid Cap Equity U.S. Equity	3.28%	12.68%	21.17%	20.46%	10.53%
Russell 2500 Index	(0.34%)	5.92%	18.66%	17.85%	9.09%
Champlain Mid Cap Russell MidCap Index	2.77%	10.27%	19.58%	18.62%	11.92%
	(1.54%)	6.63%	19.26%	18.23%	9.40%
Pyramis Small Cap Russell 2000 Index	3.80%	15.07%	22.65%	21.92%	11.80%
	0.42%	6.49%	17.81%	17.08%	8.40%
International Equity	0.01%	(5.79%)	10.21%	8.43%	5.47%
MSCI ACWI x US (Net)	0.53%	(5.26%)	9.44%	7.76%	5.54%
Causeway International Value Equity	1.05%	(2.38%)	13.83%	12.28%	6.92%
MSCI EAFE Index	0.62%	(4.22%)	11.97%	9.54%	5.12%
Aberdeen EAFE Plus	(1.40%)	(10.16%)	5.85%	8.39%	7.65%
MSCI ACWI x US (Net)	0.53%	(5.26%)	9.44%	7.76%	5.54%
Fixed Income	(1.70%)	0.78%	3.38%	4.61%	5.54%
Barclays Aggregate Index	(1.68%)	1.86%	1.83%	3.35%	4.44%
BlackRock U.S. Debt Fund	(1.66%)	1.99%	1.98%	3.49%	4.56%
Barclays Aggregate Index	(1.68%)	1.86%	1.83%	3.35%	4.44%
PIMCO Fixed Income Custom Index (2)	(1.73%)	0.05%	4.23%	5.56%	6.23%
	(1.22%)	0.75%	3.83%	4.99%	5.68%

(1) The Total Domestic Equity target is currently composed of 78% S&P 500 and 22% Russell 2500 Index.

(2) The custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2015. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2015					
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Gross of Fees					
Real Estate	4.14%	13.92%	14.39%	14.58%	6.52%
NFI-ODCE Value Weight Gr	3.82%	14.43%	13.11%	14.41%	6.85%
JP Morgan Strategic Property Fund	3.70%	13.37%	13.84%	14.47%	7.69%
NFI-ODCE Value Weight Gr	3.82%	14.43%	13.11%	14.41%	6.85%
JP Morgan Income and Growth Fund	5.28%	16.19%	17.64%	20.79%	-
NFI-ODCE Value Weight Gr	3.82%	14.43%	13.11%	14.41%	6.85%
Infrastructure	5.29%	(2.75%)	5.32%	7.46%	-
CPI + 4%	2.14%	3.62%	5.14%	5.80%	6.10%
Macquarie European Infrastructure	6.71%	(9.64%)	5.47%	7.96%	-
SteelRiver Infrastructure	3.79%	5.97%	5.22%	7.01%	-
CPI + 4%	2.14%	3.62%	5.14%	5.80%	6.10%
Cash Composite	0.00%	0.00%	0.02%	0.07%	1.56%
Total Fund	0.76%	4.63%	12.86%	12.64%	7.07%
Total Fund Benchmark*	0.14%	4.34%	11.27%	11.70%	6.82%

* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

Note(s): According to LaSalle, Income & Growth Fund IV's expected termination date is 10/1/2015; a final distribution of TSRS's remaining assets will occur subsequent to the termination date.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2015. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	FY 2015	FY 2014	FY 2013	FY 2012	FY 2011
Gross of Fees					
Domestic Equity	9.01%	26.67%	23.35%	2.92%	33.98%
Total Domestic Equity Target (1)	7.15%	24.84%	21.70%	3.77%	32.56%
Large Cap Equity	7.96%	27.15%	22.41%	3.48%	32.04%
S&P 500 Index	7.42%	24.61%	20.60%	5.45%	30.69%
Alliance S&P Index	7.43%	24.50%	20.51%	5.48%	30.36%
PIMCO StocksPLUS S&P 500 Index	7.57% 7.42%	27.61% 24.61%	24.51% 20.60%	5.80% 5.45%	36.12% 30.69%
BlackRock Russell 1000 Value Index	4.34%	23.88%	25.36%	3.07%	29.08%
Russell 1000 Value Index	4.13%	23.81%	25.32%	3.01%	28.94%
T. Rowe Price Large Cap Growth	12.35%	32.80%	20.37%	5.19%	35.07%
Russell 1000 Growth Index	10.56%	26.92%	17.07%	5.76%	35.01%
Small/Mid Cap Equity U.S. Equity	12.68%	24.97%	26.35%	0.64%	41.67%
Russell 2500 Index	5.92%	25.58%	25.61%	(2.29%)	39.28%
Champlain Mid Cap Russell MidCap Index	10.27% 6.63%	26.20% 26.85%	22.88% 25.41%	0.78% (1.65%)	36.29% 38.47%
Pyramis Small Cap Russell 2000 Index	15.07% 6.49%	23.59% 23.64%	29.74% 24.21%	0.44% (2.08%)	45.35% 37.41%
International Equity	(5.79%)	21.26%	17.18%	(14.49%)	30.95%
MSCI ACWI x US (Net)	(5.26%)	21.75%	13.63%	(14.57%)	29.73%
Causeway International Value Equity MSCI EAFE Index	(2.38%) (4.22%)	23.76% 23.57%	22.07% 18.62%	(10.83%) (13.83%)	35.68% 30.36%
Aberdeen EAFE Plus MSCI ACWI x US (Net)	(10.16%) (5.26%)	18.20% 21.75%	11.69% 13.63%	(4.27%) (14.57%)	31.73% 29.73%
Fixed Income	0.78%	7.64%	1.84%	8.32%	4.66%
Barclays Aggregate Index	1.86%	4.37%	(0.69%)	7.47%	3.90%
BlackRock U.S. Debt Fund Barclays Aggregate Index	1.99% 1.86%	4.49% 4.37%	(0.48%) (0.69%)	7.55% 7.47%	4.04% 3.90%
PIMCO Fixed Income Custom Index (2)	0.05% 0.75%	9.60% 8.48%	3.27% 2.41%	9.56% 7.63%	5.64% 5.86%

(1) The Total Domestic Equity target is currently composed of 78% S&P 500 and 22% Russell 2500 Index.

(2) The custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2015. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	FY 2015	FY 2014	FY 2013	FY 2012	FY 2011
Gross of Fees					
Real Estate	13.92%	13.27%	16.00%	11.63%	18.18%
NFI-ODCE Value Weight Gr	14.43%	12.75%	12.17%	12.42%	20.48%
JP Morgan Strategic Property Fund	13.37%	14.08%	14.08%	12.00%	18.91%
NFI-ODCE Value Weight Gr	14.43%	12.75%	12.17%	12.42%	20.48%
JP Morgan Income and Growth Fund	16.19%	11.66%	25.49%	18.15%	33.69%
NFI-ODCE Value Weight Gr	14.43%	12.75%	12.17%	12.42%	20.48%
Infrastructure	(2.75%)	16.31%	3.27%	5.68%	16.10%
CPI + 4%	3.62%	6.05%	5.76%	5.58%	8.06%
Macquarie European Infrastructure	(9.64%)	14.63%	13.28%	0.54%	24.31%
SteelRiver Infrastructure	5.97%	18.46%	(7.19%)	13.03%	6.57%
CPI + 4%	3.62%	6.05%	5.76%	5.58%	8.06%
Cash Composite	0.00%	0.00%	0.05%	0.03%	0.25%
Total Fund	4.63%	19.64%	14.84%	2.40%	23.19%
Total Fund Benchmark*	4.34%	16.97%	12.87%	3.04%	22.53%

* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

Note(s): According to LaSalle, Income & Growth Fund IV's expected termination date is 10/1/2015; a final distribution of TSRS's remaining assets will occur subsequent to the termination date.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2015. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2015

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Net of Fees					
Domestic Equity	0.98%	8.72%	19.05%	18.21%	7.67%
Total Domestic Equity Target (1)	0.14%	7.15%	17.64%	17.50%	8.19%
Large Cap Equity	0.36%	7.83%	18.71%	17.85%	7.12%
S&P 500 Index	0.28%	7.42%	17.31%	17.34%	7.89%
Alliance S&P Index	0.27%	7.40%	17.21%	17.21%	7.90%
PIMCO StocksPLUS	(0.00%)	7.57%	19.34%	19.54%	-
S&P 500 Index	0.28%	7.42%	17.31%	17.34%	7.89%
BlackRock Russell 1000 Value Index	0.17%	4.30%	17.42%	16.59%	7.19%
Russell 1000 Value Index	0.11%	4.13%	17.34%	16.50%	7.05%
T. Rowe Price Large Cap Growth	0.82%	11.93%	21.01%	20.04%	9.93%
Russell 1000 Growth Index	0.12%	10.56%	17.99%	18.59%	9.10%
Small/Mid Cap Equity U.S. Equity	3.09%	11.80%	20.23%	19.52%	9.68%
Russell 2500 Index	(0.34%)	5.92%	18.66%	17.85%	9.09%
Champlain Mid Cap	2.56%	9.33%	18.59%	17.63%	10.99%
Russell MidCap Index	(1.54%)	6.63%	19.26%	18.23%	9.40%
Pyramis Small Cap	3.62%	14.24%	21.76%	21.03%	10.98%
Russell 2000 Index	0.42%	6.49%	17.81%	17.08%	8.40%
International Equity	(0.16%)	(6.46%)	9.43%	7.63%	4.65%
MSCI ACWI x US (Net)	0.53%	(5.26%)	9.44%	7.76%	5.54%
Causeway International Value Equity	0.90%	(3.01%)	13.09%	11.55%	6.22%
MSCI EAFE Index	0.62%	(4.22%)	11.97%	9.54%	5.12%
Aberdeen EAFE Plus	(1.60%)	(10.90%)	5.01%	7.53%	6.80%
MSCI ACWI x US (Net)	0.53%	(5.26%)	9.44%	7.76%	5.54%
Fixed Income	(1.78%)	0.46%	3.05%	4.30%	5.27%
Barclays Aggregate Index	(1.68%)	1.86%	1.83%	3.35%	4.44%
BlackRock U.S. Debt Fund	(1.66%)	1.97%	1.95%	3.47%	4.55%
Barclays Aggregate Index	(1.68%)	1.86%	1.83%	3.35%	4.44%
PIMCO Fixed Income	(1.85%)	(0.43%)	3.73%	5.10%	5.82%
Custom Index (2)	(1.22%)	0.75%	3.83%	4.99%	5.68%

(1) The Total Domestic Equity target is currently composed of 78% S&P 500 and 22% Russell 2500 Index.

(2) The custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2015. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended June 30, 2015

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Net of Fees					
Real Estate	3.87%	12.74%	13.14%	13.29%	5.29%
NFI-ODCE Equal Weight Net	3.70%	13.64%	11.93%	13.28%	5.63%
JP Morgan Strategic Property Fund	3.45%	12.28%	12.74%	13.35%	6.63%
NFI-ODCE Equal Weight Net	3.70%	13.64%	11.93%	13.28%	5.63%
JP Morgan Income and Growth Fund	4.95%	14.74%	15.93%	18.99%	-
NFI-ODCE Equal Weight Net	3.70%	13.64%	11.93%	13.28%	5.63%
Infrastructure	4.50%	(3.82%)	3.99%	5.81%	-
CPI + 4%	2.14%	3.62%	5.14%	5.80%	6.10%
Macquarie European Infrastructure	5.76%	(10.56%)	4.44%	6.48%	-
SteelRiver Infrastructure	3.16%	4.67%	3.51%	5.14%	-
CPI + 4%	2.14%	3.62%	5.14%	5.80%	6.10%
Cash Composite	0.00%	(0.00%)	0.02%	0.06%	1.56%
Total Fund	0.62%	4.17%	12.32%	12.07%	6.53%
Total Fund Benchmark*	0.14%	4.34%	11.27%	11.70%	6.82%

* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

Note(s): According to LaSalle, Income & Growth Fund IV's expected termination date is 10/1/2015; a final distribution of TSRS's remaining assets will occur subsequent to the termination date.

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The table below details the rates of return for the Fund's investment managers over various time periods ended June 30, 2015. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	FY 2015	FY 2014	FY 2013	FY 2012	FY 2011
Net of Fees					
Domestic Equity	8.72%	26.30%	22.90%	2.50%	33.44%
Total Domestic Equity Target (1)	7.15%	24.84%	21.70%	3.77%	32.56%
Large Cap Equity	7.83%	26.95%	22.21%	3.21%	31.66%
S&P 500 Index	7.42%	24.61%	20.60%	5.45%	30.69%
Alliance S&P Index	7.40%	24.45%	20.46%	5.43%	30.30%
PIMCO StocksPLUS	7.57%	27.61%	23.83%	5.56%	36.04%
S&P 500 Index	7.42%	24.61%	20.60%	5.45%	30.69%
BlackRock Russell 1000 Value Index	4.30%	23.83%	25.35%	3.07%	29.08%
Russell 1000 Value Index	4.13%	23.81%	25.32%	3.01%	28.94%
T. Rowe Price Large Cap Growth	11.93%	32.16%	19.79%	4.67%	34.41%
Russell 1000 Growth Index	10.56%	26.92%	17.07%	5.76%	35.01%
Small/Mid Cap Equity U.S. Equity	11.80%	24.00%	25.36%	(0.16%)	40.57%
Russell 2500 Index	5.92%	25.58%	25.61%	(2.29%)	39.28%
Champlain Mid Cap	9.33%	25.16%	21.86%	(0.08%)	35.17%
Russell MidCap Index	6.63%	26.85%	25.41%	(1.65%)	38.47%
Pyramis Small Cap	14.24%	22.70%	28.79%	(0.31%)	44.30%
Russell 2000 Index	6.49%	23.64%	24.21%	(2.08%)	37.41%
International Equity	(6.46%)	20.41%	16.34%	(15.16%)	29.90%
MSCI ACWI x US (Net)	(5.26%)	21.75%	13.63%	(14.57%)	29.73%
Causeway International Value Equity	(3.01%)	22.98%	21.27%	(11.43%)	34.80%
MSCI EAFE Index	(4.22%)	23.57%	18.62%	(13.83%)	30.36%
Aberdeen EAFE Plus	(10.90%)	17.28%	10.80%	(5.04%)	30.75%
MSCI ACWI x US (Net)	(5.26%)	21.75%	13.63%	(14.57%)	29.73%
Fixed Income	0.46%	7.30%	1.51%	8.03%	4.42%
Barclays Aggregate Index	1.86%	4.37%	(0.69%)	7.47%	3.90%
BlackRock U.S. Debt Fund	1.97%	4.43%	(0.49%)	7.55%	4.04%
Barclays Aggregate Index	1.86%	4.37%	(0.69%)	7.47%	3.90%
PIMCO Fixed Income	(0.43%)	9.07%	2.77%	9.15%	5.28%
Custom Index (2)	0.75%	8.48%	2.41%	7.63%	5.86%

(1) The Total Domestic Equity target is currently composed of 78% S&P 500 and 22% Russell 2500 Index.

(2) The custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

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	FY 2015	FY 2014	FY 2013	FY 2012	FY 2011
Net of Fees					
Real Estate	12.74%	12.03%	14.67%	10.34%	16.77%
NFI-ODCE Equal Weight Net	13.64%	11.37%	10.80%	11.46%	19.33%
JP Morgan Strategic Property Fund	12.28%	12.98%	12.95%	10.90%	17.75%
NFI-ODCE Equal Weight Net	13.64%	11.37%	10.80%	11.46%	19.33%
JP Morgan Income and Growth Fund	14.74%	9.93%	23.54%	16.49%	31.44%
NFI-ODCE Equal Weight Net	13.64%	11.37%	10.80%	11.46%	19.33%
Infrastructure	(3.82%)	15.32%	1.39%	3.61%	13.84%
CPI + 4%	3.62%	6.05%	5.76%	5.58%	8.06%
Macquarie European Infrastructure	(10.56%)	14.11%	11.61%	(1.44%)	21.91%
SteelRiver Infrastructure	4.67%	16.80%	(9.28%)	10.85%	4.48%
CPI + 4%	3.62%	6.05%	5.76%	5.58%	8.06%
Cash Composite	(0.00%)	0.00%	0.05%	0.03%	0.25%
Total Fund	4.17%	19.11%	14.21%	1.82%	22.52%
Total Fund Benchmark*	4.34%	16.97%	12.87%	3.04%	22.53%

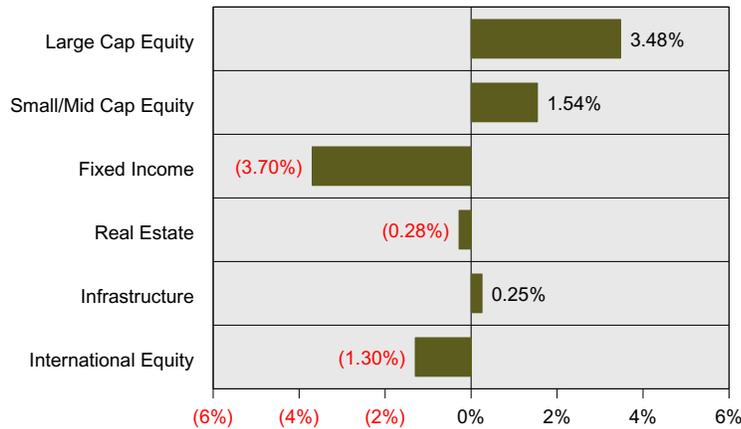
* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

*Note(s): According to LaSalle, Income & Growth Fund IV's expected termination date is 10/1/2015; a final distribution of TSRS's remaining assets will occur subsequent to the termination date.

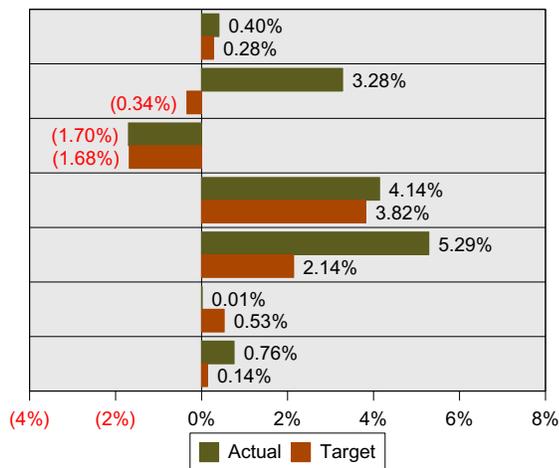
Quarterly Style Attribution - June 30, 2015

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Style Allocation Effect and Manager Selection Effect. The Style Allocation Effect represents the excess return due to the actual total fund style allocation differing from the target style allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

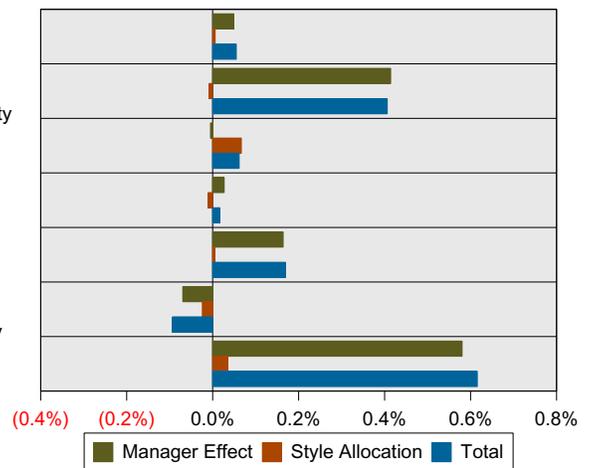
Style Class Under or Overweighting



Actual vs Target Returns



Relative Attribution by Style Class



Relative Attribution Effects for Quarter ended June 30, 2015

Style Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Style Allocation	Total Relative Return
Large Cap Equity	39%	36%	0.40%	0.28%	0.05%	0.01%	0.05%
Small/Mid Cap Equity	12%	10%	3.28%	(0.34%)	0.41%	(0.01%)	0.41%
Fixed Income	22%	26%	(1.70%)	(1.68%)	(0.01%)	0.07%	0.06%
Real Estate	8%	8%	4.14%	3.82%	0.03%	(0.01%)	0.02%
Infrastructure	5%	5%	5.29%	2.14%	0.16%	0.01%	0.17%
International Equity	14%	15%	0.01%	0.53%	(0.07%)	(0.02%)	(0.09%)

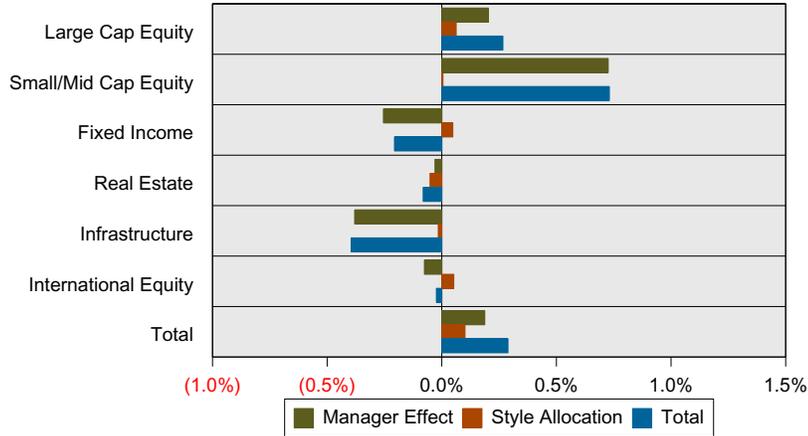
Total **0.76% = 0.14% + 0.58% + 0.04%** **0.62%**

* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

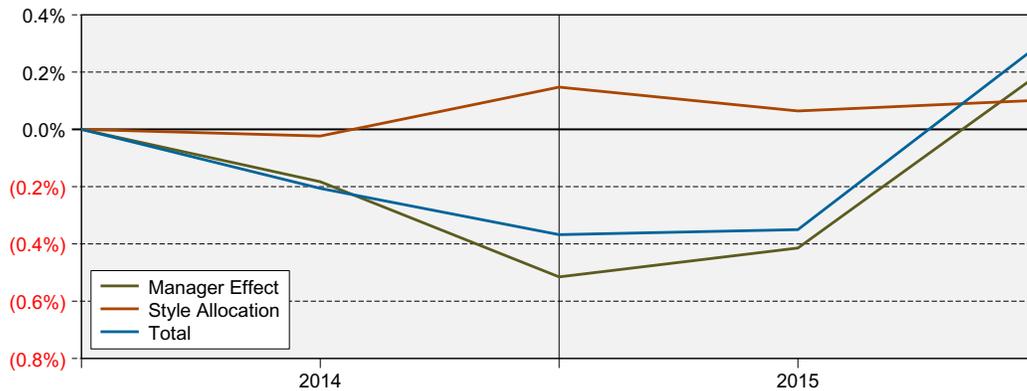
Cumulative Style Relative Attribution - June 30, 2015

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by style class. These relative attribution effects separate the cumulative sources of total fund excess return into Style Allocation Effect and Manager Selection Effect.

One Year Relative Attribution Effects



Cumulative Relative Attribution Effects



One Year Relative Attribution Effects

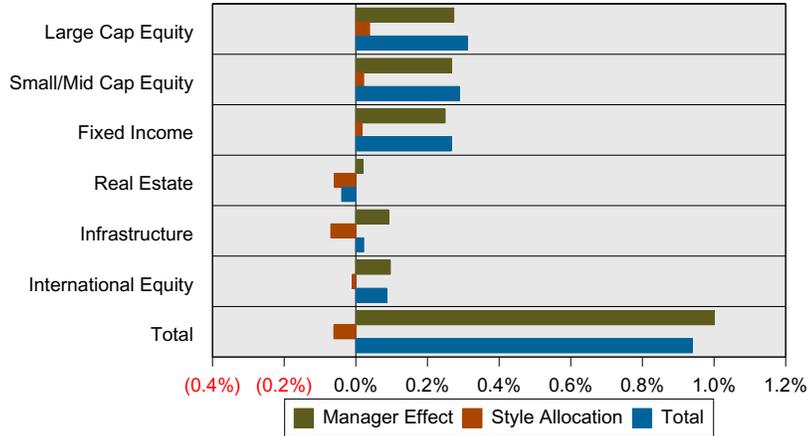
Style Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Style Allocation	Total Relative Return
Large Cap Equity	39%	36%	7.96%	7.42%	0.20%	0.06%	0.27%
Small/Mid Cap Equity	11%	10%	12.68%	5.92%	0.73%	0.01%	0.73%
Fixed Income	22%	26%	0.78%	1.86%	(0.25%)	0.05%	(0.21%)
Real Estate	8%	8%	13.92%	14.43%	(0.03%)	(0.05%)	(0.08%)
Infrastructure	6%	5%	(2.75%)	3.62%	(0.38%)	(0.02%)	(0.40%)
International Equity	14%	15%	(5.79%)	(5.26%)	(0.08%)	0.05%	(0.02%)
Total			4.63%	4.34%	+ 0.19%	+ 0.10%	0.29%

* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

Cumulative Style Relative Attribution - June 30, 2015

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by style class. These relative attribution effects separate the cumulative sources of total fund excess return into Style Allocation Effect and Manager Selection Effect.

Five Year Annualized Relative Attribution Effects



Cumulative Relative Attribution Effects



Five Year Annualized Relative Attribution Effects

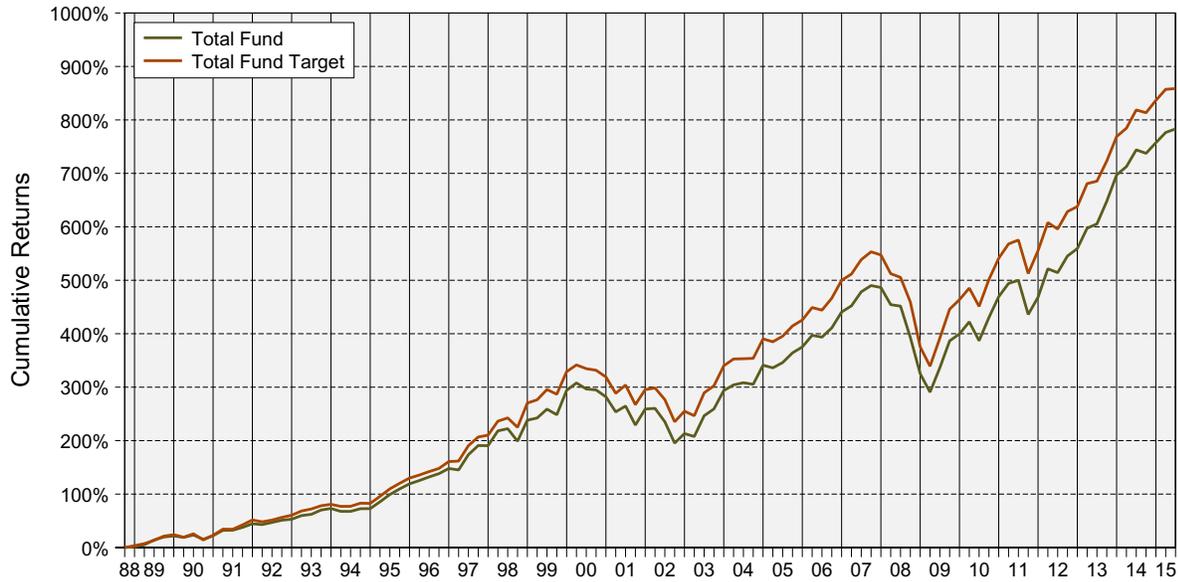
Style Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Style Allocation	Total Relative Return
Large Cap Equity	37%	36%	18.08%	17.34%	0.27%	0.04%	0.31%
Small/Mid Cap Equity	11%	10%	20.46%	17.85%	0.27%	0.02%	0.29%
Fixed Income	25%	26%	4.61%	3.62%	0.25%	0.02%	0.27%
Real Estate	7%	8%	14.58%	14.41%	0.02%	(0.06%)	(0.04%)
Infrastructure	6%	5%	7.46%	5.80%	0.09%	(0.07%)	0.02%
International Equity	14%	15%	8.43%	7.76%	0.10%	(0.01%)	0.09%
Total			12.64%	11.70%	+ 1.00%	+ (0.06%)	0.94%

* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

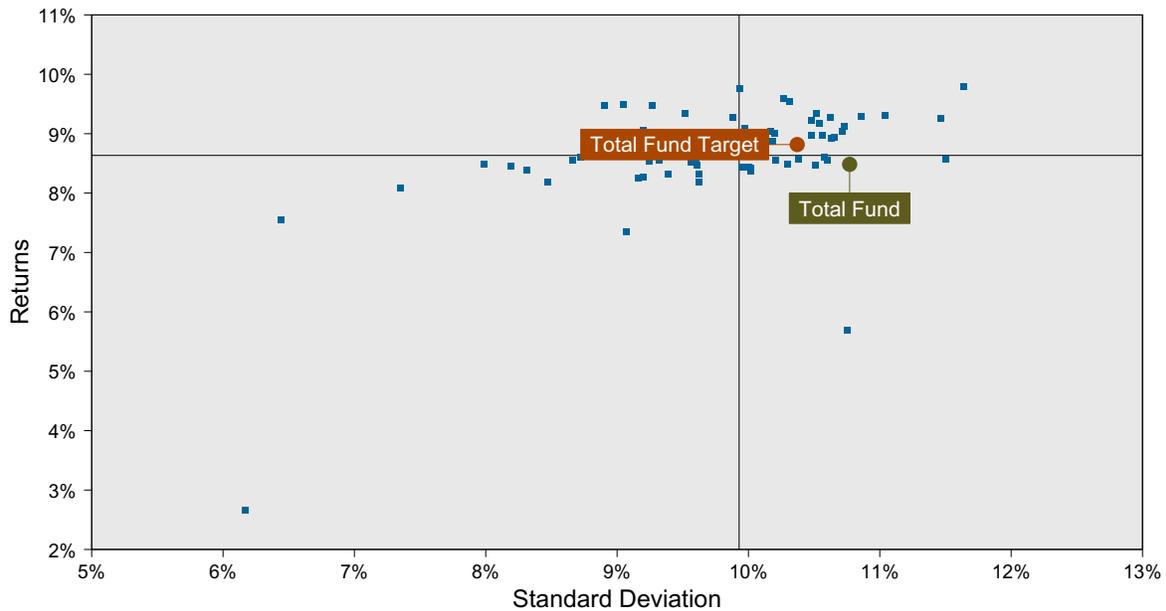
Cumulative Performance Relative to Target

The first chart below illustrates the cumulative performance of the Total Fund relative to the cumulative performance of the Fund's Target Asset Mix. The Target Mix is assumed to be rebalanced each quarter with no transaction costs. The second chart below shows the return and the risk of the Total Fund and the Target Mix, contrasted with the returns and risks of the funds in the Public Fund Sponsor Database.

Cumulative Returns Actual vs Target



Twenty-Six and Three-Quarter Year Annualized Risk vs Return



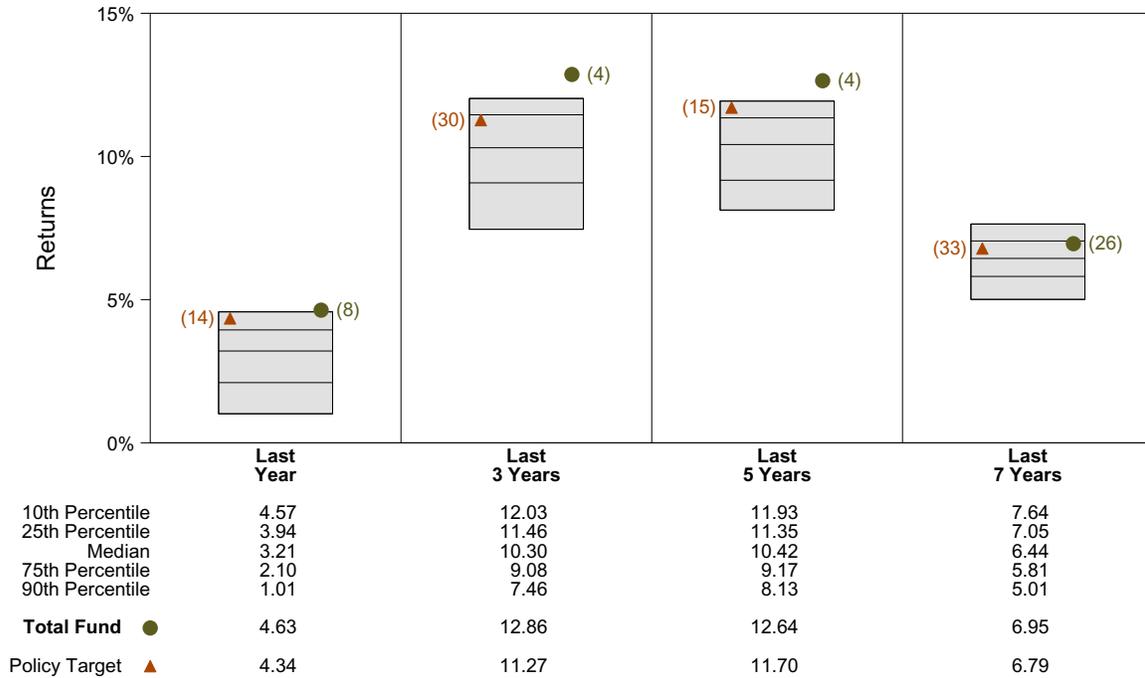
Squares represent membership of the Public Fund Sponsor Database

* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

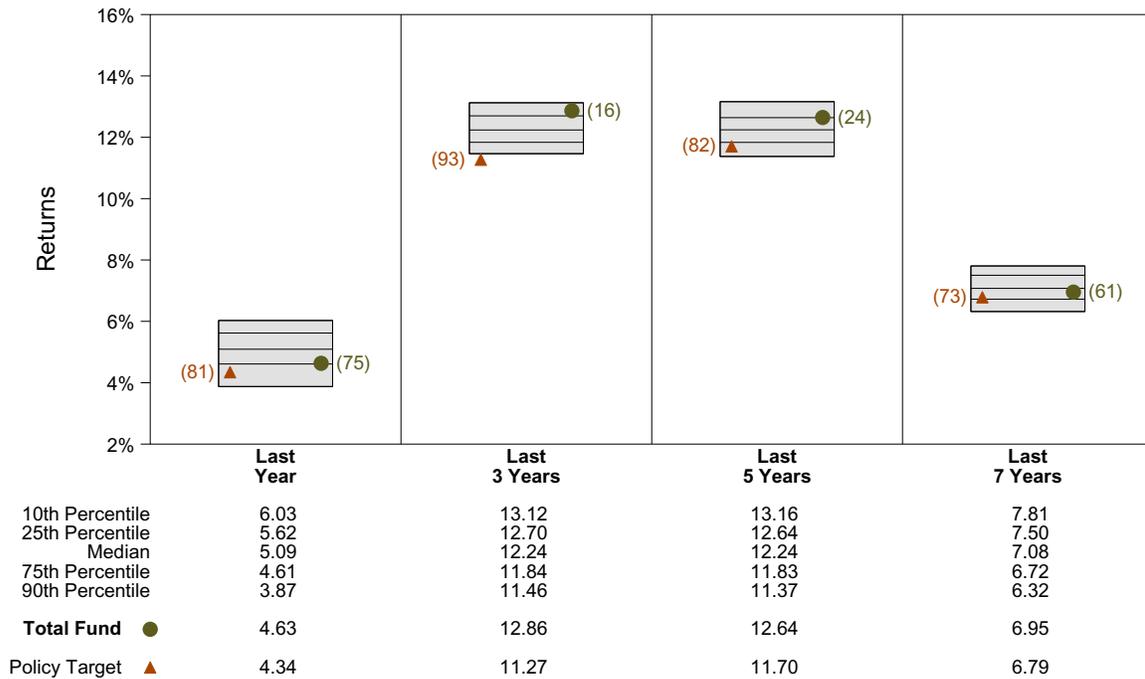
Total Fund Ranking

The first two charts show the ranking of the Total Fund's performance relative to that of the Public Fund Sponsor Database for periods ended June 30, 2015. The first chart is a standard unadjusted ranking. In the second chart each fund in the database is adjusted to have the same historical asset allocation as that of the Total Fund.

Public Fund Sponsor Database



Asset Allocation Adjusted Ranking

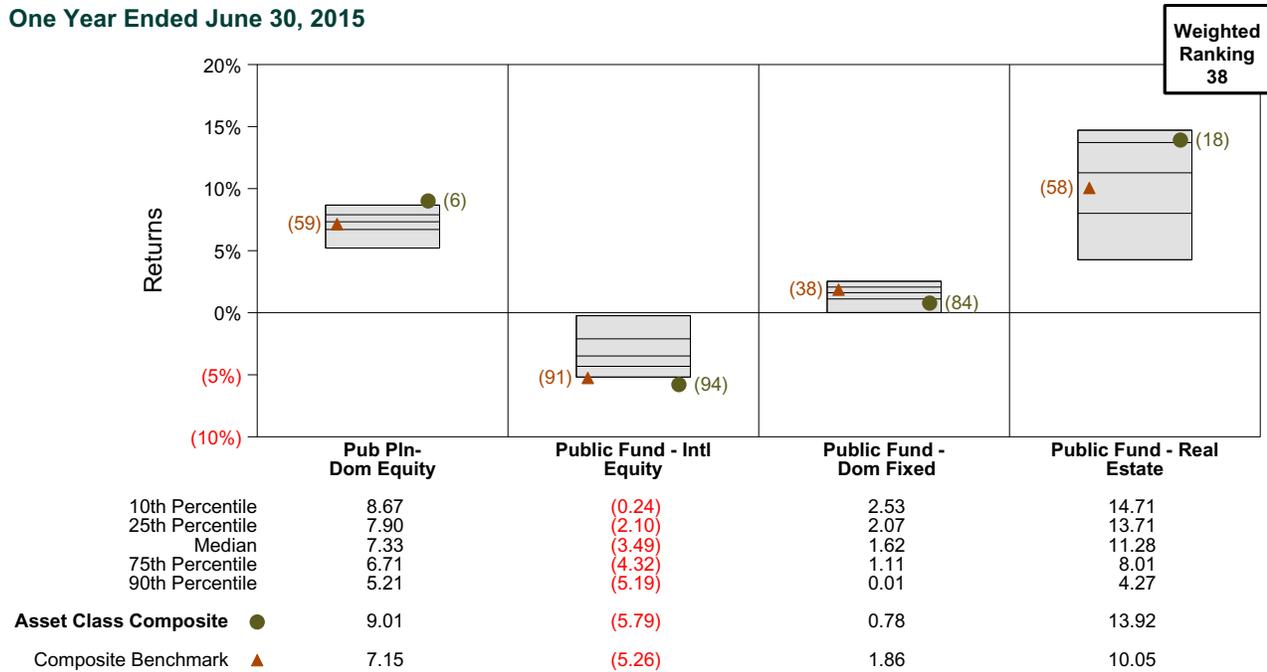


* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

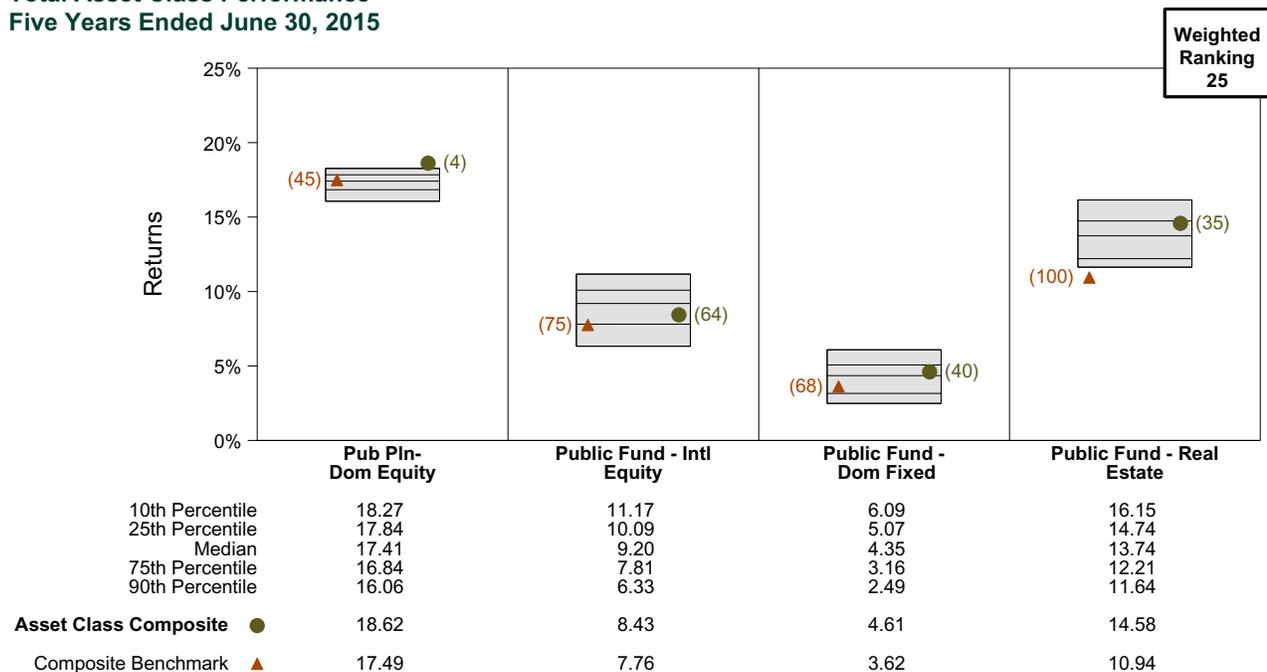
Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

Total Asset Class Performance One Year Ended June 30, 2015



Total Asset Class Performance Five Years Ended June 30, 2015



* Current Quarter Target = 36.0% S&P 500 Index, 26.0% Barclays Aggregate Index, 15.0% MSCI ACWI x US (Net), 10.0% Russell 2500 Index, 8.0% NFI-ODCE Value Weight Gr and 5.0% CPI-W+4.0%.

Total Fund Period Ended June 30, 2015

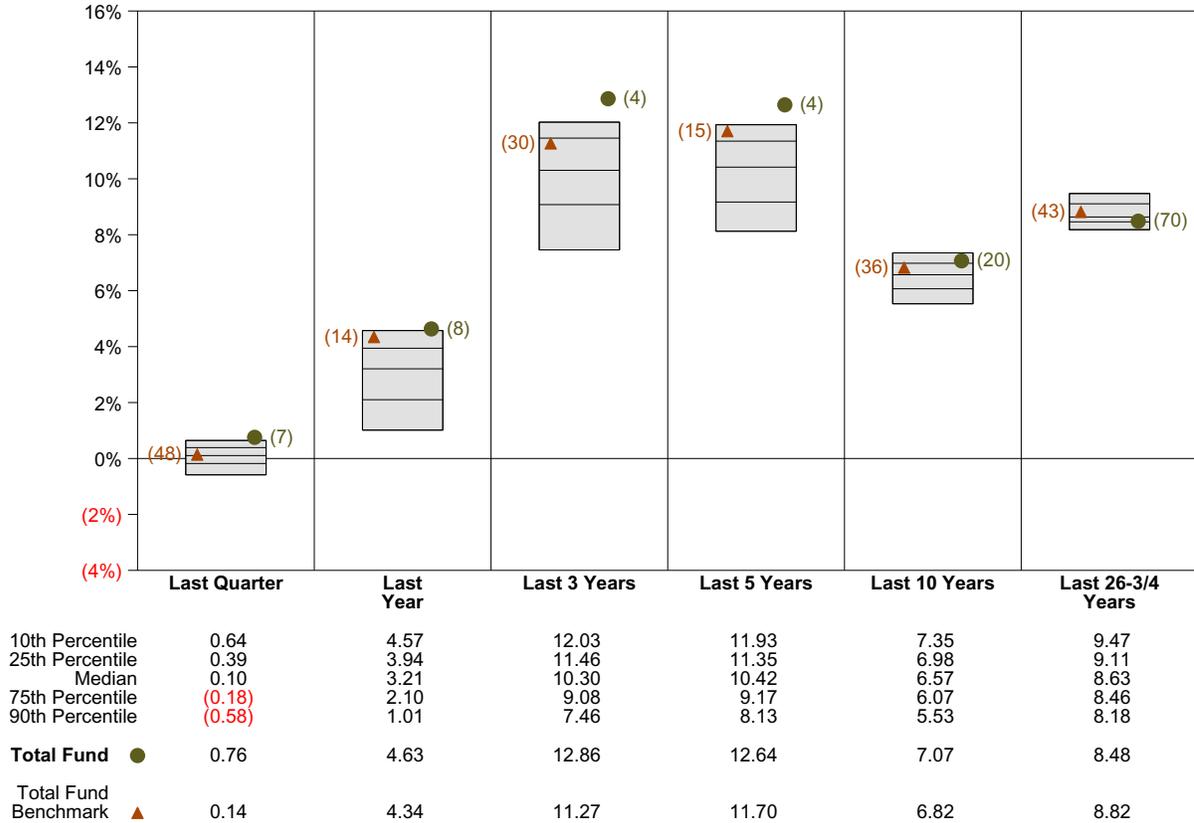
Investment Philosophy

The total fund return stream starts the third quarter of 1988.

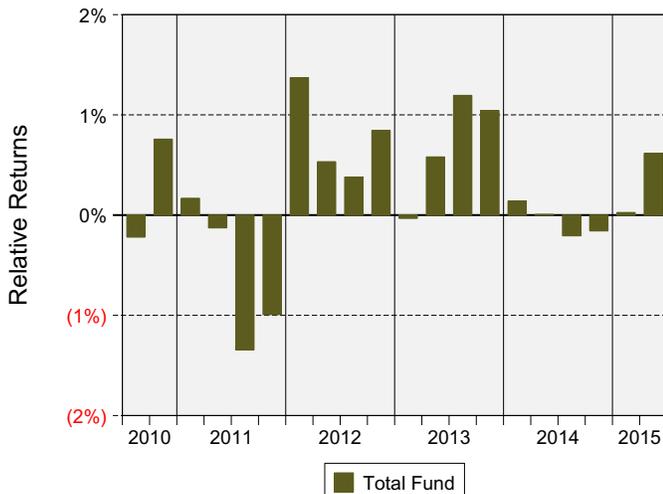
Quarterly Summary and Highlights

- Total Fund's portfolio posted a 0.76% return for the quarter placing it in the 7 percentile of the Public Fund Sponsor Database group for the quarter and in the 8 percentile for the last year.
- Total Fund's portfolio outperformed the Total Fund Benchmark by 0.62% for the quarter and outperformed the Total Fund Benchmark for the year by 0.29%.

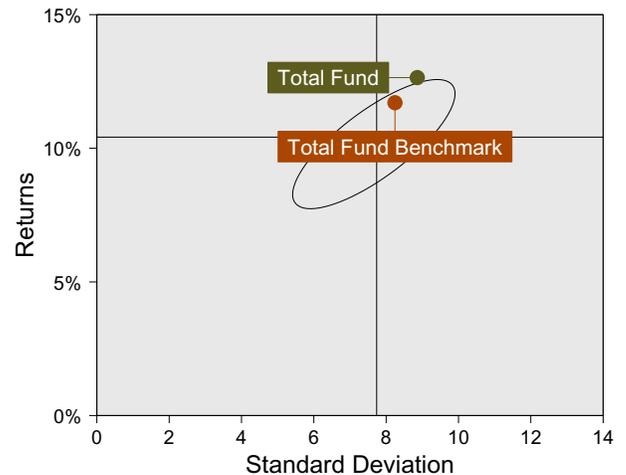
Performance vs Public Fund Sponsor Database (Gross)



Relative Return vs Total Fund Benchmark



Public Fund Sponsor Database (Gross) Annualized Five Year Risk vs Return



Domestic Equity

Period Ended June 30, 2015

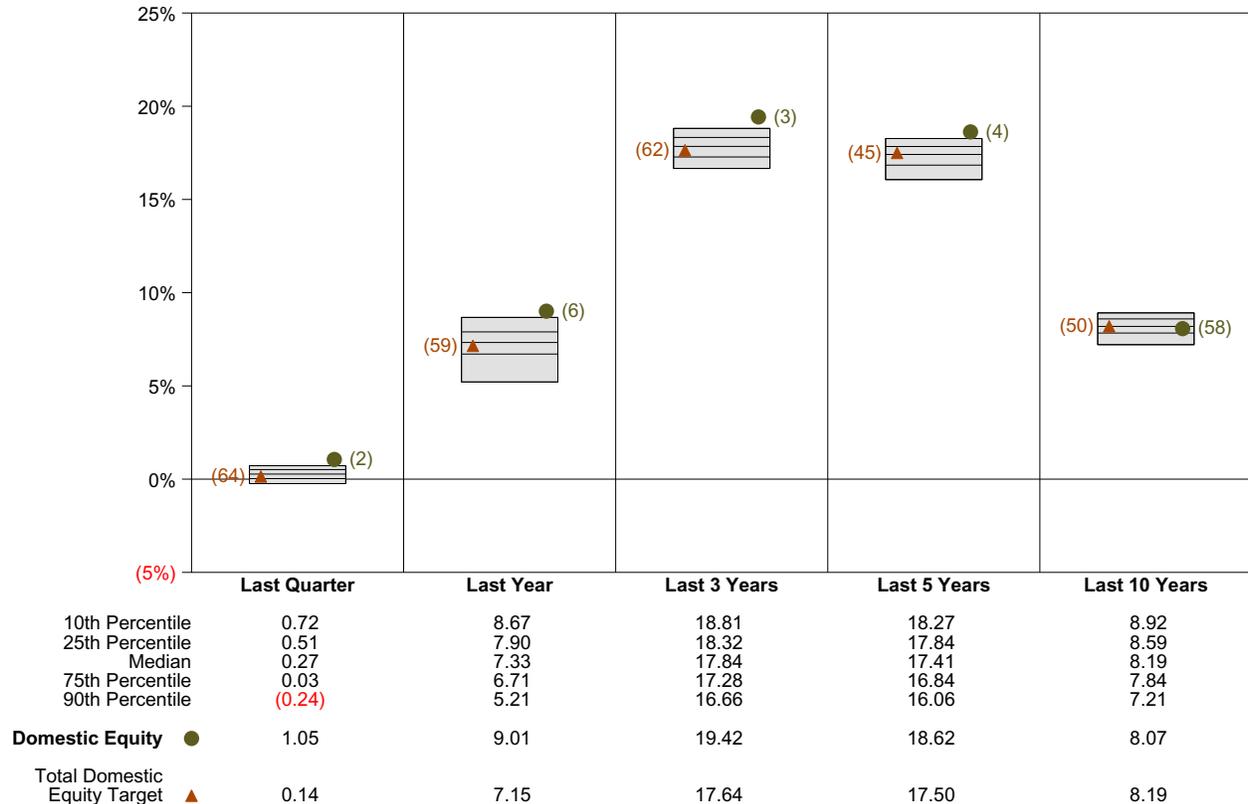
Investment Philosophy

The Total Domestic Equity target is currently composed of 78% S&P 500 Index and 22% Russell 2500 Index.

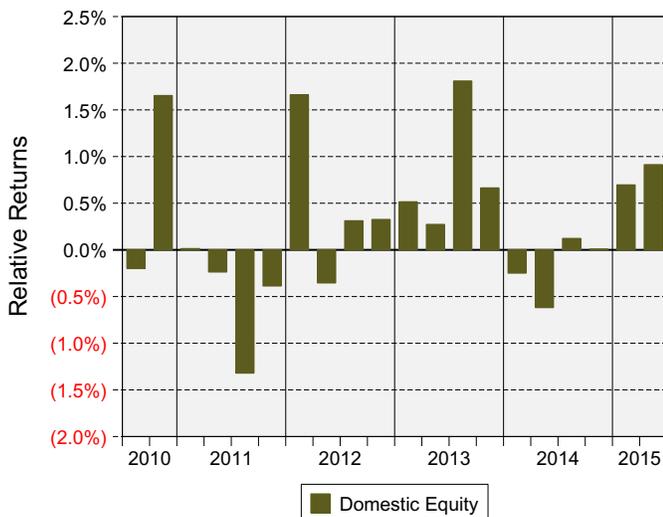
Quarterly Summary and Highlights

- Domestic Equity's portfolio posted a 1.05% return for the quarter placing it in the 2 percentile of the Pub Pln- Domestic Equity group for the quarter and in the 6 percentile for the last year.
- Domestic Equity's portfolio outperformed the Total Domestic Equity Target by 0.91% for the quarter and outperformed the Total Domestic Equity Target for the year by 1.86%.

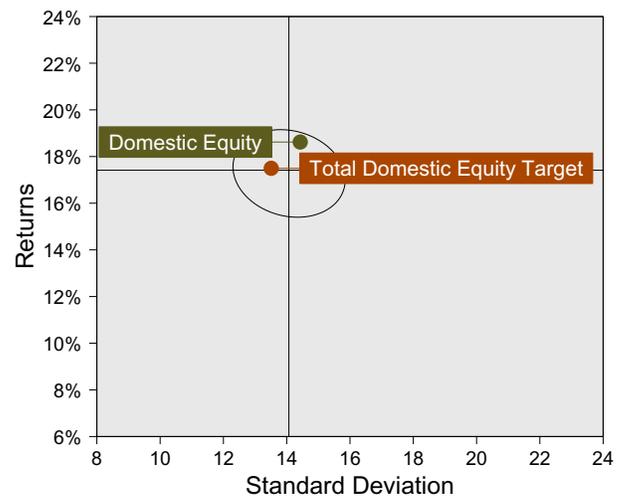
Performance vs Pub Pln- Domestic Equity (Gross)



Relative Returns vs Total Domestic Equity Target



Pub Pln- Domestic Equity (Gross) Annualized Five Year Risk vs Return

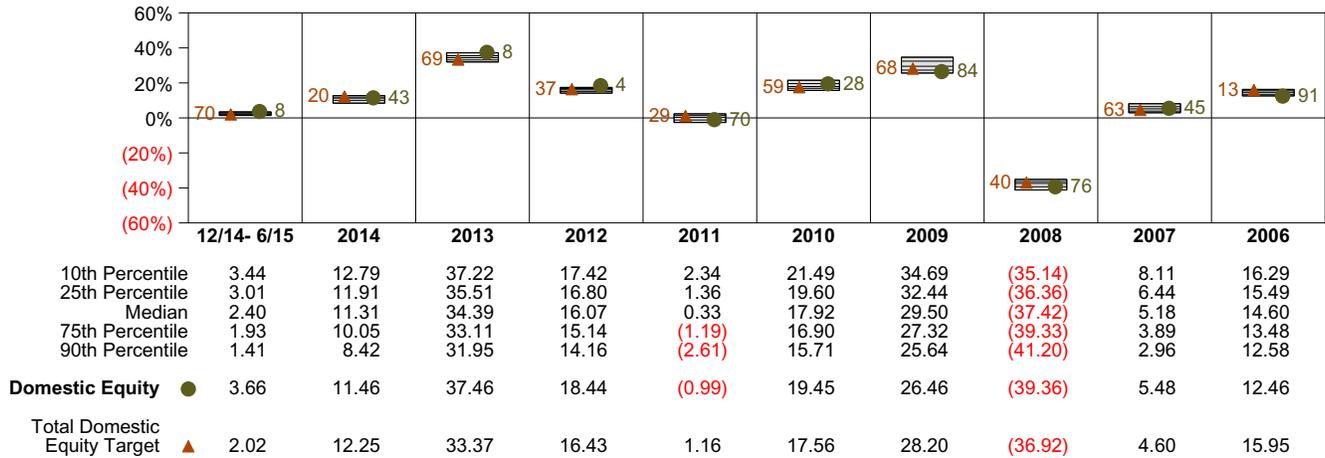


Domestic Equity Return Analysis Summary

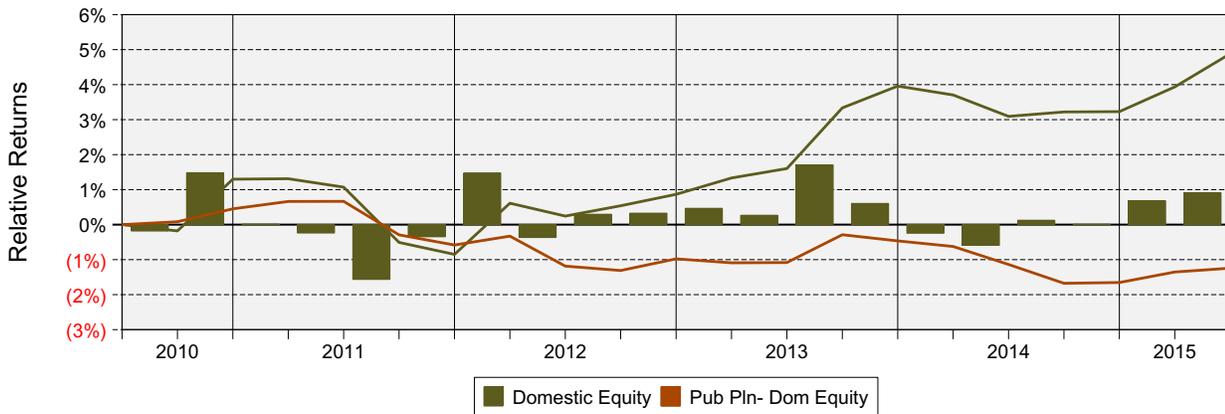
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

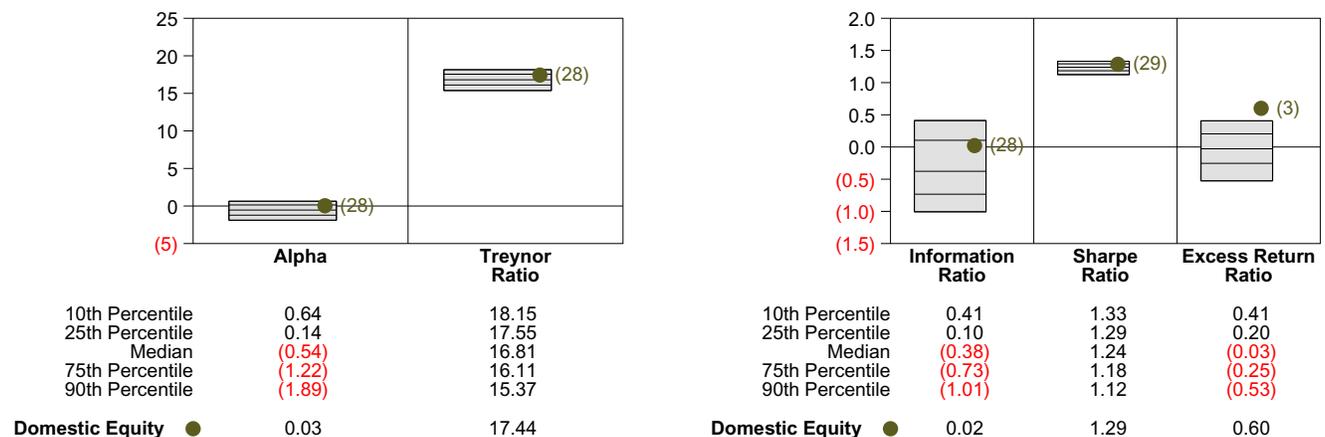
Performance vs Pub Pln- Domestic Equity (Gross)



Cumulative and Quarterly Relative Return vs Total Domestic Equity Target



Risk Adjusted Return Measures vs Total Domestic Equity Target Rankings Against Pub Pln- Domestic Equity (Gross) Five Years Ended June 30, 2015



Alliance S&P Index Period Ended June 30, 2015

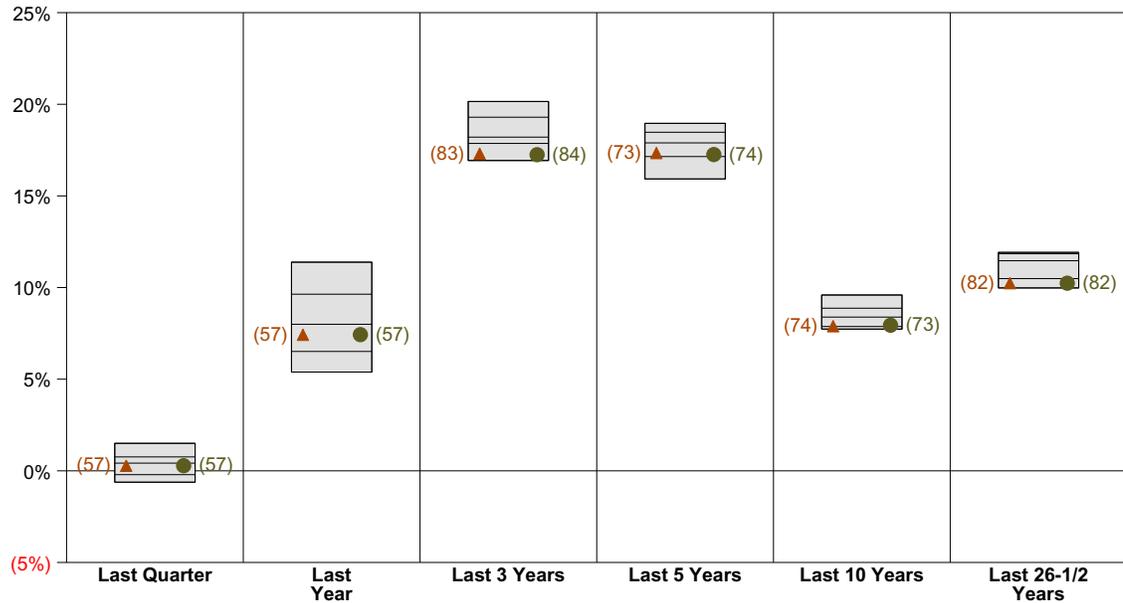
Investment Philosophy

Alliance uses a stratified sampling methodology and purchases a majority of the index stocks to replicate the Standard and Poor's 500. The product was funded during the third quarter of 1988.

Quarterly Summary and Highlights

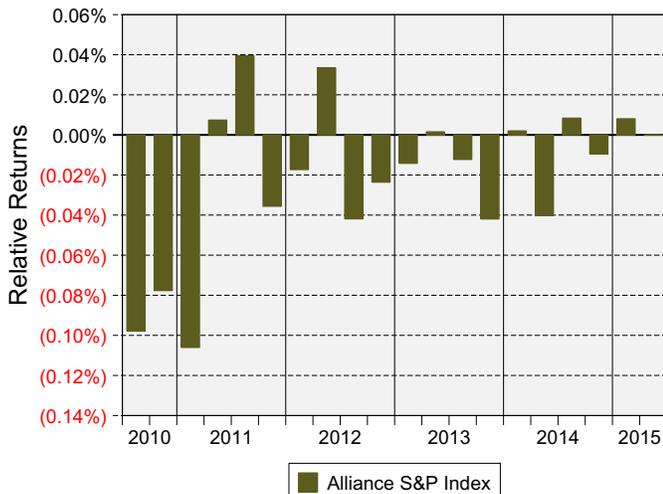
- Alliance S&P Index's portfolio posted a 0.28% return for the quarter placing it in the 57 percentile of the CAI Large Cap Core Style group for the quarter and in the 57 percentile for the last year.
- Alliance S&P Index's portfolio underperformed the S&P 500 Index by 0.00% for the quarter and outperformed the S&P 500 Index for the year by 0.01%.

Performance vs CAI Large Cap Core Style (Gross)

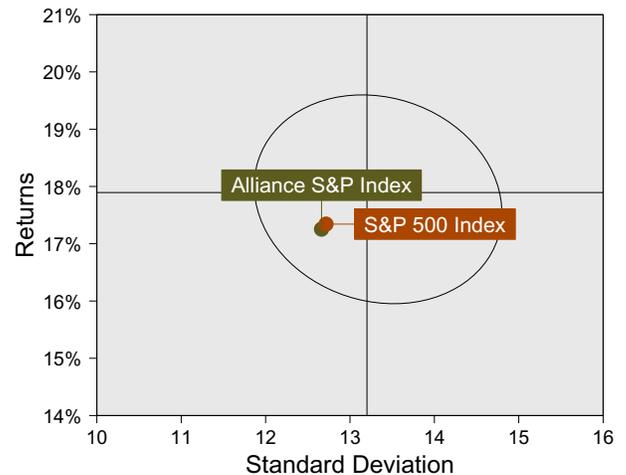


10th Percentile	1.50	11.38	20.15	18.96	9.59	11.92
25th Percentile	0.76	9.64	19.29	18.47	8.87	11.84
Median	0.42	8.00	18.21	17.89	8.39	11.46
75th Percentile	(0.21)	6.51	17.86	17.15	7.88	10.49
90th Percentile	(0.62)	5.39	16.93	15.92	7.73	9.98
Alliance S&P Index	0.28	7.43	17.25	17.26	7.94	10.24
S&P 500 Index	0.28	7.42	17.31	17.34	7.89	10.24

Relative Return vs S&P 500 Index



CAI Large Cap Core Style (Gross) Annualized Five Year Risk vs Return

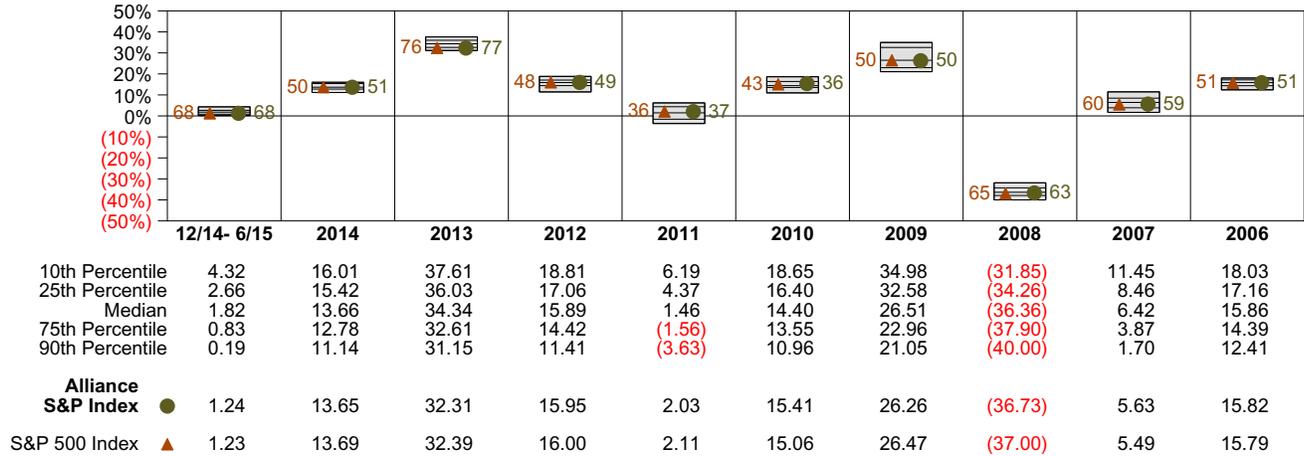


Alliance S&P Index Return Analysis Summary

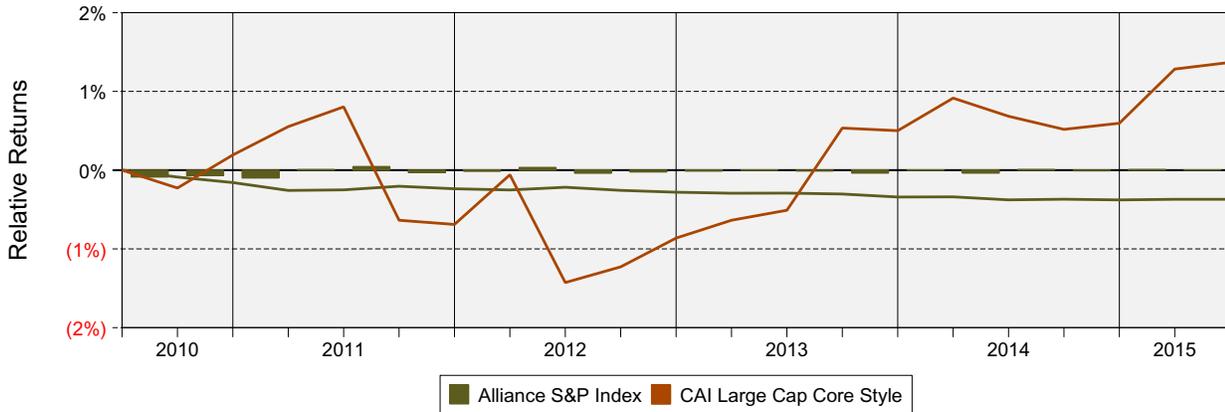
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

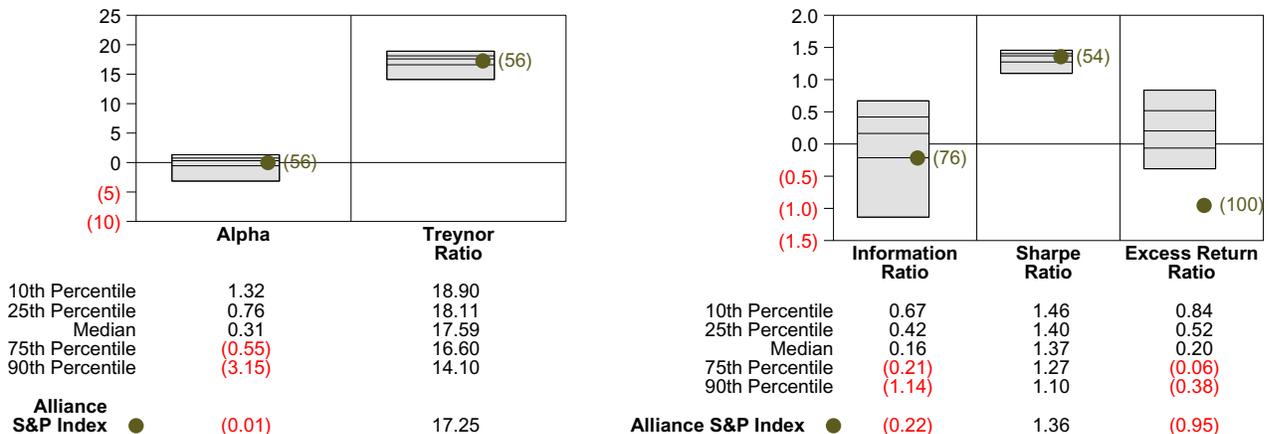
Performance vs CAI Large Cap Core Style (Gross)



Cumulative and Quarterly Relative Return vs S&P 500 Index



Risk Adjusted Return Measures vs S&P 500 Index Rankings Against CAI Large Cap Core Style (Gross) Five Years Ended June 30, 2015



PIMCO StocksPLUS

Period Ended June 30, 2015

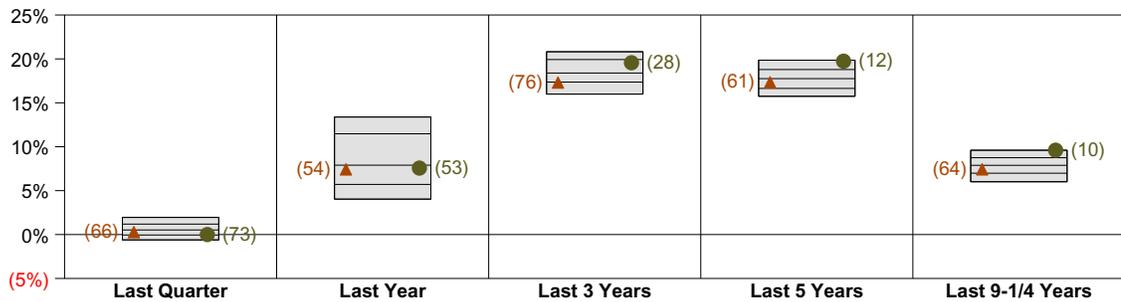
Investment Philosophy

PIMCO's StocksPLUS investment philosophy is based on the principal that stock index futures and swaps, when used as a non-leveraged vehicle for obtaining long-term equity exposure, offer an attractive means for enhancing equity market returns. The strategy seeks a longer time horizon of their investors relative to that of typical money market investors. This long time horizon allows PIMCO to use their fixed income and associated risk management skill set to seek out attractive yields relative to money market financing rates on a portion of the high quality fixed-income securities they use to back the futures contracts. Since they only require sufficient liquidity to meet a worst case margin outflow caused by a stock market decline, a portion of their fixed-income portfolio can be invested in somewhat less liquid, higher yielding securities. In addition, they generally take advantage of the typical upward slope of the short end of the yield curve by extending their duration to six months in most market environments and sometimes up to one year. PIMCO also feels that it is appropriate in most market environments to capture both the credit yield premium provided by holding a portion of the fixed-income portfolio in low duration corporate securities and the volatility yield premium provided by holding high quality mortgage securities. The product was funded during the first quarter of 2006.

Quarterly Summary and Highlights

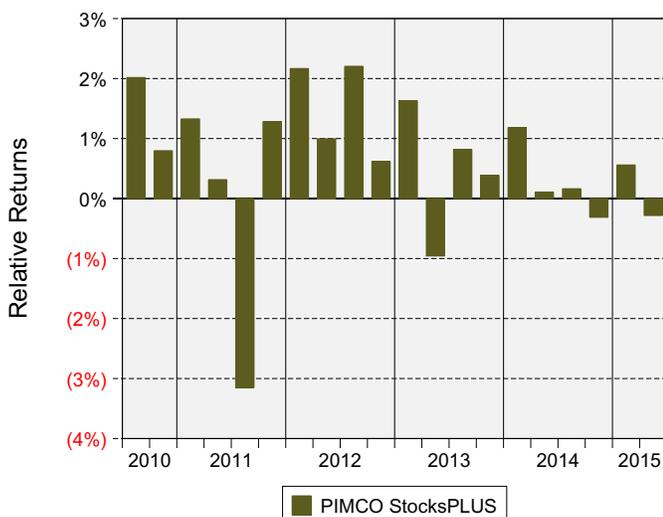
- PIMCO StocksPLUS's portfolio posted a (0.00)% return for the quarter placing it in the 73 percentile of the CAI Large Capitalization Style group for the quarter and in the 53 percentile for the last year.
- PIMCO StocksPLUS's portfolio underperformed the S&P 500 Index by 0.28% for the quarter and outperformed the S&P 500 Index for the year by 0.14%.

Performance vs CAI Large Capitalization Style (Gross)

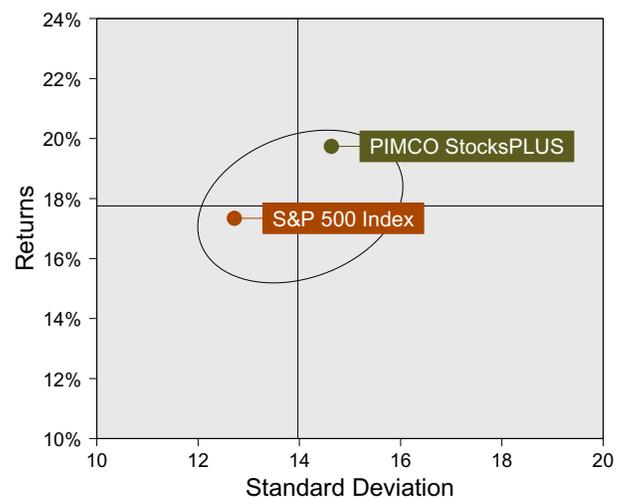


10th Percentile	1.95	13.38	20.81	19.85	9.60
25th Percentile	1.19	11.47	19.93	18.79	8.75
Median	0.52	7.90	18.39	17.76	7.88
75th Percentile	(0.05)	5.71	17.36	16.64	6.99
90th Percentile	(0.61)	4.03	16.00	15.74	6.01
PIMCO StocksPLUS	(0.00)	7.57	19.56	19.74	9.60
S&P 500 Index	0.28	7.42	17.31	17.34	7.42

Relative Return vs S&P 500 Index



CAI Large Capitalization Style (Gross) Annualized Five Year Risk vs Return

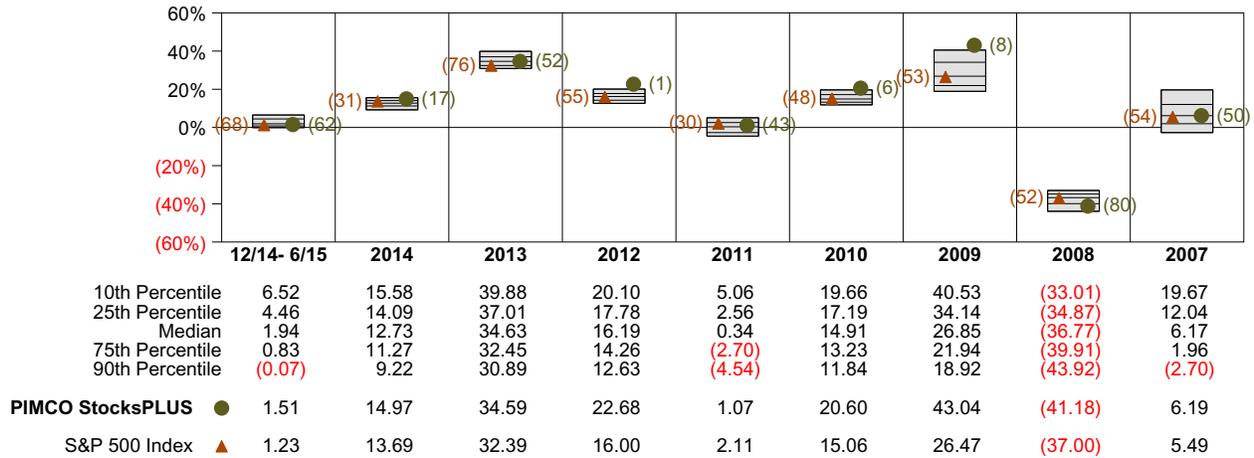


PIMCO StocksPLUS Return Analysis Summary

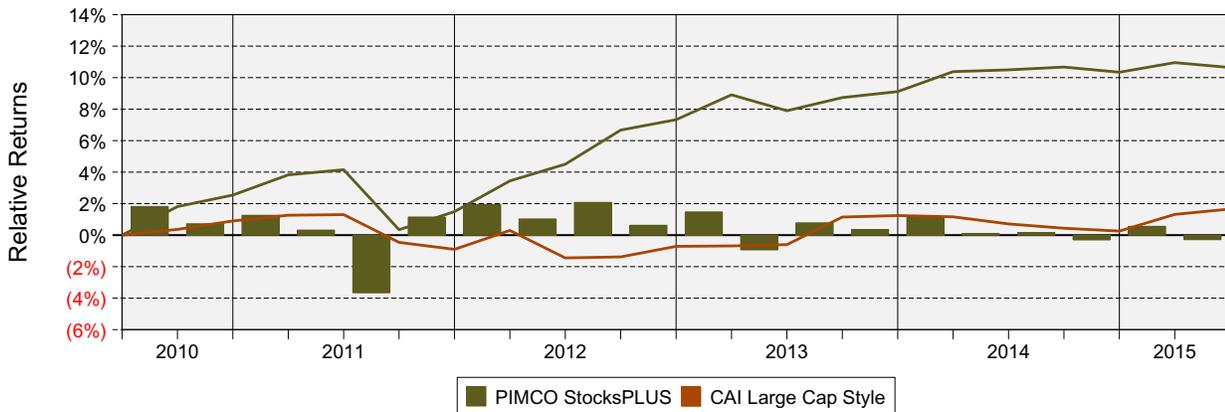
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

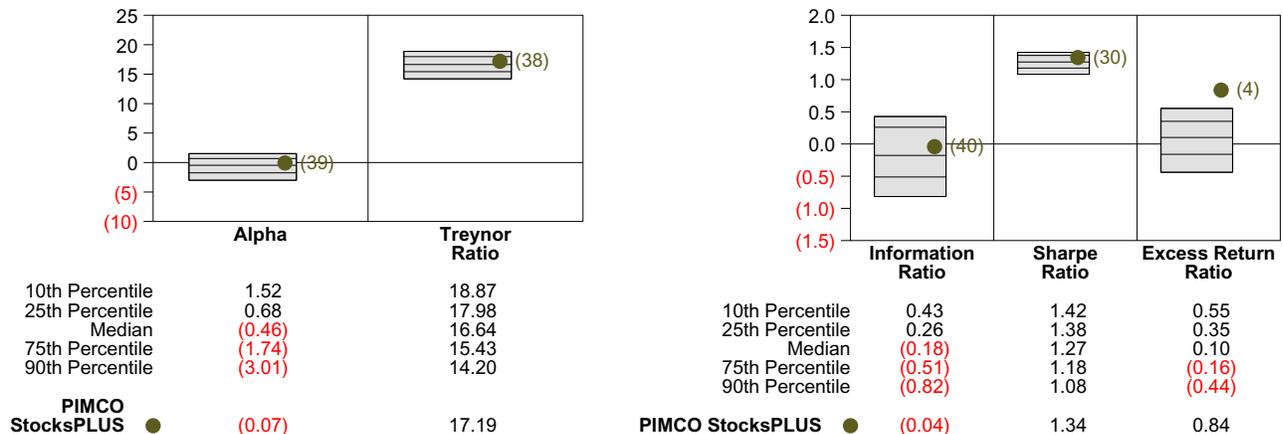
Performance vs CAI Large Capitalization Style (Gross)



Cumulative and Quarterly Relative Return vs S&P 500 Index



Risk Adjusted Return Measures vs S&P 500 Index Rankings Against CAI Large Capitalization Style (Gross) Five Years Ended June 30, 2015



BlackRock Russell 1000 Value Period Ended June 30, 2015

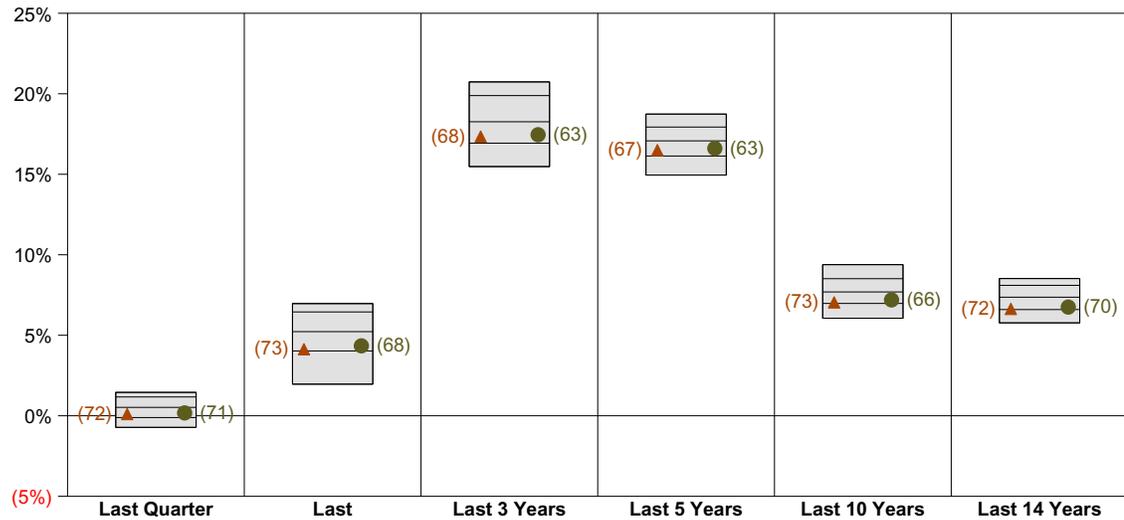
Investment Philosophy

The objective of the Russell 1000 Value Index Fund is to track the performance of its benchmark, the Russell 1000 Value Index. They seek to deliver a high quality and cost-effective index-based solution to institutional investors. The product was funded during the second quarter of 2001.

Quarterly Summary and Highlights

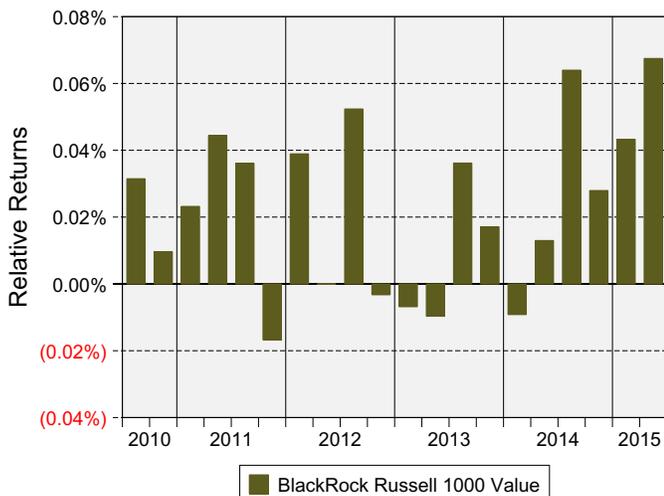
- BlackRock Russell 1000 Value's portfolio posted a 0.18% return for the quarter placing it in the 71 percentile of the CAI Large Cap Value Style group for the quarter and in the 68 percentile for the last year.
- BlackRock Russell 1000 Value's portfolio outperformed the Russell 1000 Value Index by 0.07% for the quarter and outperformed the Russell 1000 Value Index for the year by 0.21%.

Performance vs CAI Large Cap Value Style (Gross)

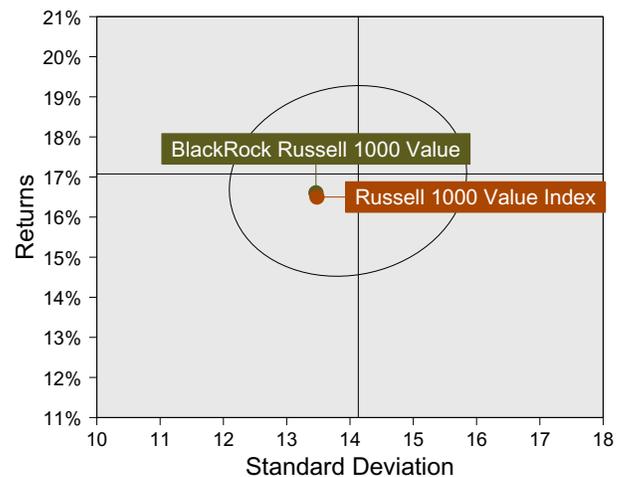


10th Percentile	1.45	6.97	20.74	18.74	9.39	8.52
25th Percentile	1.17	6.45	19.89	17.93	8.51	8.10
Median	0.52	5.23	18.26	17.08	7.69	7.37
75th Percentile	(0.11)	4.03	16.93	16.13	6.98	6.60
90th Percentile	(0.72)	1.96	15.48	14.95	6.06	5.77
BlackRock Russell 1000 Value	● 0.18	4.34	17.46	16.61	7.20	6.75
Russell 1000 Value Index	▲ 0.11	4.13	17.34	16.50	7.05	6.64

Relative Return vs Russell 1000 Value Index



CAI Large Cap Value Style (Gross) Annualized Five Year Risk vs Return

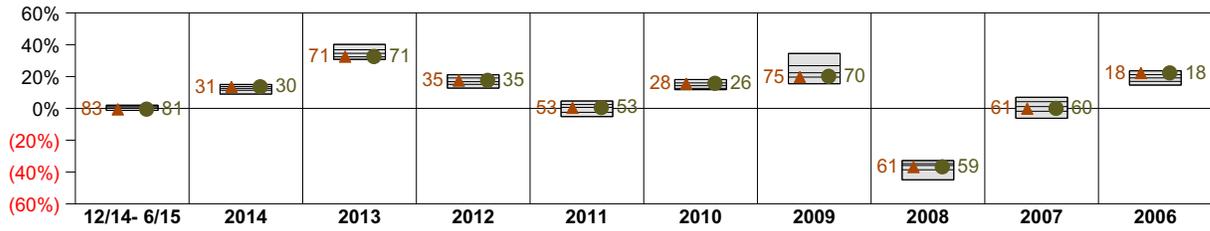


BlackRock Russell 1000 Value Return Analysis Summary

Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

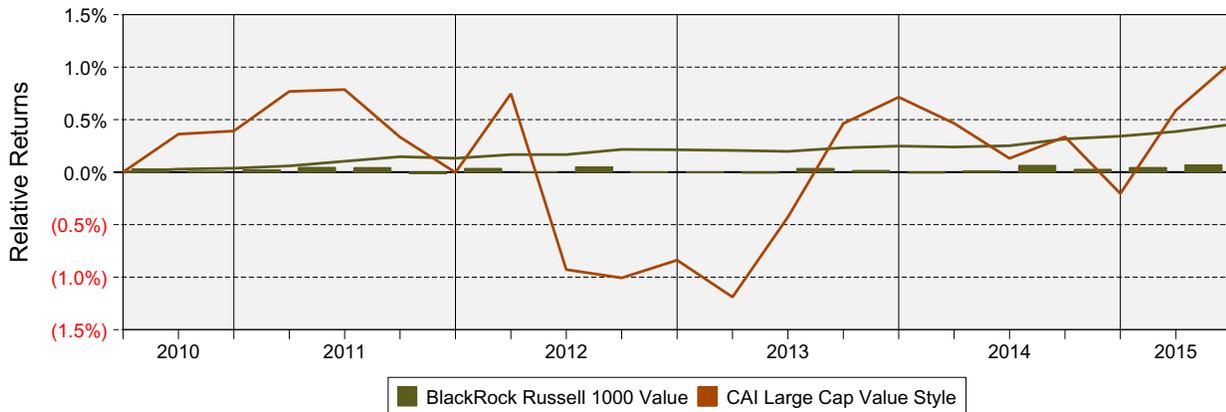
Performance vs CAI Large Cap Value Style (Gross)



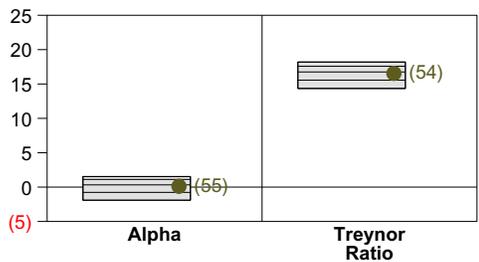
10th Percentile	1.99	15.03	40.19	21.13	4.62	18.13	34.50	(32.84)	6.97	23.59
25th Percentile	1.51	13.73	36.85	19.12	2.42	16.01	26.82	(34.74)	4.19	21.18
Median	0.86	12.54	34.59	16.78	0.61	14.27	22.37	(35.88)	1.12	19.15
75th Percentile	(0.01)	11.36	32.38	15.08	(2.48)	12.55	19.65	(38.61)	(1.81)	16.95
90th Percentile	(1.26)	8.98	30.80	12.71	(5.19)	11.75	15.46	(44.92)	(6.22)	14.63

BlackRock Russell 1000 Value	●	(0.50)	13.56	32.57	17.60	0.49	15.73	20.15	(36.74)	(0.00)	22.28
Russell 1000 Value Index	▲	(0.61)	13.45	32.53	17.51	0.39	15.51	19.69	(36.85)	(0.17)	22.25

Cumulative and Quarterly Relative Return vs Russell 1000 Value Index

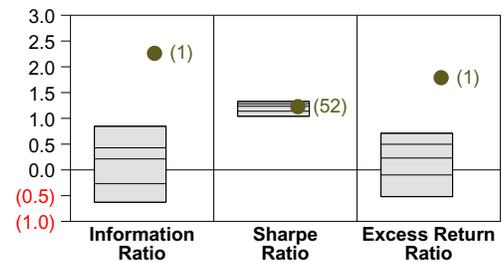


Risk Adjusted Return Measures vs Russell 1000 Value Index Rankings Against CAI Large Cap Value Style (Gross) Five Years Ended June 30, 2015



10th Percentile	1.54	18.19
25th Percentile	1.11	17.58
Median	0.33	16.75
75th Percentile	(0.77)	15.56
90th Percentile	(1.91)	14.35

BlackRock Russell 1000 Value	●	0.11	16.54
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10th Percentile	0.85	1.33	0.71
25th Percentile	0.43	1.28	0.50
Median	0.21	1.23	0.23
75th Percentile	(0.27)	1.14	(0.10)
90th Percentile	(0.63)	1.04	(0.52)

BlackRock Russell 1000 Value	●	2.26	1.23	1.79
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T. Rowe Price Large Cap Growth Period Ended June 30, 2015

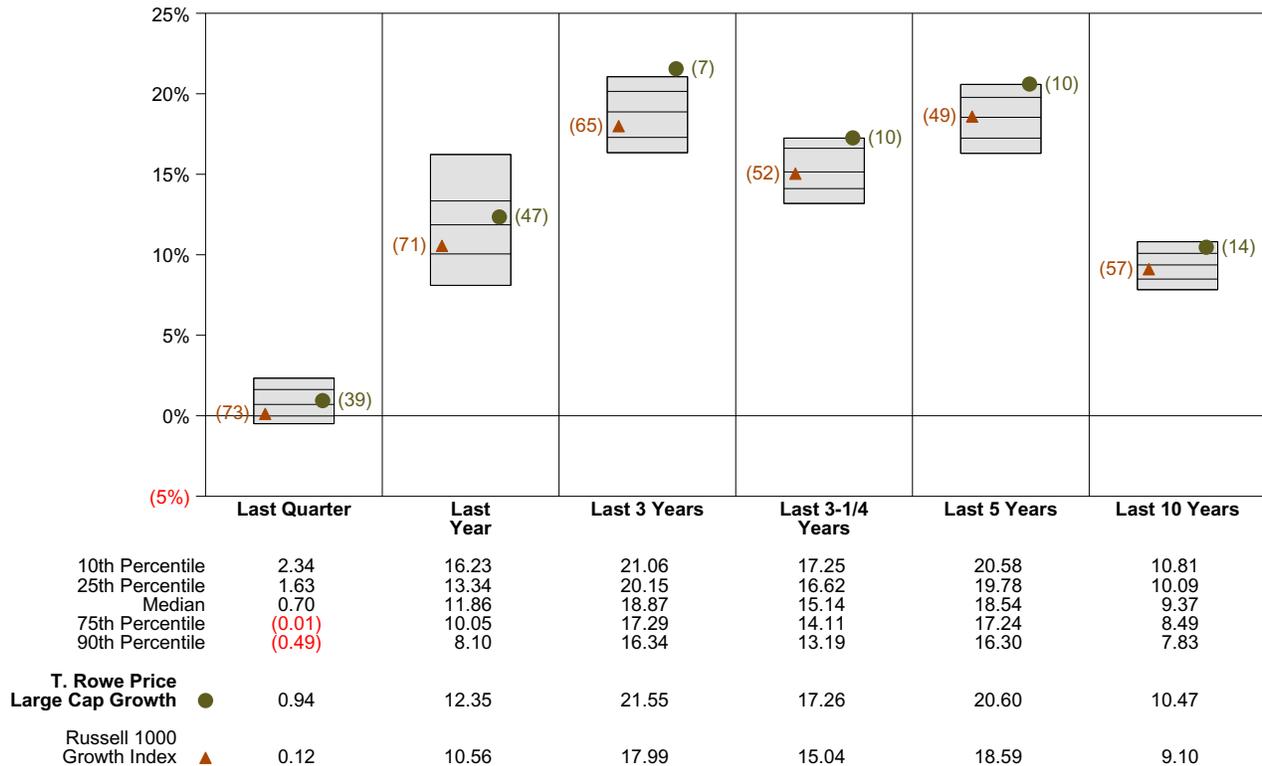
Investment Philosophy

The Large-Cap Growth Strategy is a fundamentally driven, active approach to large company growth investing. The investment philosophy is centered around the manager's belief that long-term growth in earnings and cash flow drive stockholder returns. The product was funded during the first quarter of 2012. Performance prior is that of the composite.

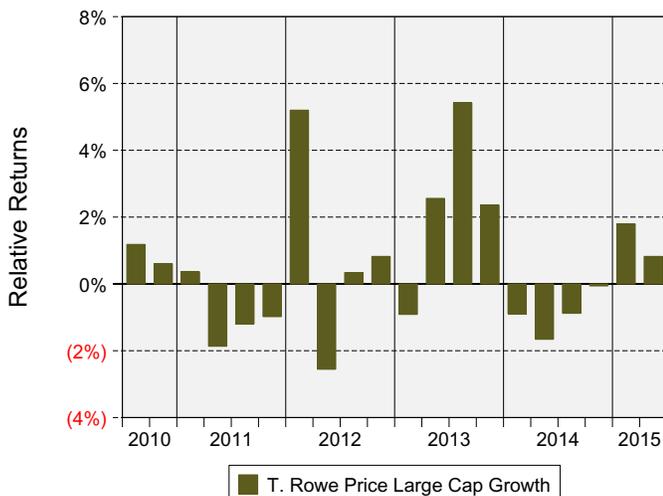
Quarterly Summary and Highlights

- T. Rowe Price Large Cap Growth's portfolio posted a 0.94% return for the quarter placing it in the 39 percentile of the CAI Large Cap Growth Style group for the quarter and in the 47 percentile for the last year.
- T. Rowe Price Large Cap Growth's portfolio outperformed the Russell 1000 Growth Index by 0.82% for the quarter and outperformed the Russell 1000 Growth Index for the year by 1.79%.

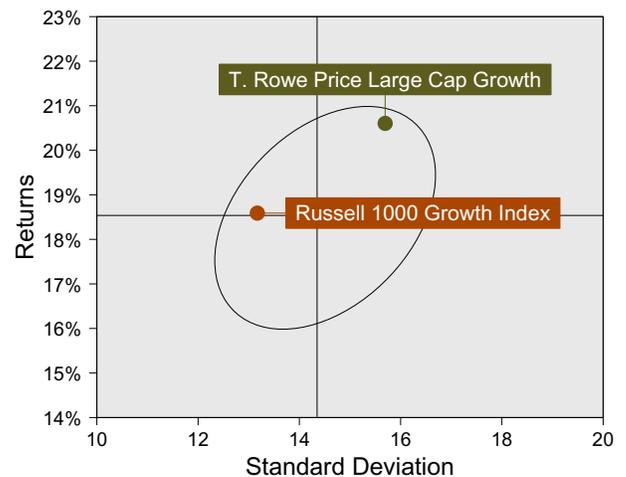
Performance vs CAI Large Cap Growth Style (Gross)



Relative Return vs Russell 1000 Growth Index



CAI Large Cap Growth Style (Gross)
Annualized Five Year Risk vs Return

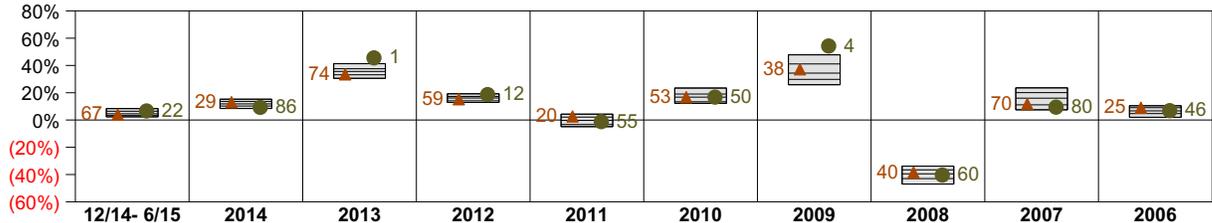


T. Rowe Price Large Cap Growth Return Analysis Summary

Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

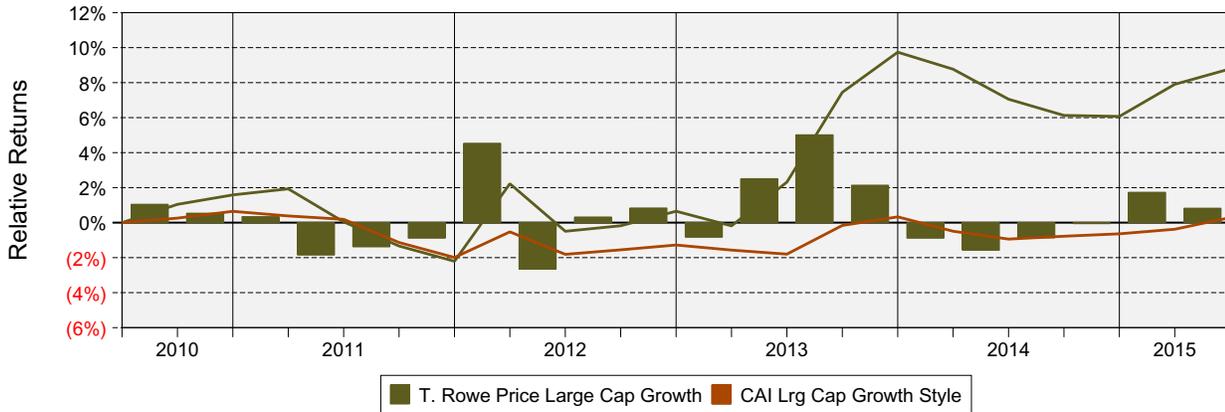
Performance vs CAI Large Cap Growth Style (Gross)



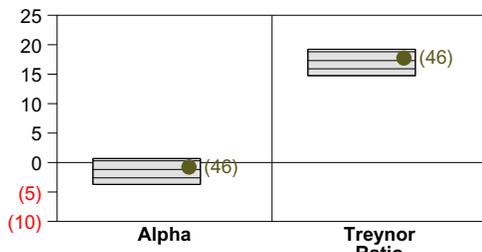
10th Percentile	8.39	15.27	41.28	19.23	4.31	23.44	47.80	(33.82)	23.57	10.47
25th Percentile	6.43	13.65	37.59	17.30	2.12	19.04	41.11	(36.57)	20.07	9.05
Median	4.57	11.83	35.60	16.14	(0.28)	16.77	34.39	(39.49)	16.01	6.70
75th Percentile	3.30	10.23	33.15	14.05	(3.30)	13.37	29.79	(42.96)	11.13	4.71
90th Percentile	2.33	8.44	30.57	12.87	(4.87)	12.24	25.86	(46.98)	7.46	2.00

T. Rowe Price Large Cap Growth	●	6.63	9.27	45.54	18.63	(1.19)	16.79	54.25	(40.39)	9.42	6.88
Russell 1000 Growth Index	▲	3.96	13.05	33.48	15.26	2.64	16.71	37.21	(38.44)	11.81	9.07

Cumulative and Quarterly Relative Return vs Russell 1000 Growth Index



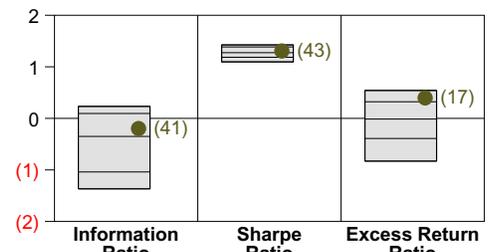
Risk Adjusted Return Measures vs Russell 1000 Growth Index Rankings Against CAI Large Cap Growth Style (Gross) Five Years Ended June 30, 2015



10th Percentile	0.68	19.23
25th Percentile	0.29	18.80
Median	(1.18)	17.30
75th Percentile	(2.60)	15.91
90th Percentile	(3.71)	14.75

T. Rowe Price Large Cap Growth ● (0.76)

17.73



10th Percentile	0.23	1.43	0.54
25th Percentile	0.09	1.39	0.32
Median	(0.35)	1.27	(0.01)
75th Percentile	(1.04)	1.18	(0.39)
90th Percentile	(1.37)	1.10	(0.83)

T. Rowe Price Large Cap Growth ● (0.20)

1.31

0.40

Champlain Mid Cap Period Ended June 30, 2015

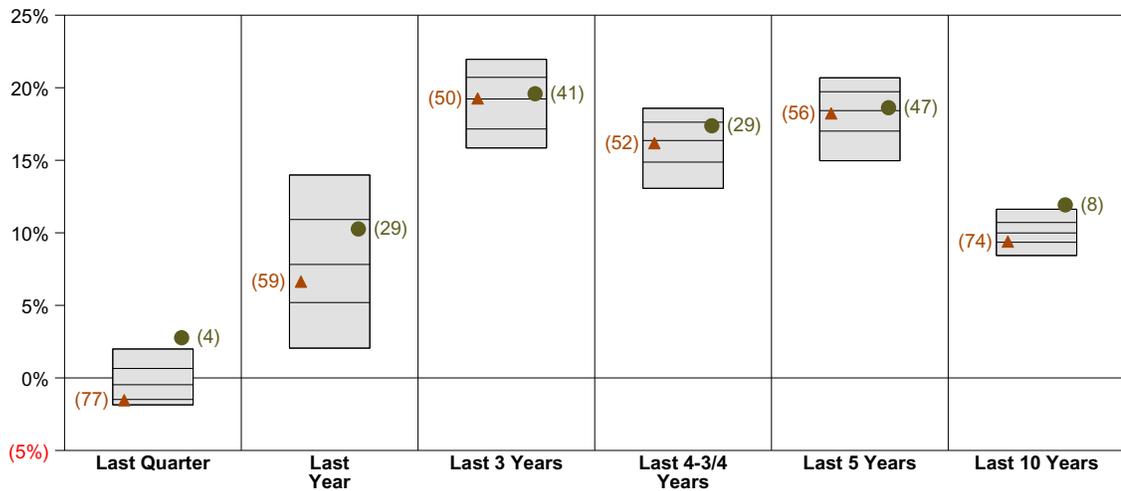
Investment Philosophy

Champlain Investment Partners believes buying the shares of superior businesses with credible and sincere managements at a discount to fair or intrinsic value gives investors several potential paths to wealth creation. First, the market may bid the shares to a premium over fair value. Second, management may grow the fair value over time at a faster rate than market appreciation. Third, the company may be bought by a larger company or private market investor. They are willing to sell over-priced stocks and harvest gains, reducing valuation risk. The product was funded during the third quarter of 2010. Performance prior is that of the composite.

Quarterly Summary and Highlights

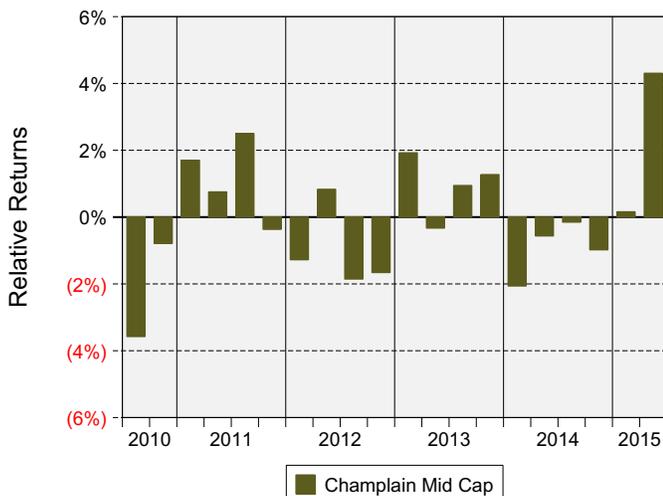
- Champlain Mid Cap's portfolio posted a 2.77% return for the quarter placing it in the 4 percentile of the CAI Mid Capitalization Style group for the quarter and in the 29 percentile for the last year.
- Champlain Mid Cap's portfolio outperformed the Russell MidCap Index by 4.31% for the quarter and outperformed the Russell MidCap Index for the year by 3.63%.

Performance vs CAI Mid Capitalization Style (Gross)

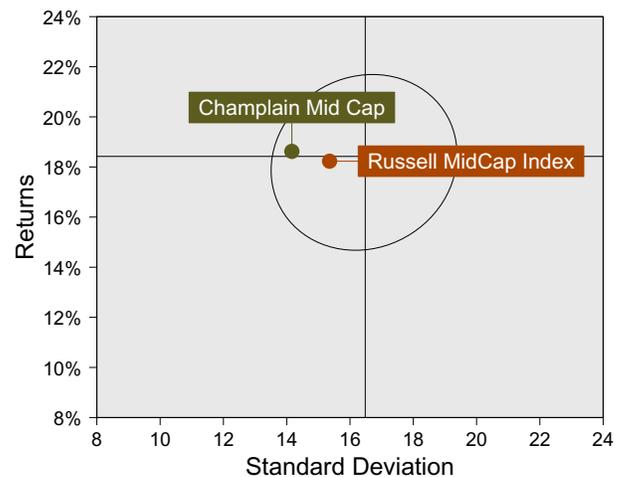


10th Percentile	1.99	13.99	21.96	18.58	20.69	11.63
25th Percentile	0.65	10.92	20.72	17.62	19.72	10.71
Median	(0.47)	7.82	19.23	16.36	18.42	9.99
75th Percentile	(1.49)	5.19	17.16	14.87	17.01	9.35
90th Percentile	(1.86)	2.05	15.85	13.07	14.97	8.44
Champlain Mid Cap	● 2.77	10.27	19.58	17.38	18.62	11.92
Russell MidCap Index	▲ (1.54)	6.63	19.26	16.18	18.23	9.40

Relative Return vs Russell MidCap Index



CAI Mid Capitalization Style (Gross) Annualized Five Year Risk vs Return

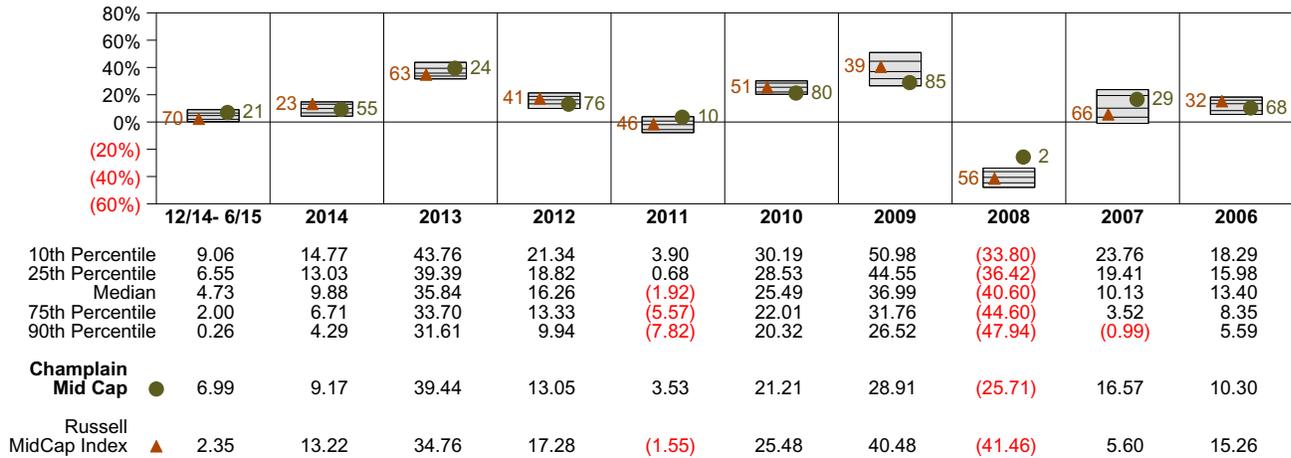


Champlain Mid Cap Return Analysis Summary

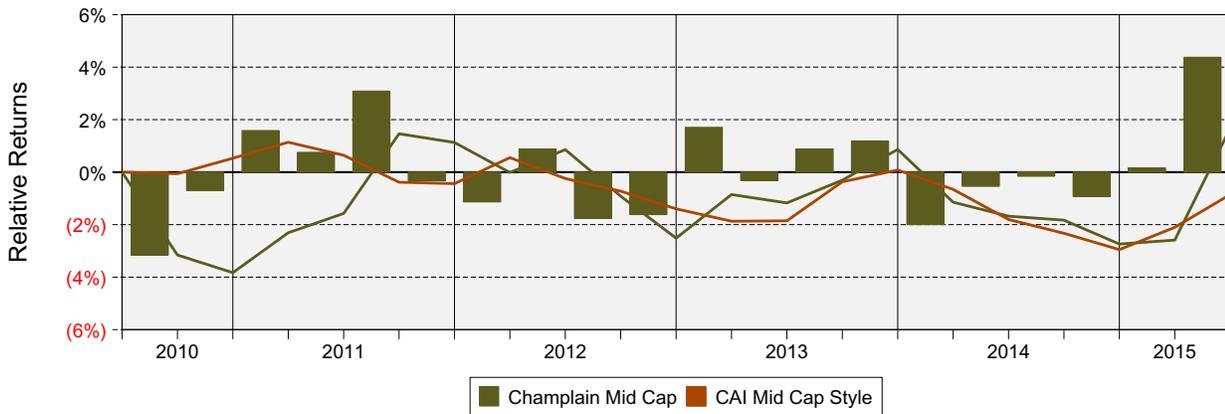
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

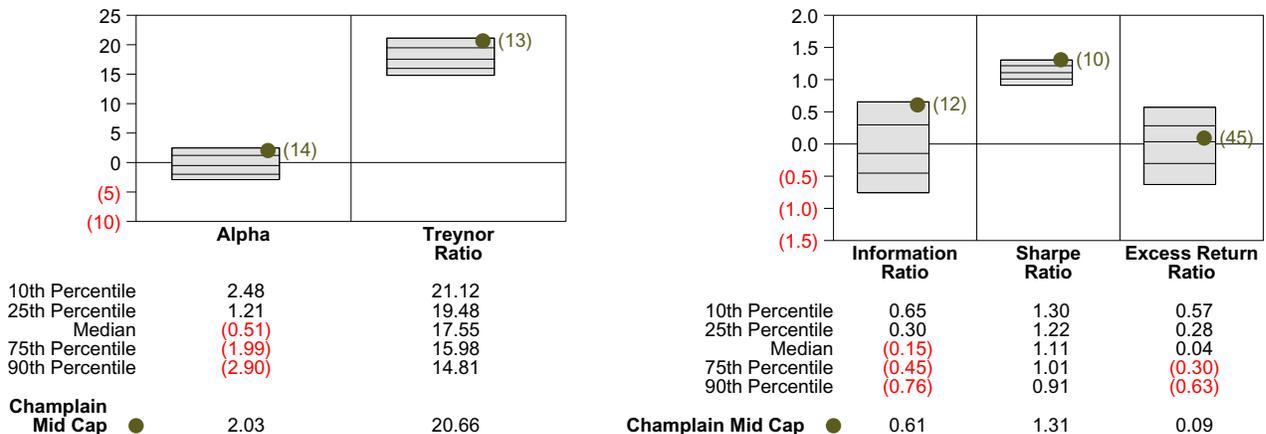
Performance vs CAI Mid Capitalization Style (Gross)



Cumulative and Quarterly Relative Return vs Russell MidCap Index



Risk Adjusted Return Measures vs Russell MidCap Index Rankings Against CAI Mid Capitalization Style (Gross) Five Years Ended June 30, 2015



Pyramis Small Cap Period Ended June 30, 2015

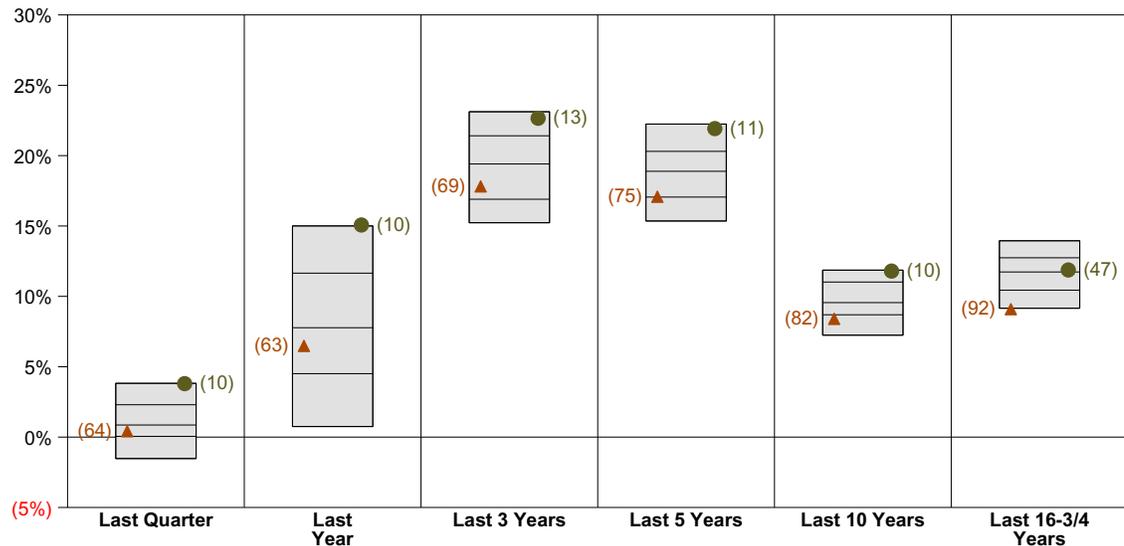
Investment Philosophy

Pyramis believes that pricing anomalies exist within the marketplace. The firm's objective is to exploit these inefficiencies and add value over the Russell 2000 Index using fundamental research to identify potential investment opportunities. The Pyramis Small Cap Core strategy seeks to build a balanced portfolio where returns will be driven by stock selection and not by systemic biases or exposures to market factors. The product was funded during the third quarter of 1998.

Quarterly Summary and Highlights

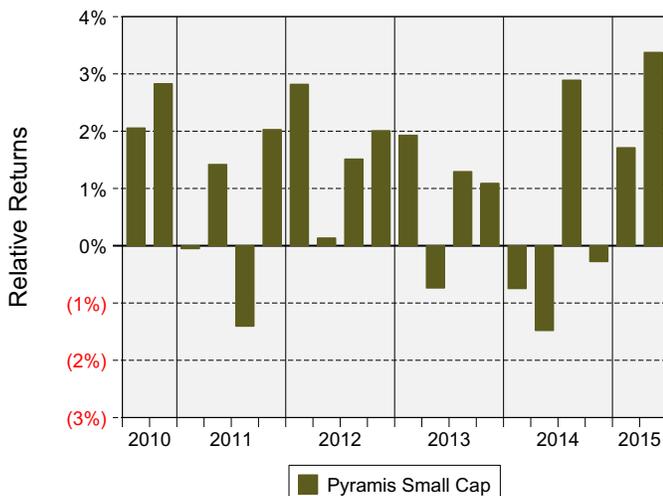
- Pyramis Small Cap's portfolio posted a 3.80% return for the quarter placing it in the 10 percentile of the CAI Small Capitalization Style group for the quarter and in the 10 percentile for the last year.
- Pyramis Small Cap's portfolio outperformed the Russell 2000 Index by 3.38% for the quarter and outperformed the Russell 2000 Index for the year by 8.59%.

Performance vs CAI Small Capitalization Style (Gross)

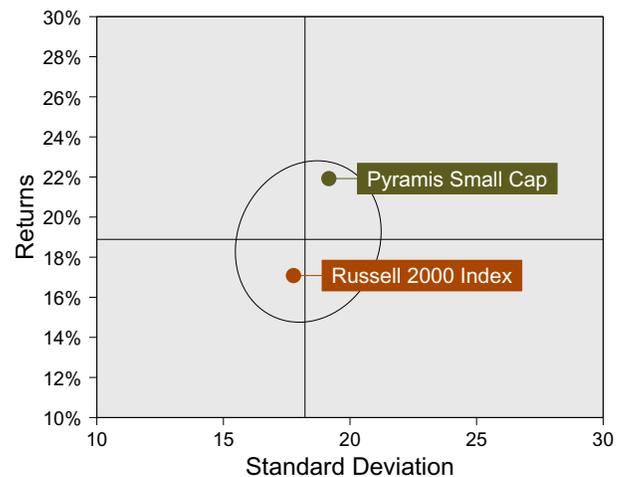


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 16-3/4 Years
10th Percentile	3.82	15.01	23.12	22.24	11.86	13.95
25th Percentile	2.30	11.65	21.41	20.30	11.02	12.74
Median	0.86	7.77	19.41	18.89	9.56	11.73
75th Percentile	0.05	4.51	16.90	17.06	8.69	10.44
90th Percentile	(-1.53)	0.75	15.23	15.35	7.24	9.15
Pyramis Small Cap	● 3.80	15.07	22.65	21.92	11.80	11.87
Russell 2000 Index	▲ 0.42	6.49	17.81	17.08	8.40	9.10

Relative Return vs Russell 2000 Index



CAI Small Capitalization Style (Gross) Annualized Five Year Risk vs Return

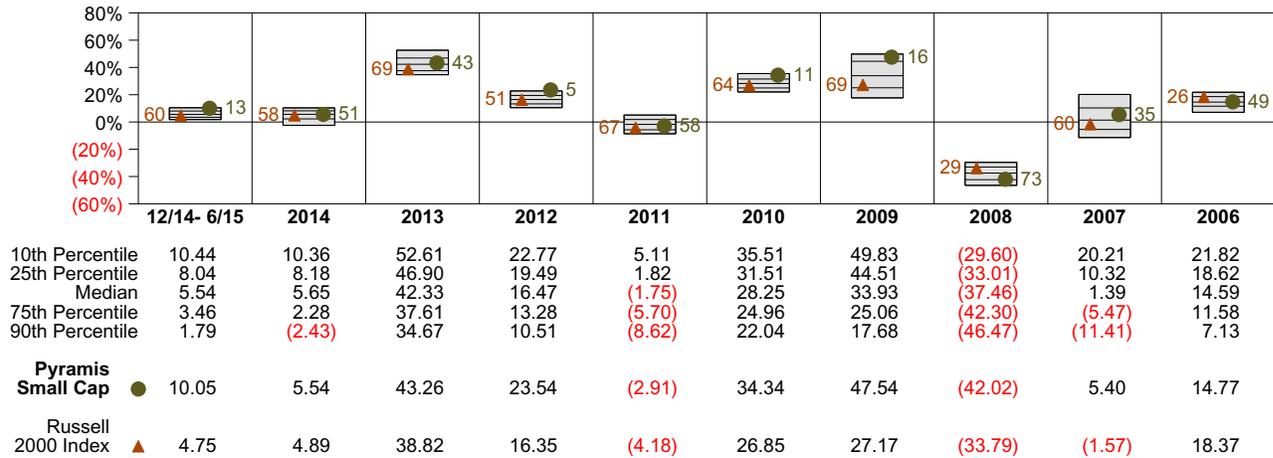


Pyramis Small Cap Return Analysis Summary

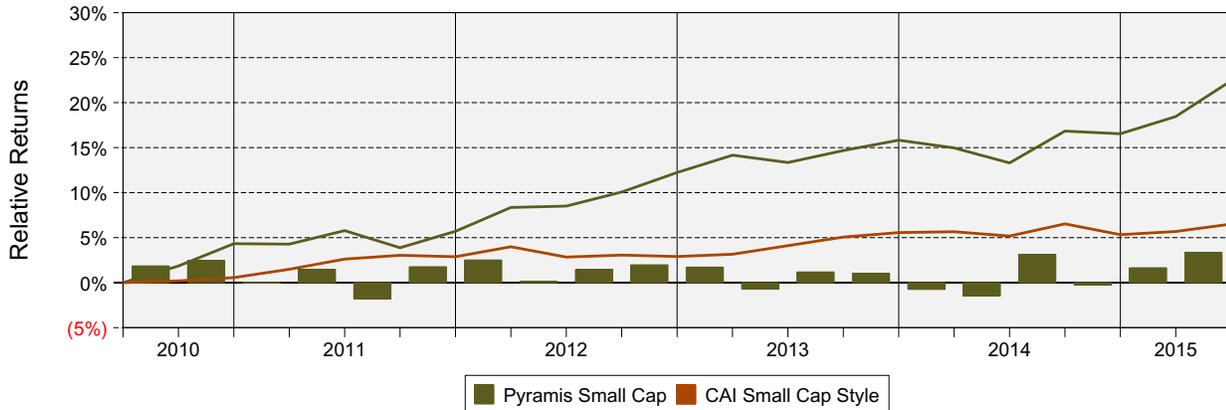
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

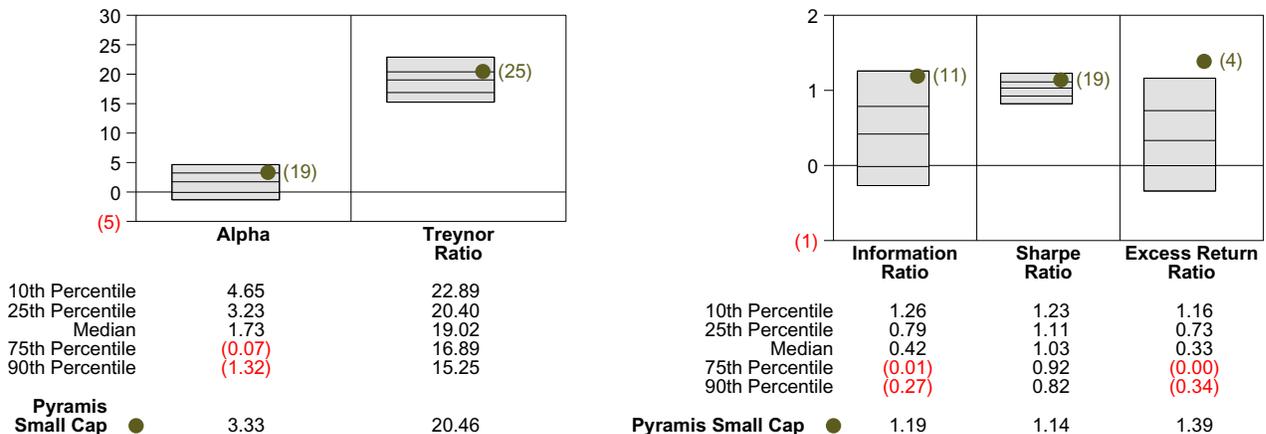
Performance vs CAI Small Capitalization Style (Gross)



Cumulative and Quarterly Relative Return vs Russell 2000 Index



Risk Adjusted Return Measures vs Russell 2000 Index Rankings Against CAI Small Capitalization Style (Gross) Five Years Ended June 30, 2015



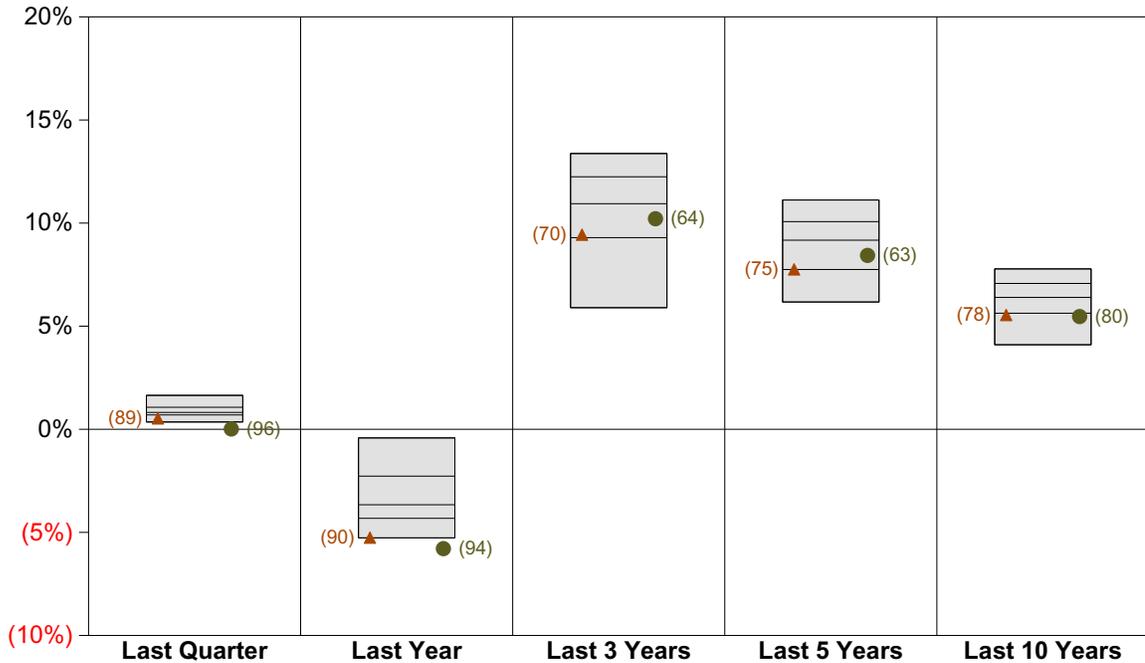
International Equity

Period Ended June 30, 2015

Quarterly Summary and Highlights

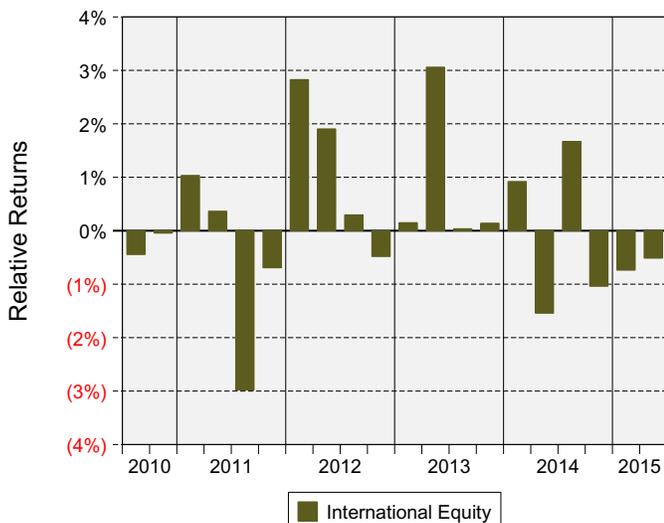
- International Equity's portfolio posted a 0.01% return for the quarter placing it in the 96 percentile of the Pub Pln- International Equity group for the quarter and in the 94 percentile for the last year.
- International Equity's portfolio underperformed the MSCI ACWI x US (Net) by 0.51% for the quarter and underperformed the MSCI ACWI x US (Net) for the year by 0.53%.

Performance vs Pub Pln- International Equity (Gross)

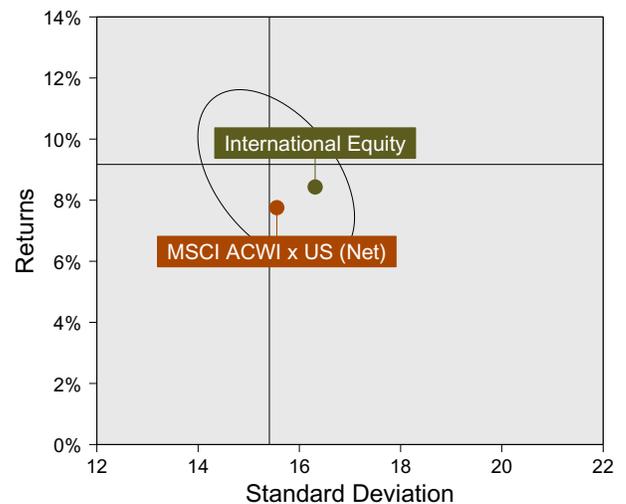


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	1.64	(0.42)	13.37	11.12	7.78
25th Percentile	1.07	(2.27)	12.25	10.07	7.07
Median	0.82	(3.66)	10.94	9.17	6.40
75th Percentile	0.70	(4.32)	9.29	7.75	5.63
90th Percentile	0.35	(5.27)	5.90	6.17	4.10
International Equity	0.01	(5.79)	10.21	8.43	5.47
MSCI ACWI x US (Net)	0.53	(5.26)	9.44	7.76	5.54

Relative Return vs MSCI ACWI x US (Net)



Pub Pln- International Equity (Gross) Annualized Five Year Risk vs Return

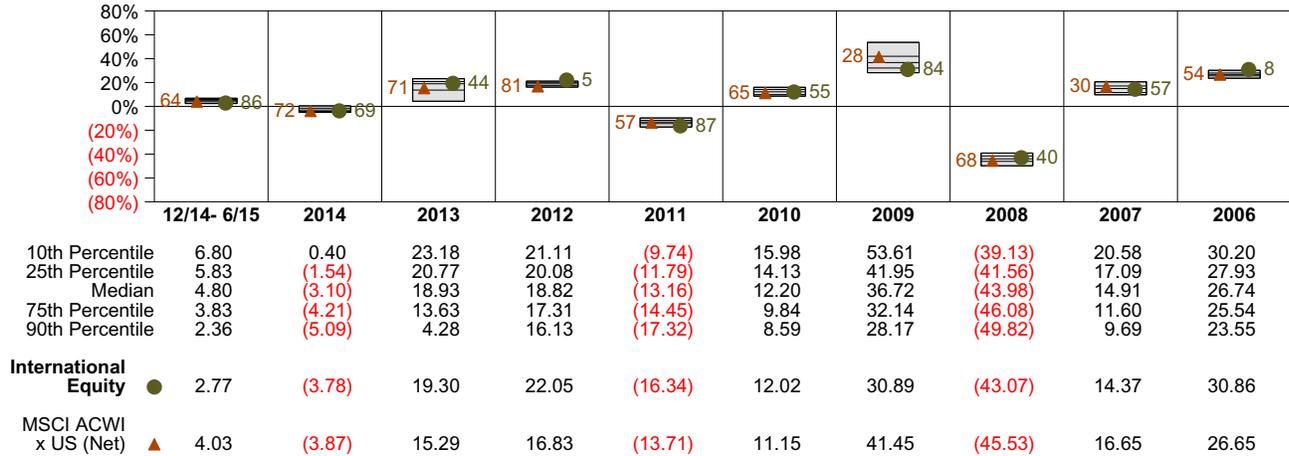


International Equity Return Analysis Summary

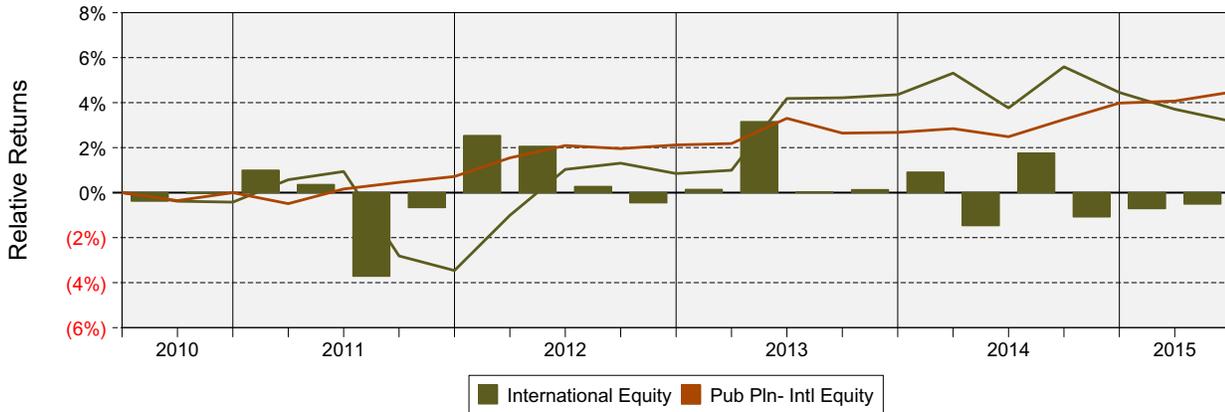
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

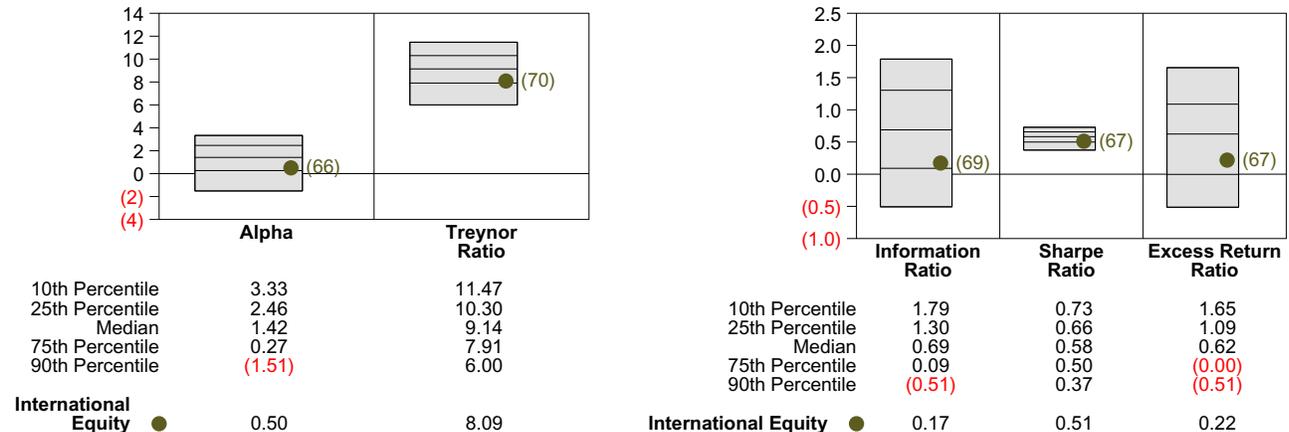
Performance vs Pub Pln- International Equity (Gross)



Cumulative and Quarterly Relative Return vs MSCI ACWI x US (Net)



Risk Adjusted Return Measures vs MSCI ACWI x US (Net) Rankings Against Pub Pln- International Equity (Gross) Five Years Ended June 30, 2015



Causeway International Value Equity Period Ended June 30, 2015

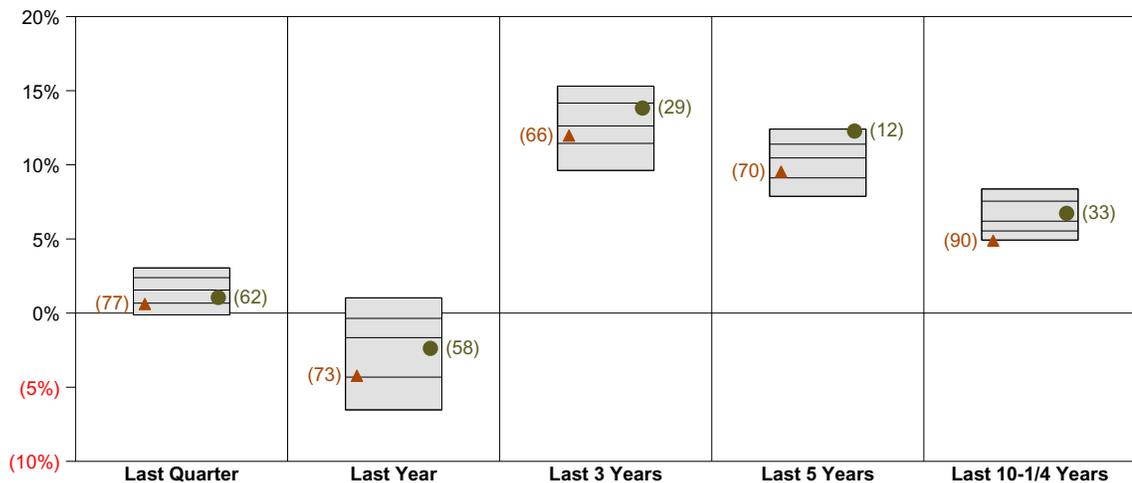
Investment Philosophy

Causeway Capital Management's International Value Equity team focuses on active investment management with a value-driven, bottom-up approach to stock selection. The team believes in managing equity portfolios using a disciplined approach with the goal of producing favorable long-term returns coupled with reduced downside volatility. Although the firm possesses dedicated emerging market capabilities which are quantitative in nature, research for this strategy is fundamentally focused. The product was funded during the first quarter of 2005.

Quarterly Summary and Highlights

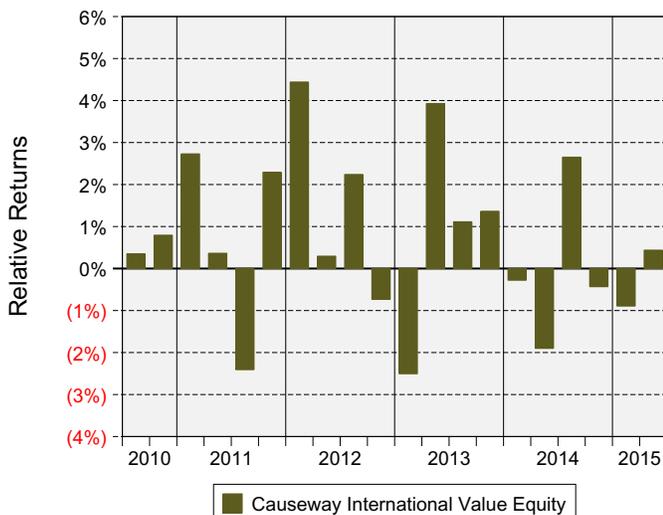
- Causeway International Value Equity's portfolio posted a 1.05% return for the quarter placing it in the 62 percentile of the CAI Non-U.S. Equity Style group for the quarter and in the 58 percentile for the last year.
- Causeway International Value Equity's portfolio outperformed the MSCI EAFE Index by 0.44% for the quarter and outperformed the MSCI EAFE Index for the year by 1.85%.

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

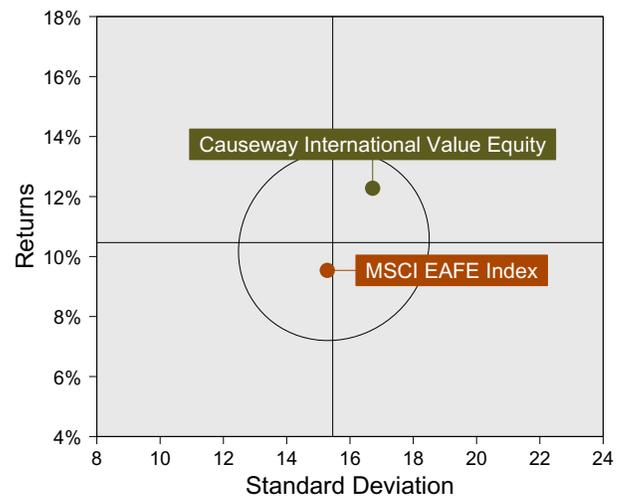


Causeway International Value Equity ●
MSCI EAFE Index ▲

Relative Return vs MSCI EAFE Index



CAI Non-U.S. Equity Style (Gross) Annualized Five Year Risk vs Return

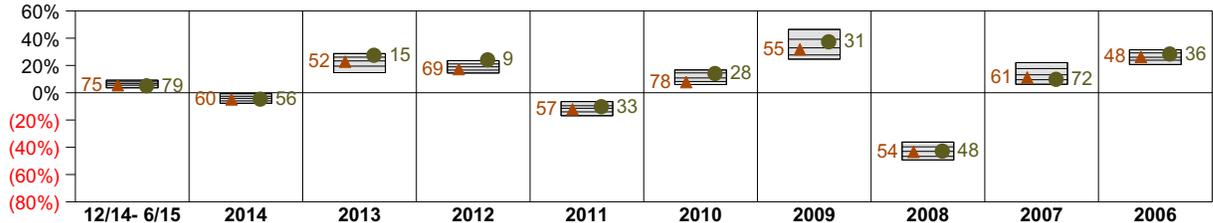


Causeway International Value Equity Return Analysis Summary

Return Analysis

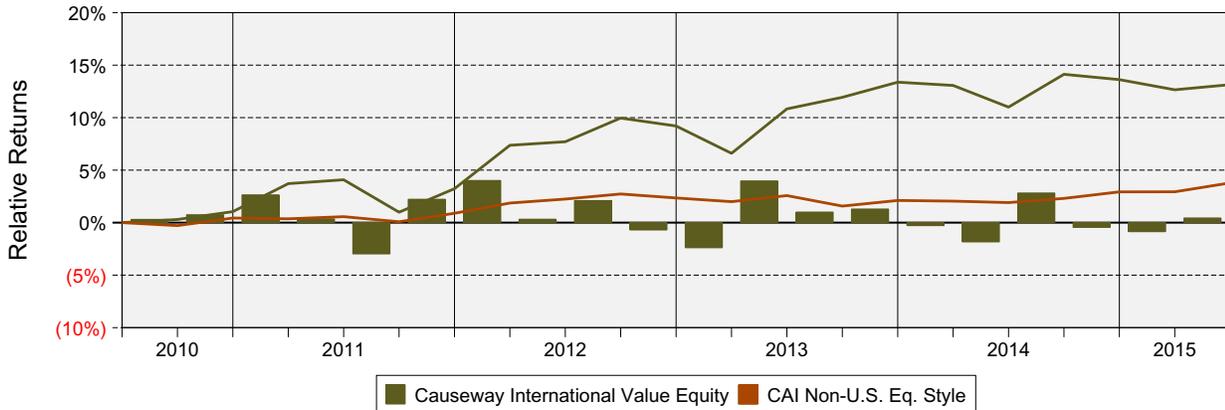
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

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

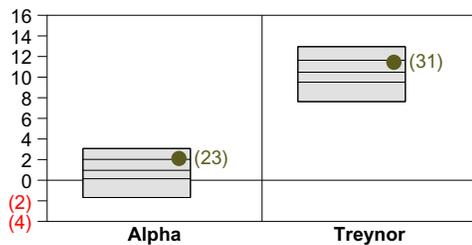


10th Percentile	9.20	(0.67)	28.72	23.54	(6.48)	16.72	46.43	(36.19)	22.09	31.47
25th Percentile	7.95	(2.59)	26.08	21.12	(9.56)	14.53	39.21	(39.68)	17.70	29.21
Median	6.63	(4.12)	23.32	18.99	(11.40)	10.84	32.89	(43.02)	13.15	26.02
75th Percentile	5.49	(5.97)	19.49	16.61	(14.02)	8.27	27.71	(46.67)	9.54	23.87
90th Percentile	3.61	(7.74)	14.73	14.45	(16.87)	5.97	24.60	(49.33)	6.21	20.66
Causeway International Value Equity	5.08	(4.70)	27.47	24.10	(10.24)	14.06	37.35	(42.83)	9.82	28.40
MSCI EAFE Index	5.52	(4.90)	22.78	17.32	(12.14)	7.75	31.78	(43.38)	11.17	26.34

Cumulative and Quarterly Relative Return vs MSCI EAFE Index

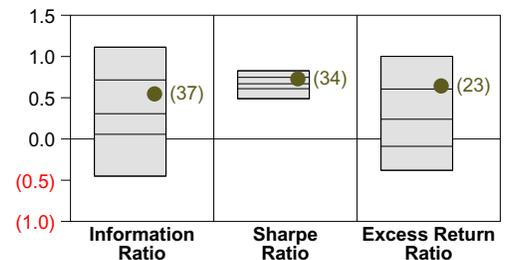


Risk Adjusted Return Measures vs MSCI EAFE Index Rankings Against CAI Non-U.S. Equity Style (Gross) Five Years Ended June 30, 2015



10th Percentile	3.07	12.95
25th Percentile	2.02	11.64
Median	0.96	10.48
75th Percentile	0.14	9.51
90th Percentile	(1.68)	7.62

Causeway International Value Equity	2.11	11.44
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10th Percentile	1.11	0.83	1.00
25th Percentile	0.72	0.75	0.61
Median	0.31	0.67	0.24
75th Percentile	0.06	0.61	(0.09)
90th Percentile	(0.45)	0.49	(0.38)

Causeway International Value Equity	0.55	0.73	0.64
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Aberdeen EAFE Plus Period Ended June 30, 2015

Investment Philosophy

Aberdeen believes that given the inefficiency of markets, superior long-term returns are achieved by identifying high quality stocks, buying them at reasonable/cheap prices, and ultimately investing in those securities for the long term. Absolute return is held to be of the utmost importance. The strategy is benchmark aware, but not benchmark driven. This benchmark stance is born from their belief that indices do not provide meaningful guidance to the prospects of a company or its inherent worth.

Quarterly Summary and Highlights

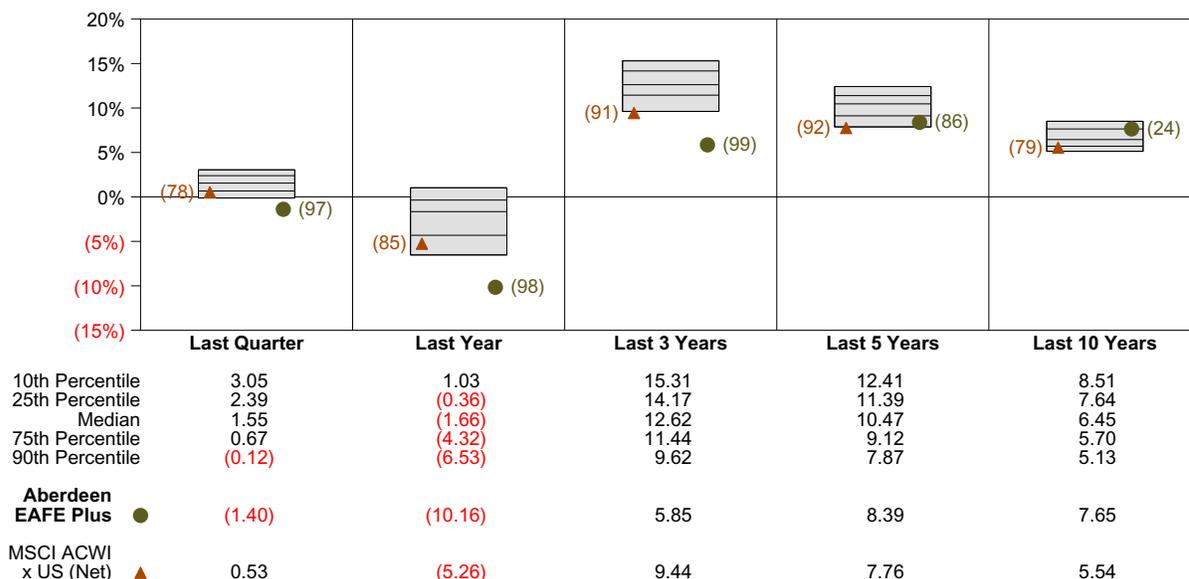
- Aberdeen EAFE Plus's portfolio posted a (1.40)% return for the quarter placing it in the 97 percentile of the CAI Non-U.S. Equity Style group for the quarter and in the 98 percentile for the last year.
- Aberdeen EAFE Plus's portfolio underperformed the MSCI ACWI x US (Net) by 1.92% for the quarter and underperformed the MSCI ACWI x US (Net) for the year by 4.90%.

Quarterly Asset Growth

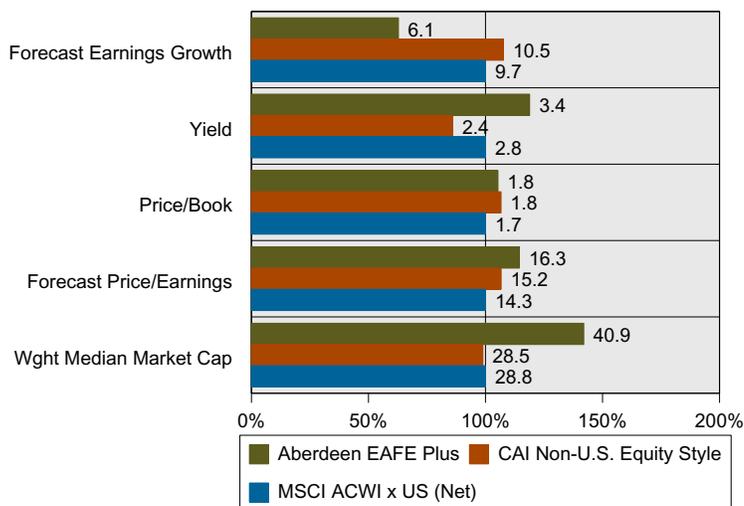
Beginning Market Value	\$41,935,592
Net New Investment	\$-85,585
Investment Gains/(Losses)	\$-585,558
Ending Market Value	\$41,264,449

Percent Cash: 0.0%

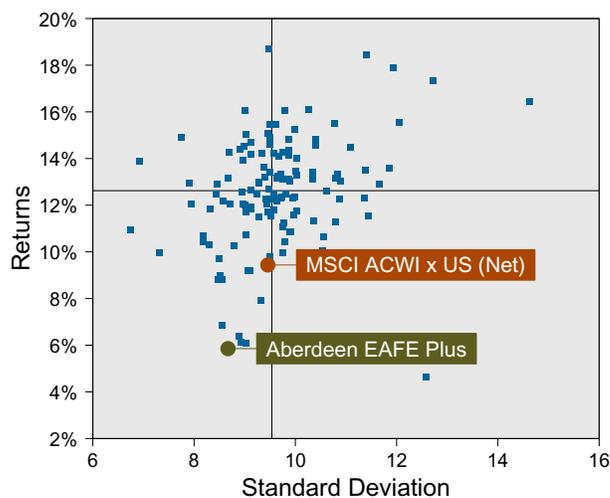
Performance vs CAI Non-U.S. Equity Style (Gross)



Portfolio Characteristics as a Percentage of the MSCI ACWI x US (Net)



CAI Non-U.S. Equity Style (Gross) Annualized Three Year Risk vs Return

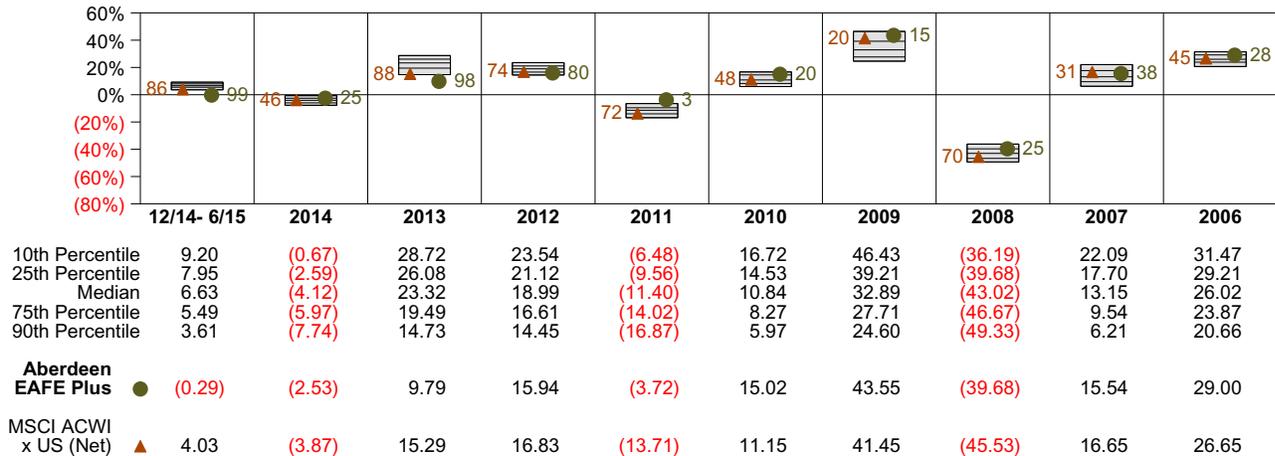


Aberdeen EAFE Plus Return Analysis Summary

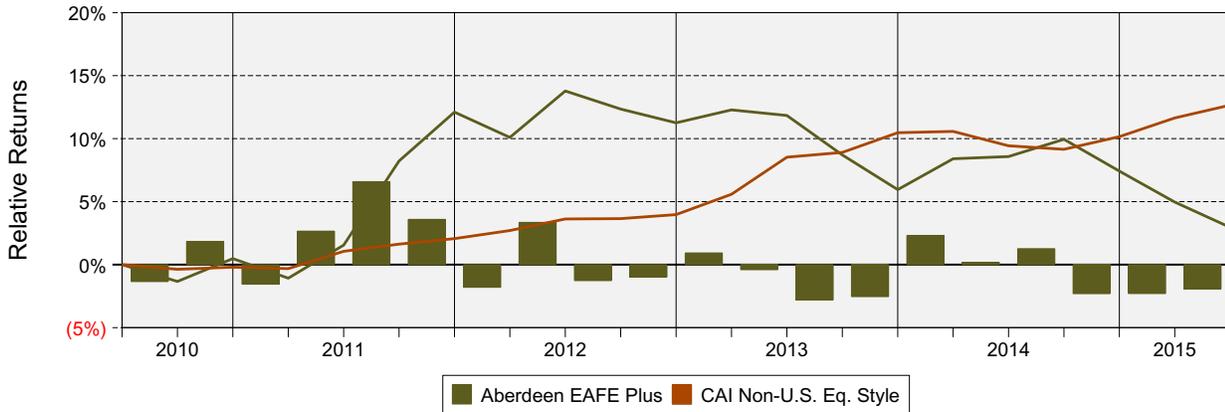
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

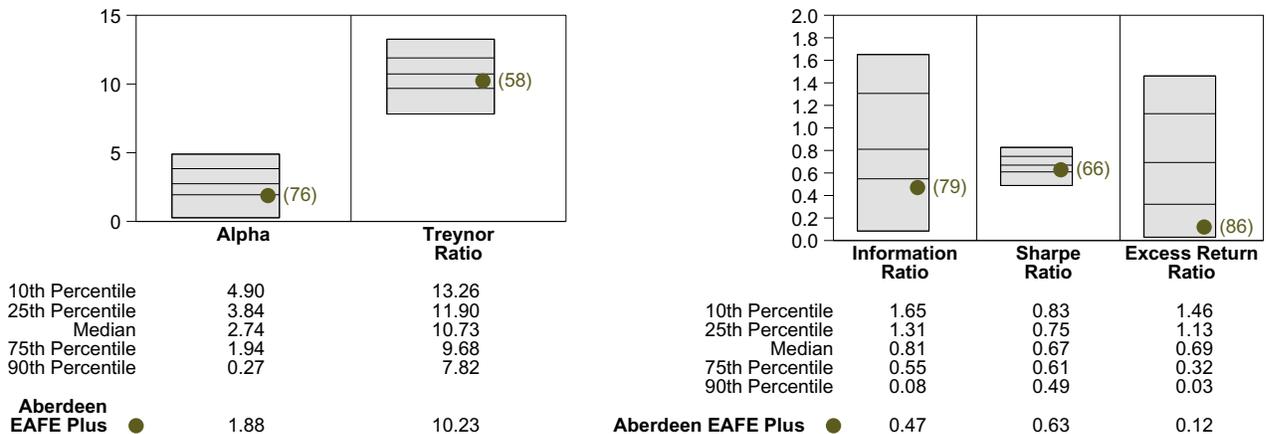
Performance vs CAI Non-U.S. Equity Style (Gross)



Cumulative and Quarterly Relative Return vs MSCI ACWI x US (Net)



Risk Adjusted Return Measures vs MSCI ACWI x US (Net) Rankings Against CAI Non-U.S. Equity Style (Gross) Five Years Ended June 30, 2015

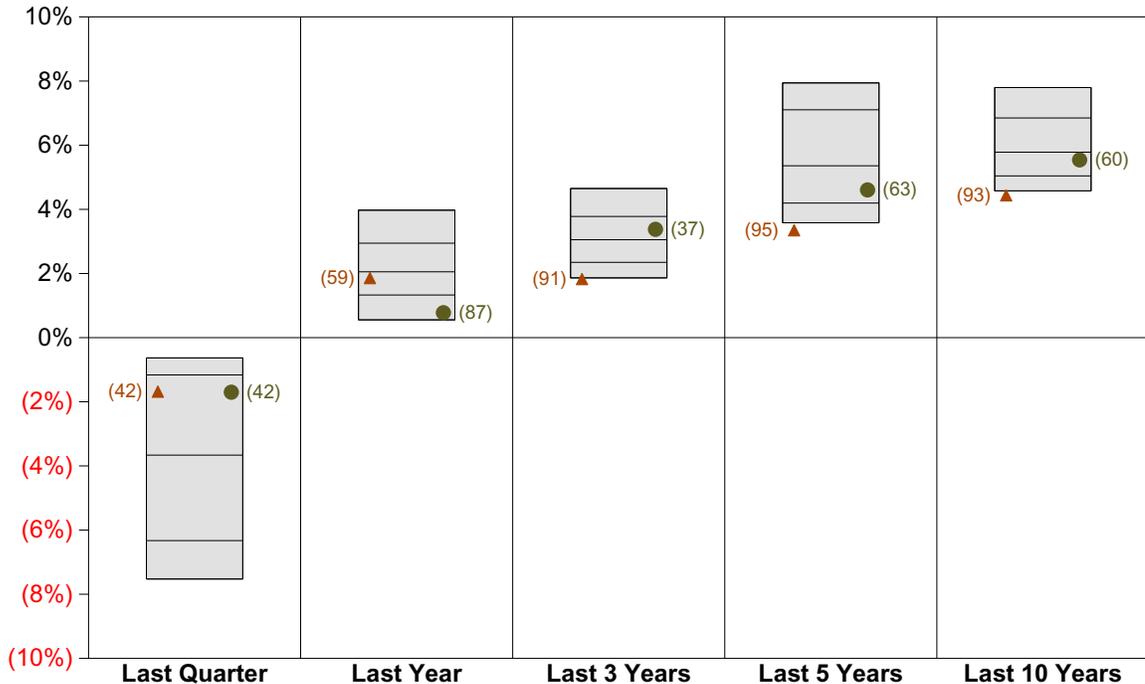


Fixed Income Period Ended June 30, 2015

Quarterly Summary and Highlights

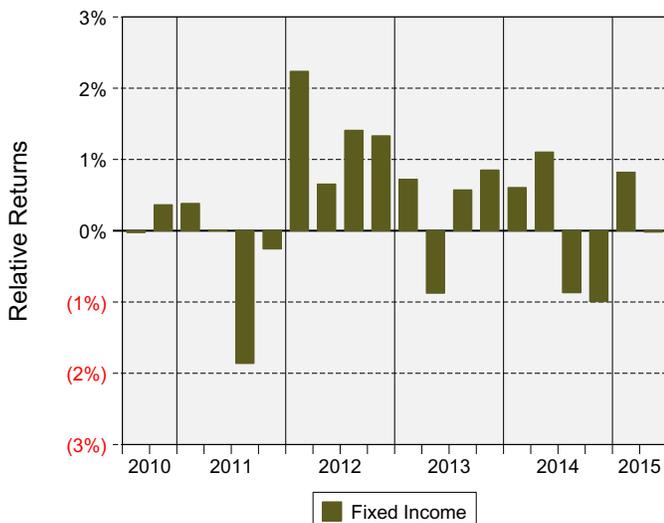
- Fixed Income's portfolio posted a (1.70)% return for the quarter placing it in the 42 percentile of the Corp Pln- Domestic Fixed group for the quarter and in the 87 percentile for the last year.
- Fixed Income's portfolio underperformed the Barclays Aggregate Index by 0.02% for the quarter and underperformed the Barclays Aggregate Index for the year by 1.08%.

Performance vs Corp Pln- Domestic Fixed (Gross)

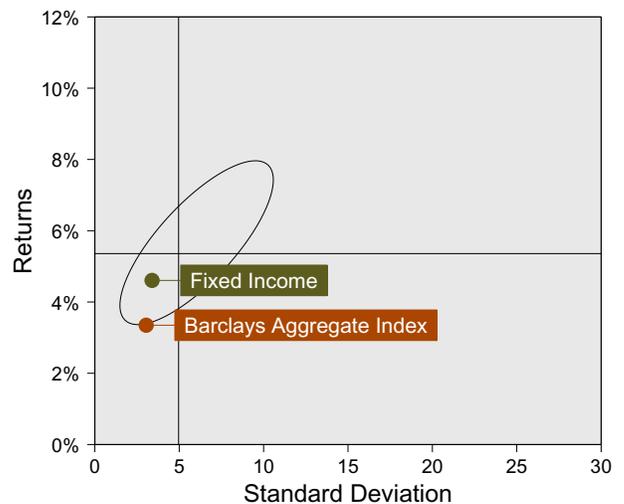


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
10th Percentile	(0.63)	3.97	4.65	7.94	7.80
25th Percentile	(1.16)	2.94	3.78	7.10	6.85
Median	(3.66)	2.05	3.05	5.36	5.78
75th Percentile	(6.33)	1.33	2.35	4.20	5.04
90th Percentile	(7.53)	0.55	1.86	3.58	4.58
Fixed Income ●	(1.70)	0.78	3.38	4.61	5.54
Barclays Aggregate Index ▲	(1.68)	1.86	1.83	3.35	4.44

Relative Return vs Barclays Aggregate Index



Corp Pln- Domestic Fixed (Gross) Annualized Five Year Risk vs Return

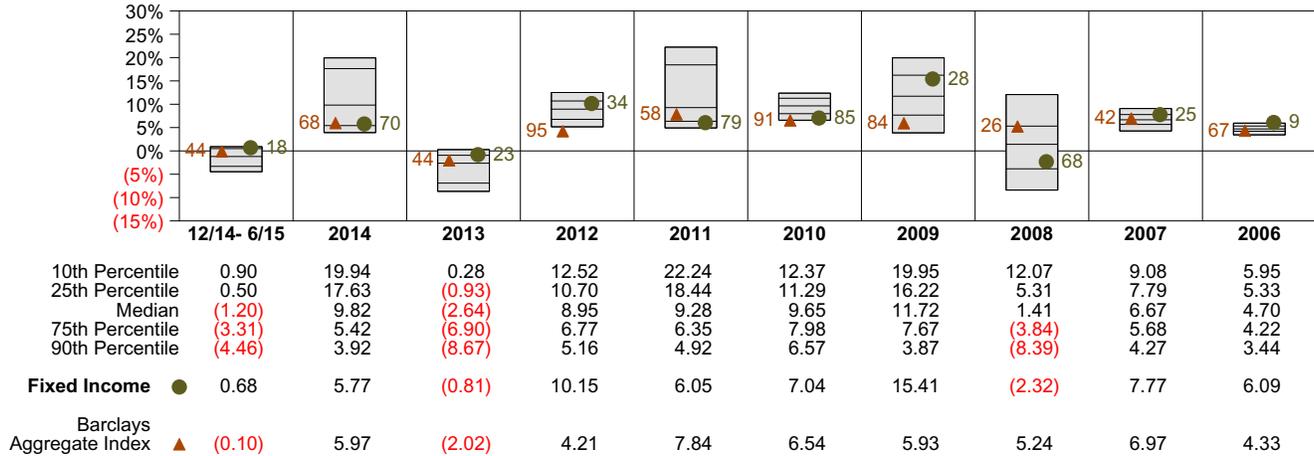


Fixed Income Return Analysis Summary

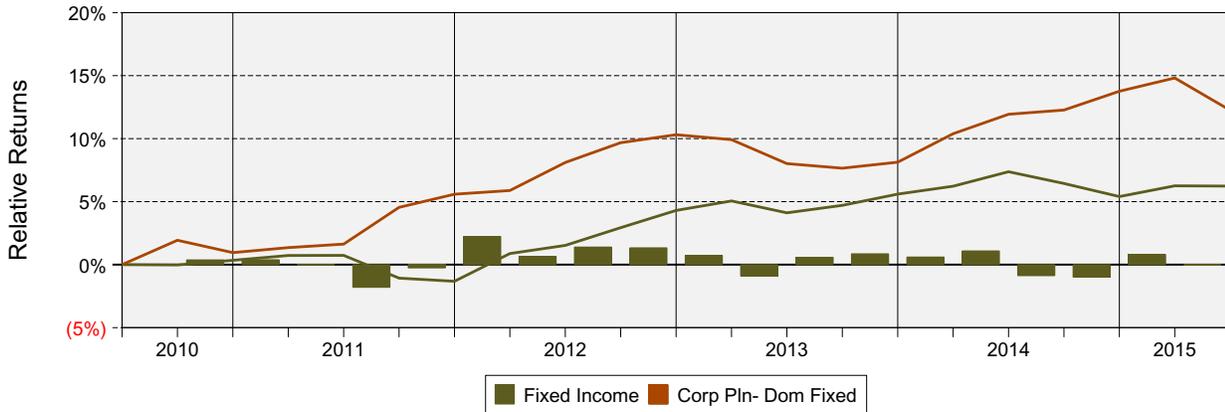
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

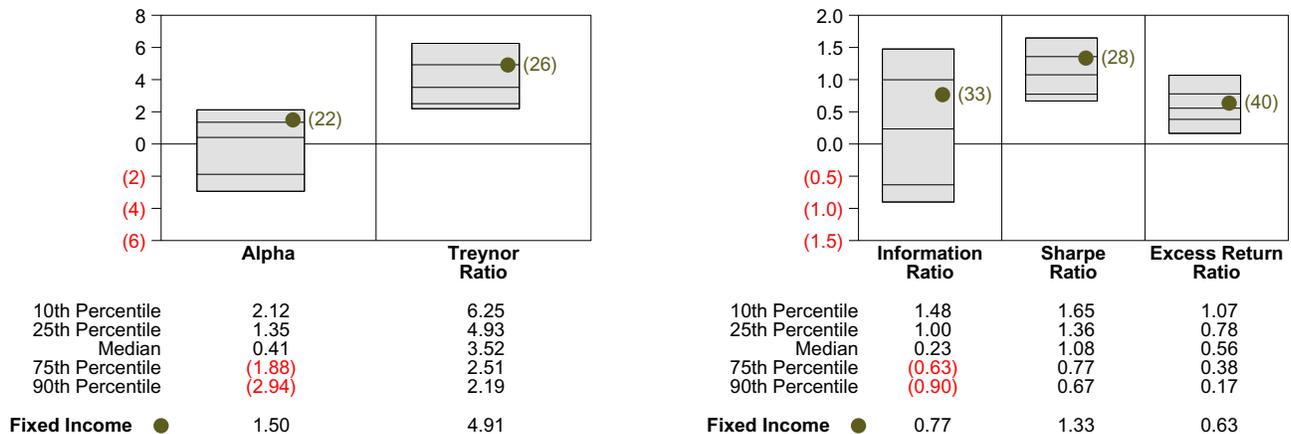
Performance vs Corp Pln- Domestic Fixed (Gross)



Cumulative and Quarterly Relative Return vs Barclays Aggregate Index



Risk Adjusted Return Measures vs Barclays Aggregate Index Rankings Against Corp Pln- Domestic Fixed (Gross) Five Years Ended June 30, 2015



BlackRock U.S. Debt Fund Period Ended June 30, 2015

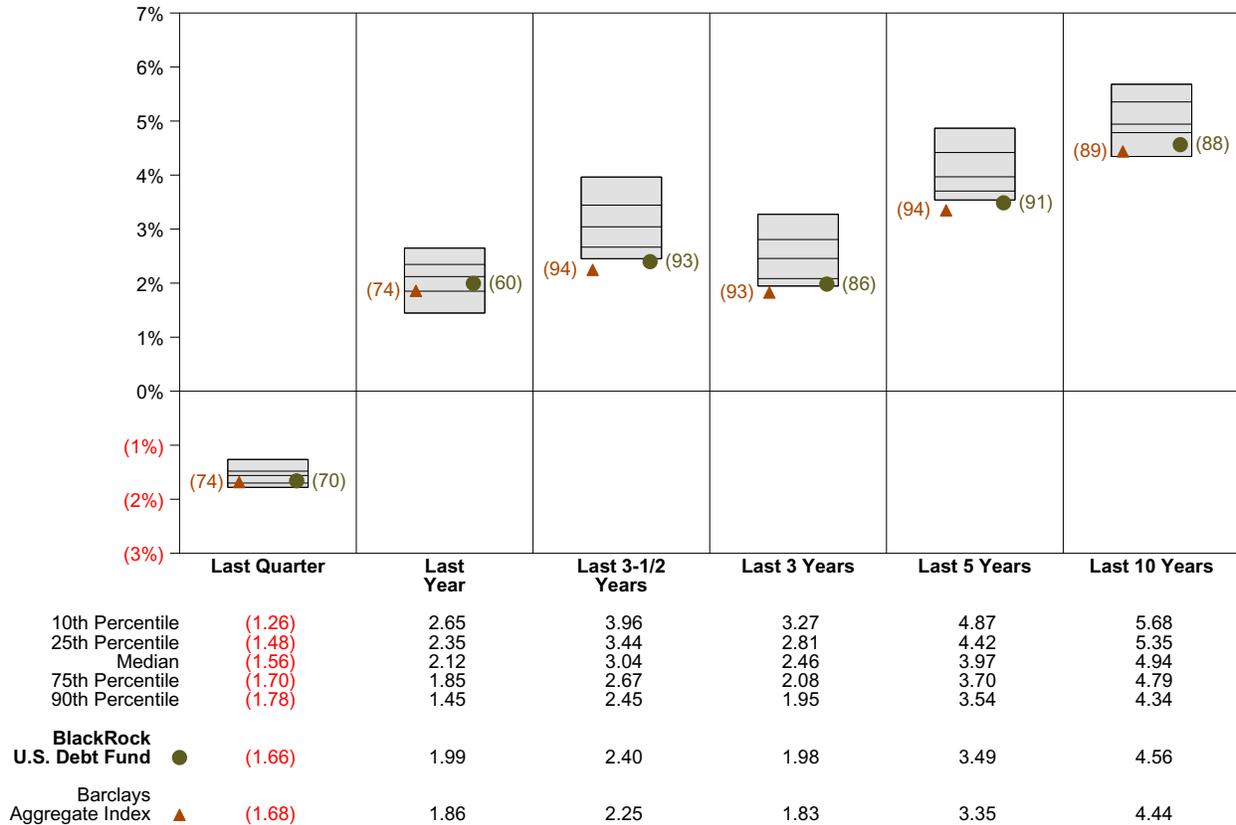
Investment Philosophy

The product was funded during the fourth quarter of 2011. Performance prior is that of the composite.

Quarterly Summary and Highlights

- BlackRock U.S. Debt Fund's portfolio posted a (1.66)% return for the quarter placing it in the 70 percentile of the CAI Core Bond Fixed-Inc Style group for the quarter and in the 60 percentile for the last year.
- BlackRock U.S. Debt Fund's portfolio outperformed the Barclays Aggregate Index by 0.02% for the quarter and outperformed the Barclays Aggregate Index for the year by 0.14%.

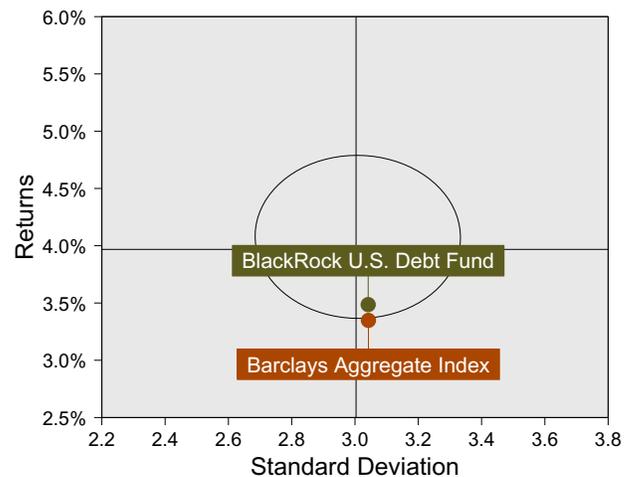
Performance vs CAI Core Bond Fixed-Inc Style (Gross)



Relative Return vs Barclays Aggregate Index



CAI Core Bond Fixed-Inc Style (Gross) Annualized Five Year Risk vs Return

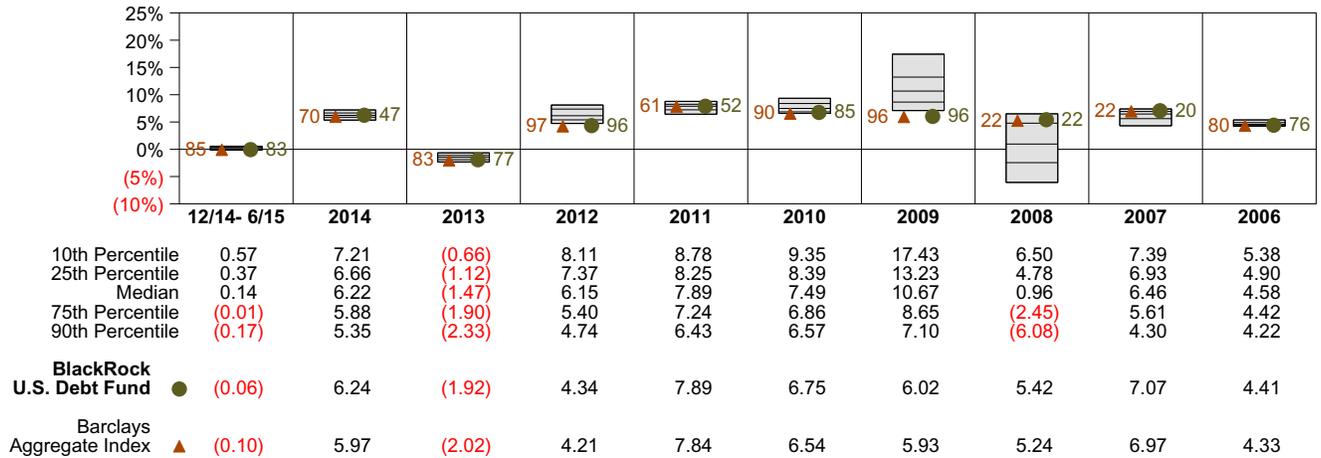


BlackRock U.S. Debt Fund Return Analysis Summary

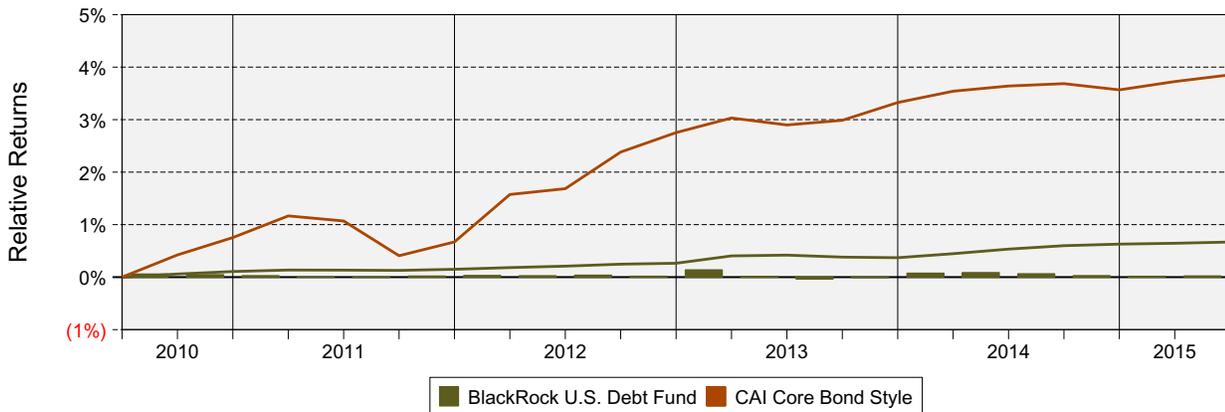
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

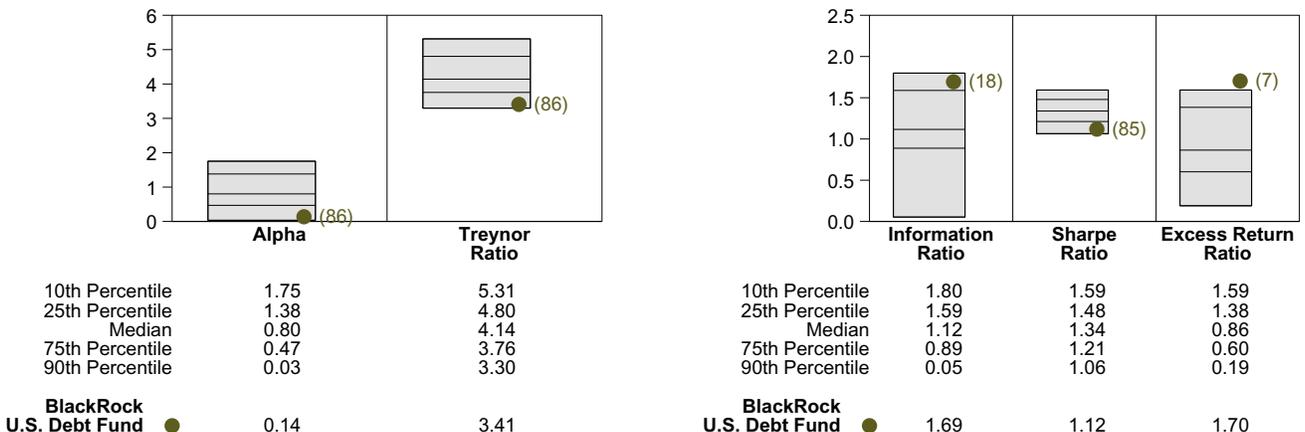
Performance vs CAI Core Bond Fixed-Inc Style (Gross)



Cumulative and Quarterly Relative Return vs Barclays Aggregate Index



Risk Adjusted Return Measures vs Barclays Aggregate Index Rankings Against CAI Core Bond Fixed-Inc Style (Gross) Five Years Ended June 30, 2015



PIMCO Fixed Income Period Ended June 30, 2015

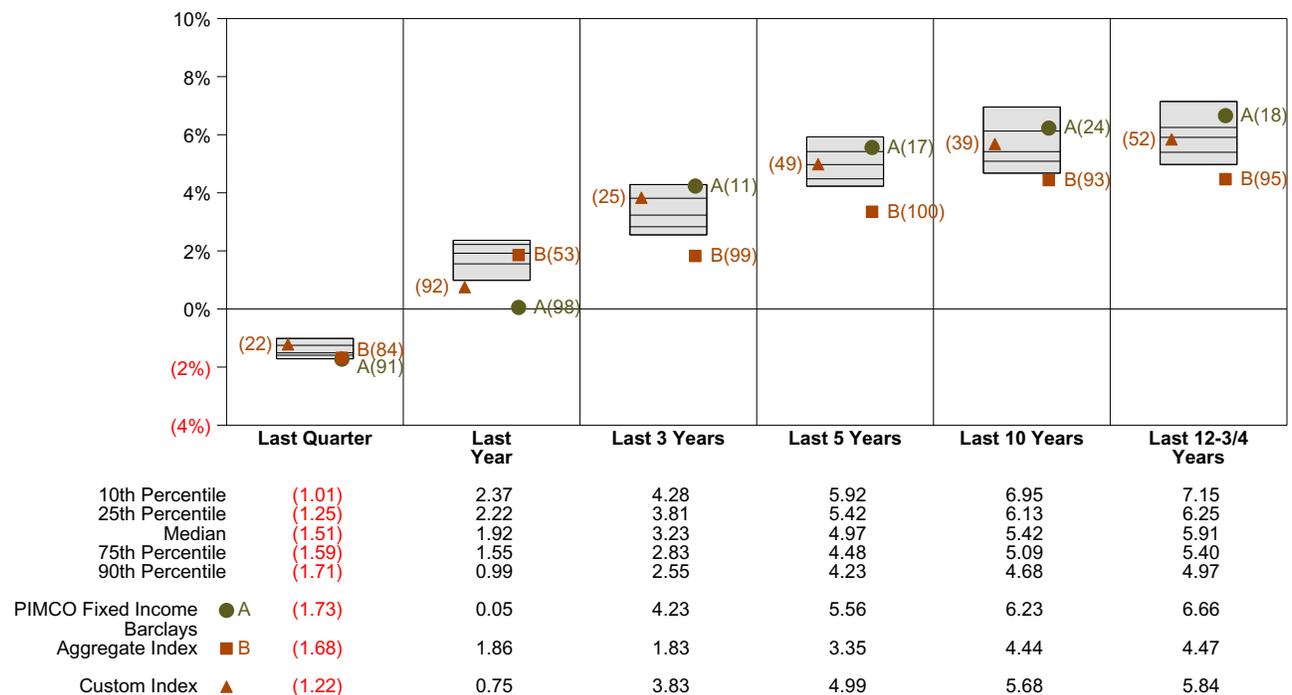
Investment Philosophy

PIMCO emphasizes adding value by rotating through the major sectors of the domestic and international bond markets. They also seek to enhance returns through duration management. The product was funded during the third quarter of 2002. The custom index is currently composed of 25% Barclays Mortgage, 25% Barclays Credit, 25% Barclays High Yield, and 25% JP Morgan EMBI Global. Prior to 2/1/2012, the custom index was composed of 70% Barclays Mortgage, 15% Barclays Credit, and 15% Barclays High Yield.

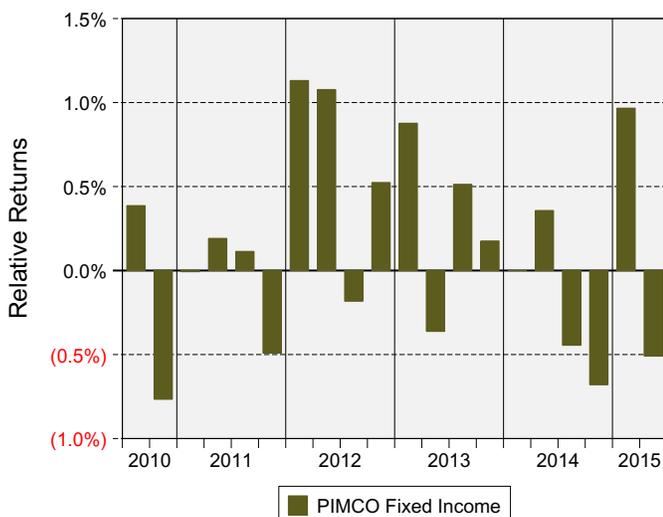
Quarterly Summary and Highlights

- PIMCO Fixed Income's portfolio posted a (1.73)% return for the quarter placing it in the 91 percentile of the CAI Core Bond Plus Style group for the quarter and in the 98 percentile for the last year.
- PIMCO Fixed Income's portfolio underperformed the Custom Index by 0.51% for the quarter and underperformed the Custom Index for the year by 0.70%.

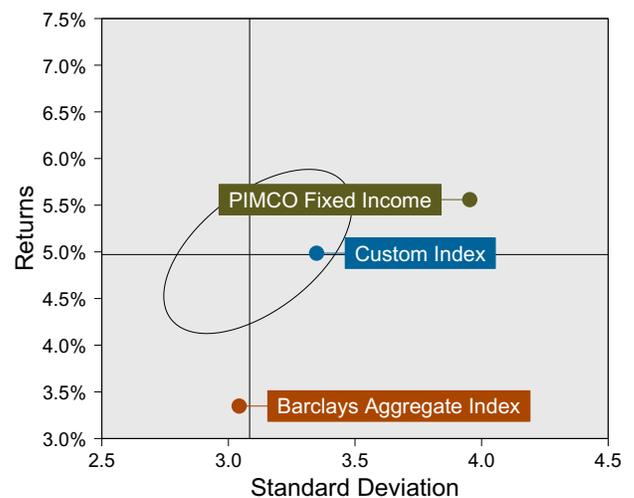
Performance vs CAI Core Bond Plus Style (Gross)



Relative Return vs Custom Index



CAI Core Bond Plus Style (Gross) Annualized Five Year Risk vs Return

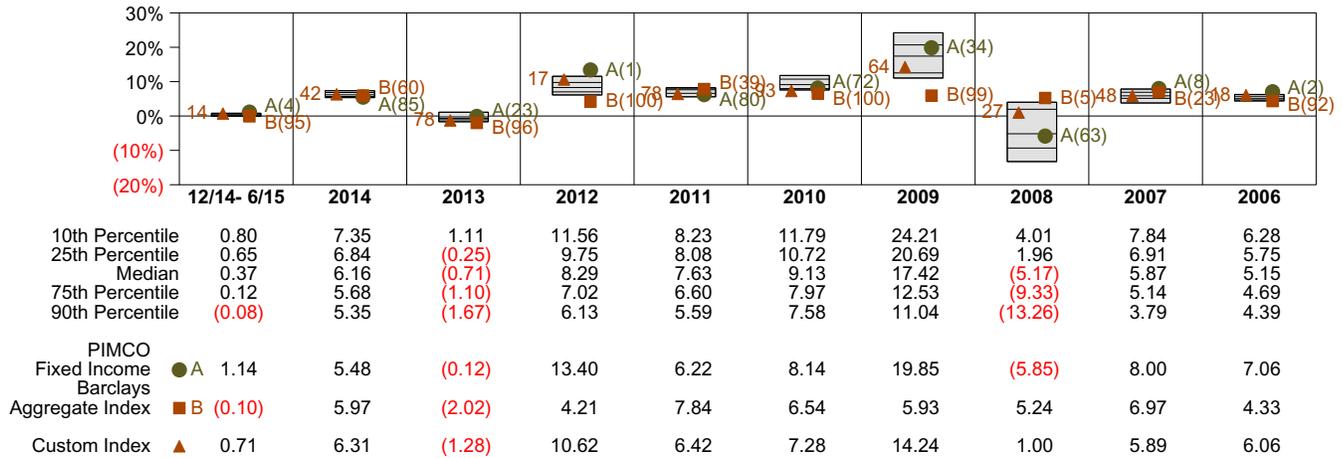


PIMCO Fixed Income Return Analysis Summary

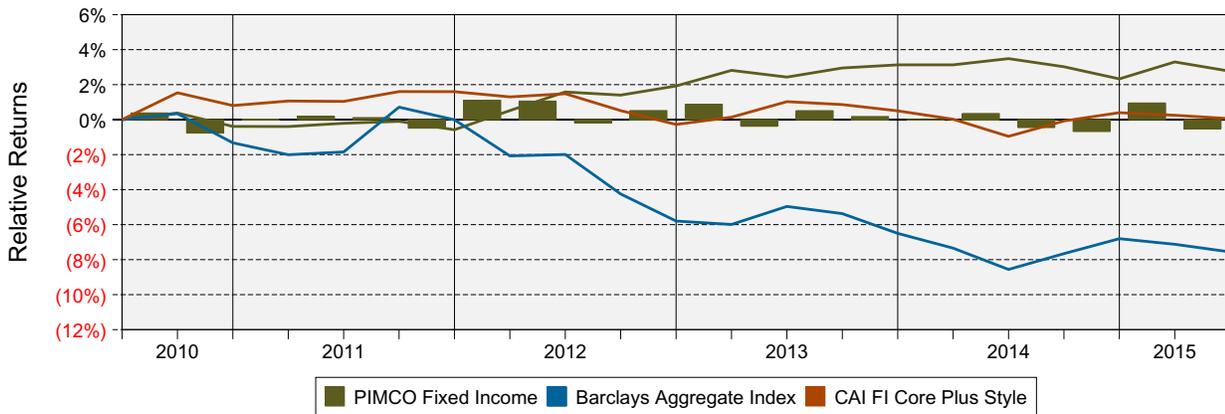
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

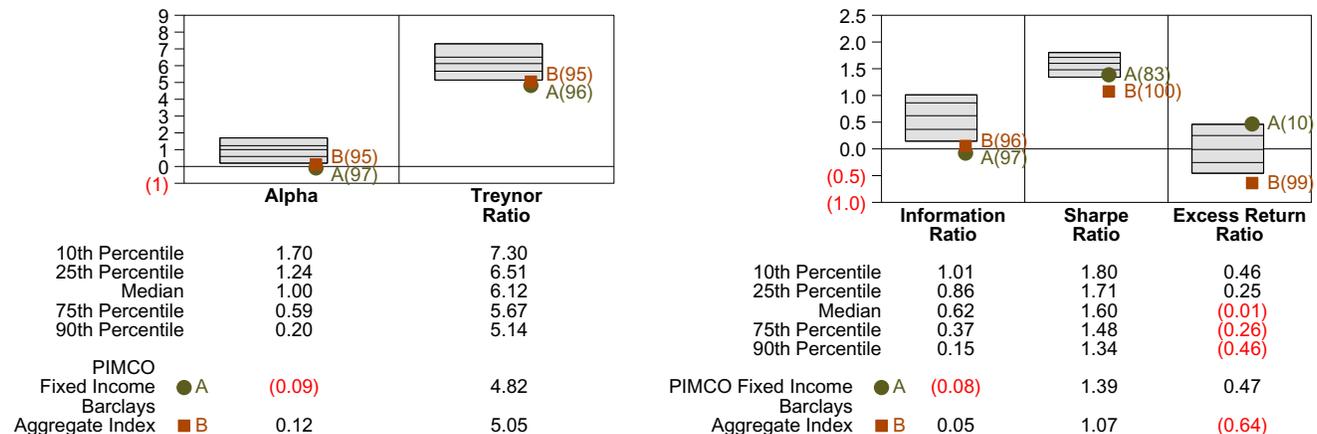
Performance vs CAI Core Bond Plus Style (Gross)



Cumulative and Quarterly Relative Return vs Custom Index



Risk Adjusted Return Measures vs Custom Index Rankings Against CAI Core Bond Plus Style (Gross) Five Years Ended June 30, 2015



Real Estate Period Ended June 30, 2015

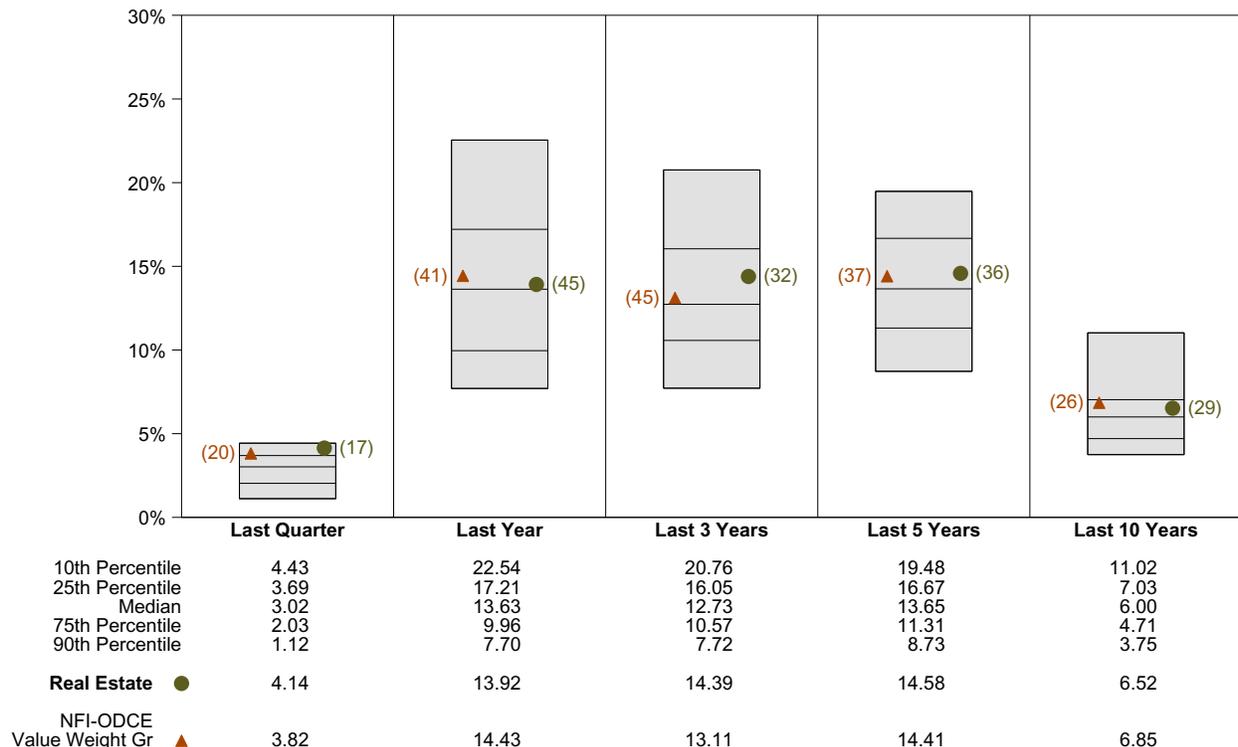
Investment Philosophy

The Total Real Estate Funds Database consists of both open and closed-end commingled funds as well as separate accounts managed by real estate firms. The returns represent the overall performance of institutional capital invested in real estate properties.

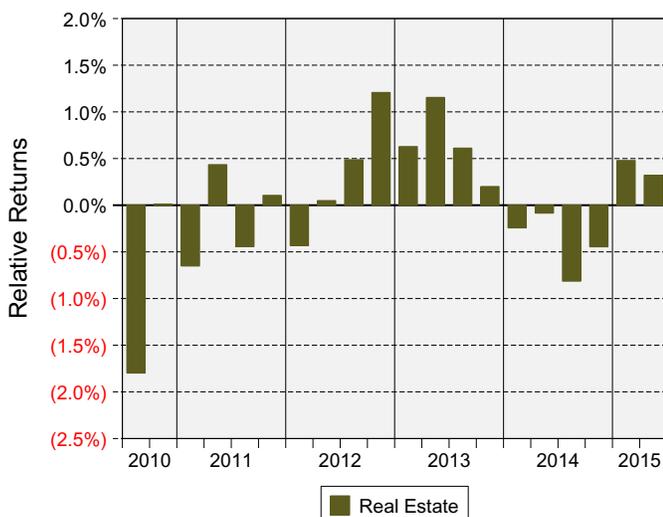
Quarterly Summary and Highlights

- Real Estate's portfolio posted a 4.14% return for the quarter placing it in the 17 percentile of the Total Real Estate DB group for the quarter and in the 45 percentile for the last year.
- Real Estate's portfolio outperformed the NFI-ODCE Value Weight Gr by 0.32% for the quarter and underperformed the NFI-ODCE Value Weight Gr for the year by 0.52%.

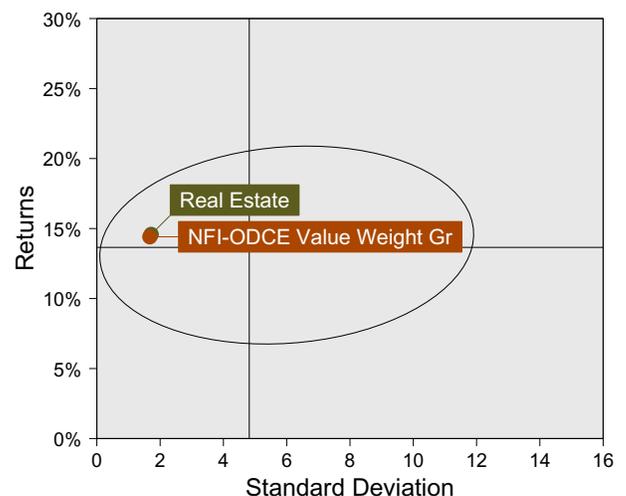
Performance vs Total Real Estate DB (Net)



Relative Return vs NFI-ODCE Value Weight Gr



Total Real Estate DB (Net) Annualized Five Year Risk vs Return

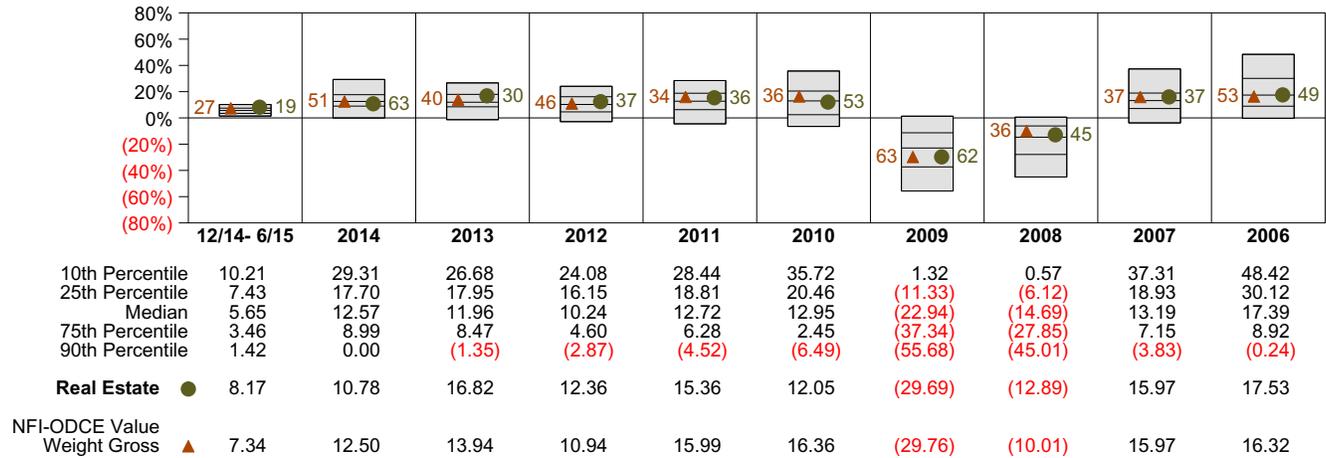


Real Estate Return Analysis Summary

Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

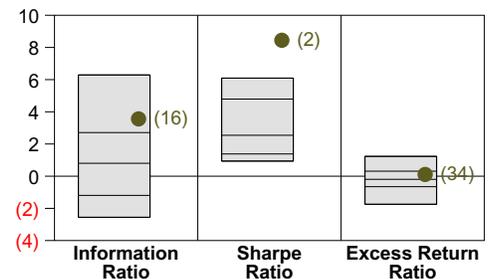
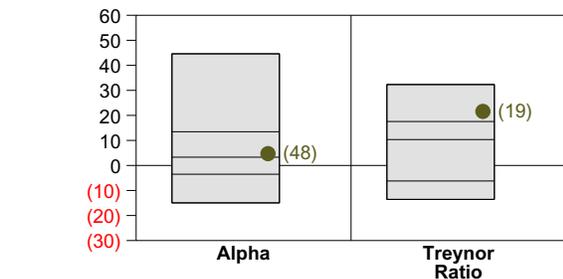
Performance vs Total Real Estate DB (Net)



Cumulative and Quarterly Relative Return vs NFI-ODCE Value Weight Gross



Risk Adjusted Return Measures vs NFI-ODCE Value Weight Gross Rankings Against Total Real Estate DB (Net) Five Years Ended June 30, 2015



JP Morgan Strategic Property Fund

Period Ended June 30, 2015

Investment Philosophy

Strategic Property Fund is an actively managed diversified, core, open-end commingled pension trust fund. It seeks an income-driven rate of return of 100 basis points over the NFI-ODCE Equal Weight Net Index over a full market cycle (three to five year horizon) through asset, geographic and sector selection and active asset management. The Fund invests in high quality stabilized assets with dominant competitive characteristics in markets with attractive demographics throughout the United States. The product was funded in the fourth quarter of 2008.

Quarterly Summary and Highlights

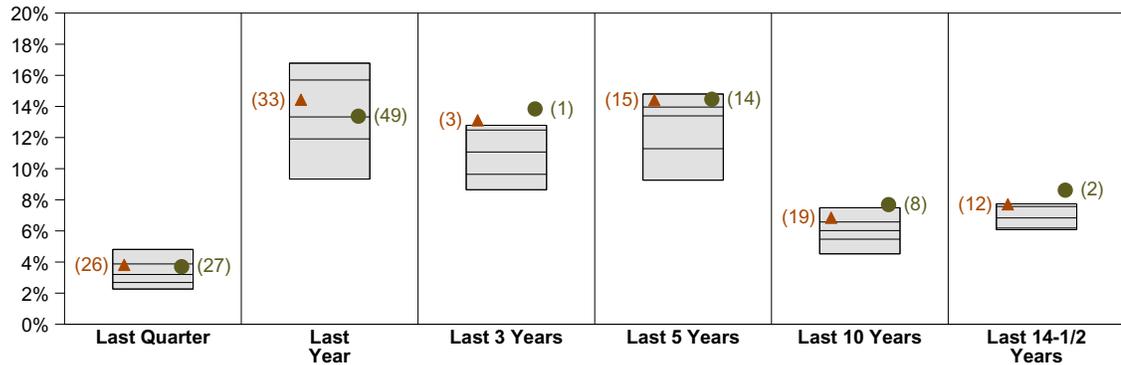
- JP Morgan Strategic Property Fund's portfolio posted a 3.70% return for the quarter placing it in the 27 percentile of the CAI Open-End Real Estate Funds group for the quarter and in the 49 percentile for the last year.
- JP Morgan Strategic Property Fund's portfolio underperformed the NFI-ODCE Value Weight Gross by 0.12% for the quarter and underperformed the NFI-ODCE Value Weight Gross for the year by 1.06%.

Quarterly Asset Growth

Beginning Market Value	\$40,861,805
Net New Investment	\$-98,504
Investment Gains/(Losses)	\$1,509,330
Ending Market Value	\$42,272,631

Percent Cash: 0.0%

Performance vs CAI Open-End Real Estate Funds (Net)



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 14-1/2 Years
10th Percentile	4.81	16.78	12.79	14.80	7.49	7.74
25th Percentile	3.88	15.70	12.48	13.96	6.58	7.57
Median	3.20	13.33	11.07	13.39	6.02	6.83
75th Percentile	2.69	11.91	9.64	11.29	5.47	6.18
90th Percentile	2.26	9.33	8.64	9.26	4.53	6.08

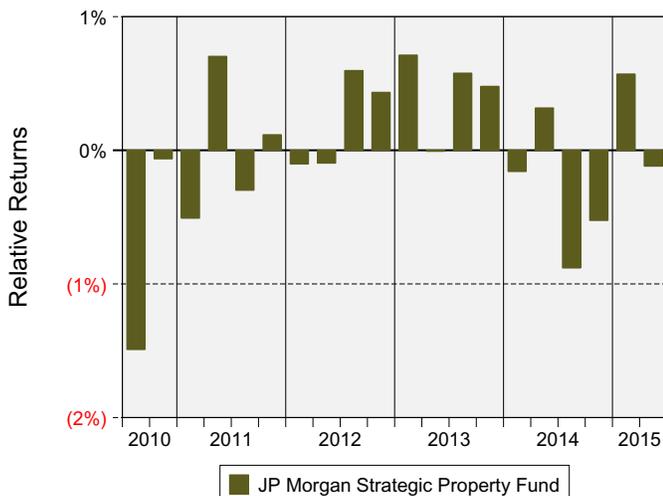
JP Morgan Strategic Property Fund ●

3.70 13.37 13.84 14.47 7.69 8.62

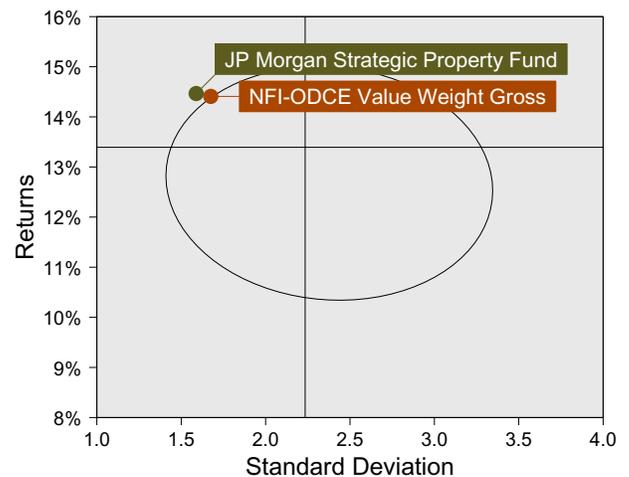
NFI-ODCE Value Weight Gross ▲

3.82 14.43 13.11 14.41 6.85 7.71

Relative Returns vs NFI-ODCE Value Weight Gross



CAI Open-End Real Estate Funds (Net) Annualized Five Year Risk vs Return

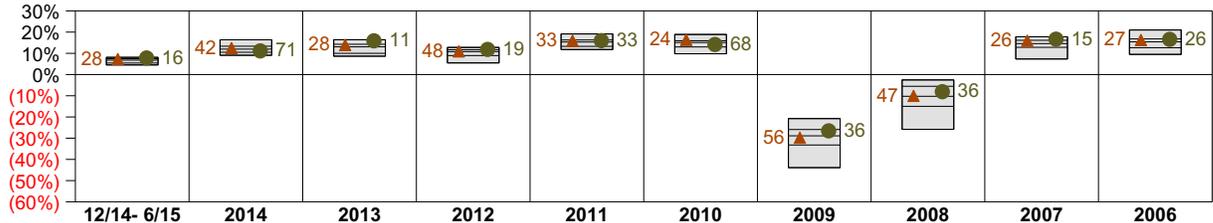


JP Morgan Strategic Property Fund Return Analysis Summary

Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

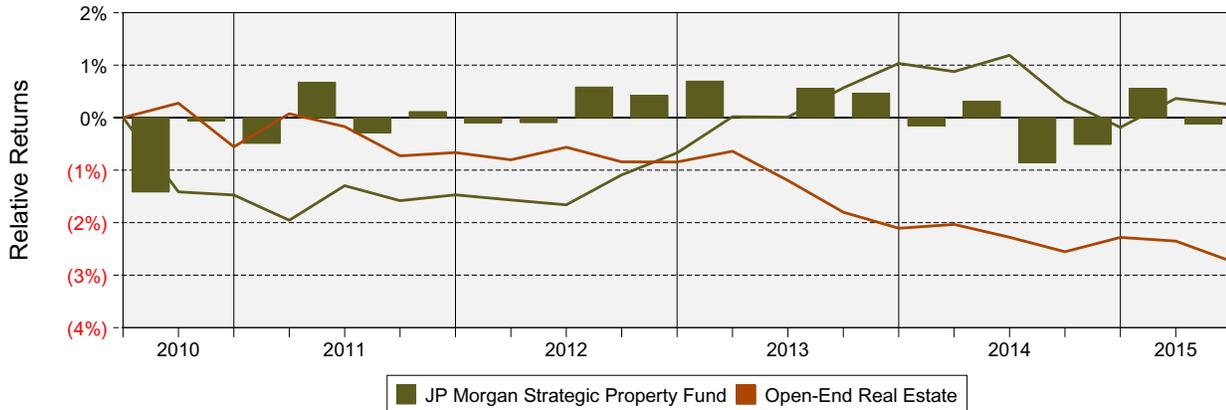
Performance vs CAI Open-End Real Estate Funds (Net)



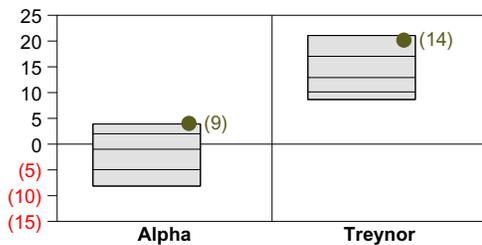
	12/14- 6/15	2014	2013	2012	2011	2010	2009	2008	2007	2006
10th Percentile	8.11	16.37	16.41	12.79	19.15	18.90	(20.77)	(2.54)	17.80	21.01
25th Percentile	7.49	13.36	14.28	11.67	16.29	15.94	(25.92)	(5.53)	16.15	16.80
Median	6.79	11.99	13.06	10.80	15.33	15.09	(28.89)	(10.25)	14.59	15.41
75th Percentile	5.43	10.52	10.02	8.95	13.30	13.02	(33.22)	(14.99)	12.84	12.65
90th Percentile	4.52	9.09	8.65	5.49	11.79	9.80	(43.90)	(25.83)	7.34	9.50

JP Morgan Strategic Property Fund	●	7.81	11.14	15.90	11.84	15.99	14.16	(26.53)	(8.09)	16.67	16.59
NFI-ODCE Value Weight Gross	▲	7.34	12.50	13.94	10.94	15.99	16.36	(29.76)	(10.01)	15.97	16.32

Cumulative and Quarterly Relative Return vs NFI-ODCE Value Weight Gross

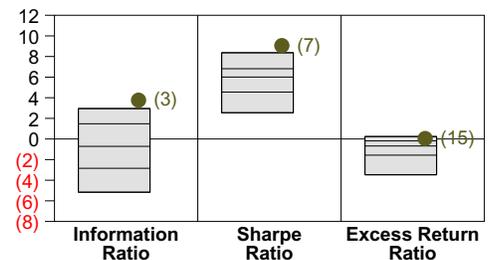


Risk Adjusted Return Measures vs NFI-ODCE Value Weight Gross Rankings Against CAI Open-End Real Estate Funds (Net) Five Years Ended June 30, 2015



10th Percentile	3.91	21.08
25th Percentile	2.01	17.04
Median	(0.99)	12.92
75th Percentile	(4.95)	10.13
90th Percentile	(8.14)	8.65

JP Morgan Strategic Property Fund	●	4.02	20.18
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10th Percentile	2.95	8.37	0.24
25th Percentile	1.47	6.82	(0.19)
Median	(0.72)	6.01	(0.68)
75th Percentile	(2.84)	4.55	(1.57)
90th Percentile	(5.16)	2.55	(3.47)

JP Morgan Strategic Property Fund	●	3.76	9.05	0.04
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JP Morgan Income and Growth Fund Period Ended June 30, 2015

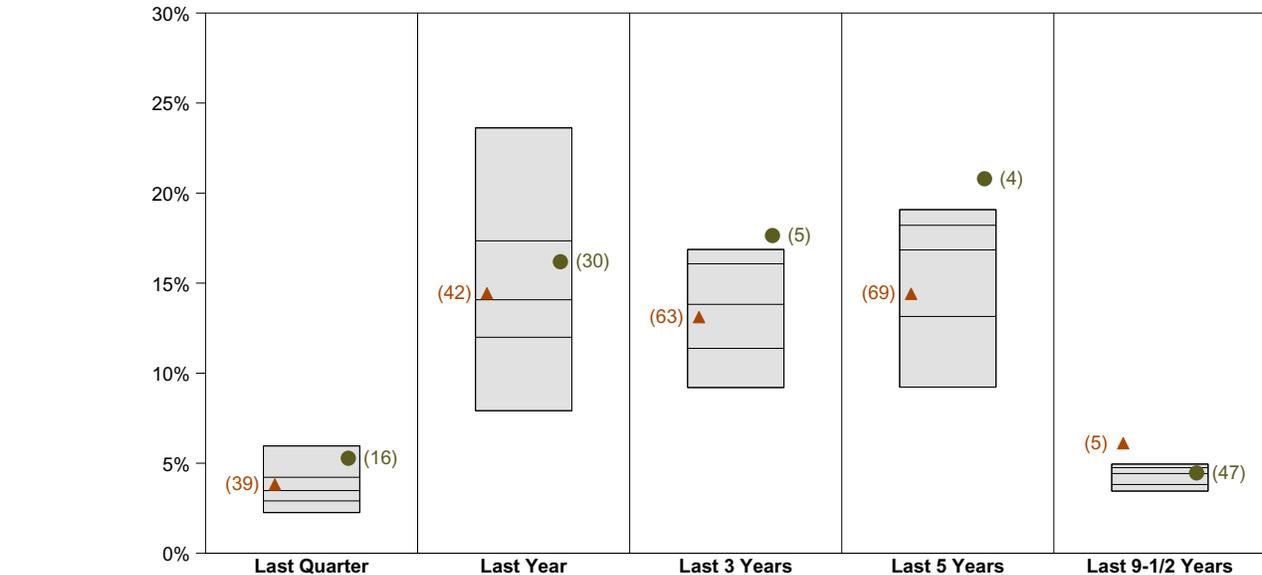
Investment Philosophy

The product was funded in the fourth quarter of 2005.

Quarterly Summary and Highlights

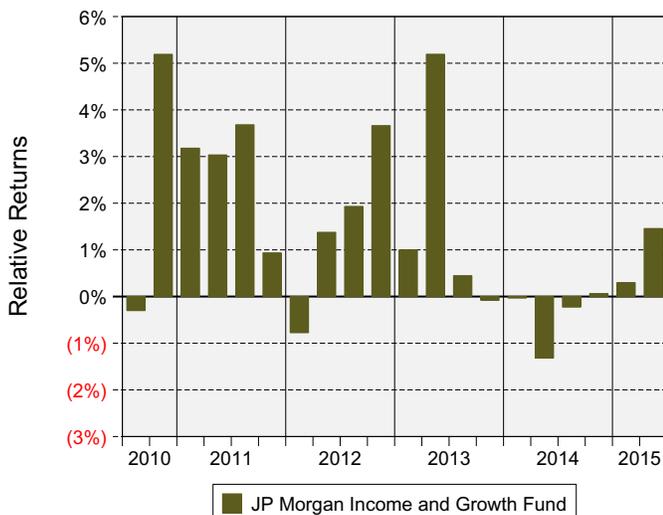
- JP Morgan Income and Growth Fund's portfolio posted a 5.28% return for the quarter placing it in the 16 percentile of the Real Estate Value Added Open End Funds group for the quarter and in the 30 percentile for the last year.
- JP Morgan Income and Growth Fund's portfolio outperformed the NFI-ODCE Value Weight Gross by 1.46% for the quarter and outperformed the NFI-ODCE Value Weight Gross for the year by 1.76%.

Performance vs Real Estate Value Added Open End Funds (Net)

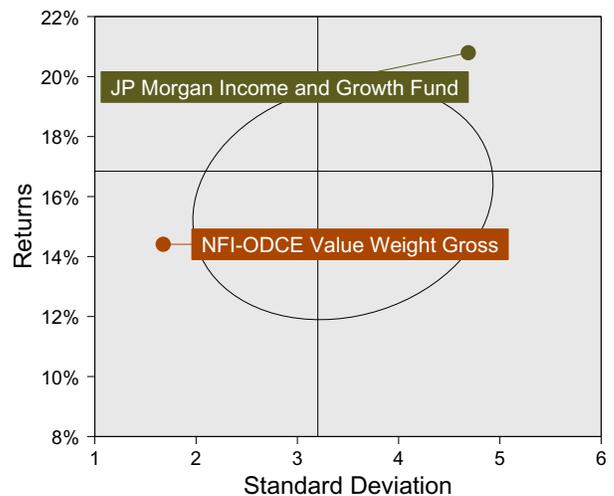


	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 9-1/2 Years
10th Percentile	5.96	23.62	16.87	19.08	4.95
25th Percentile	4.22	17.35	16.07	18.21	4.76
Median	3.48	14.08	13.82	16.84	4.43
75th Percentile	2.91	11.99	11.38	13.15	3.82
90th Percentile	2.26	7.92	9.20	9.23	3.45
JP Morgan Income and Growth Fund ●	5.28	16.19	17.64	20.79	4.46
NFI-ODCE Value Weight Gross ▲	3.82	14.43	13.11	14.41	6.11

Relative Returns vs NFI-ODCE Value Weight Gross



Real Estate Value Added Open End Funds (Net) Annualized Five Year Risk vs Return

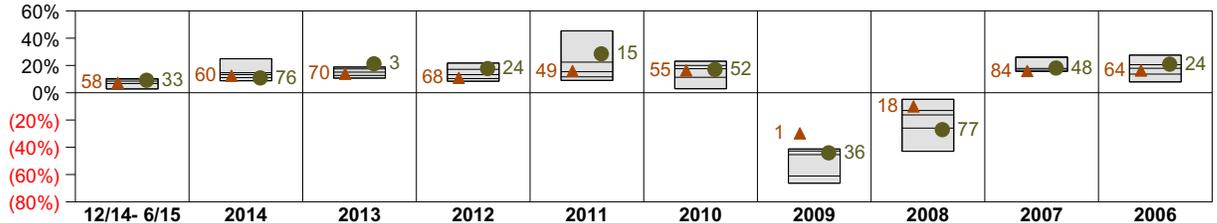


JPM Income and Growth Fund Return Analysis Summary

Return Analysis

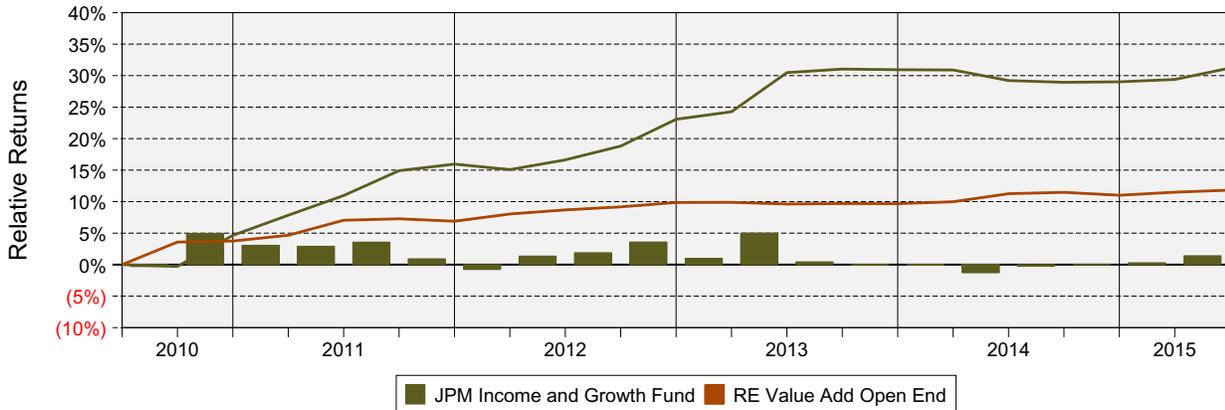
The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last two charts illustrate the manager's ranking relative to their style using various risk-adjusted return measures.

Performance vs Real Estate Value Added Open End Funds (Net)

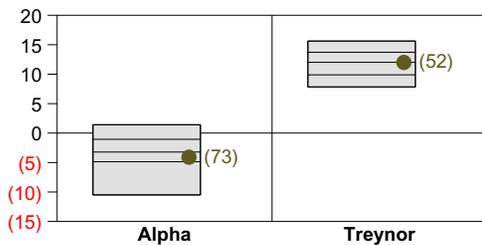


	12/14- 6/15	2014	2013	2012	2011	2010	2009	2008	2007	2006
10th Percentile	10.36	24.91	18.81	21.75	45.34	23.11	(41.24)	(4.81)	26.17	27.58
25th Percentile	9.93	14.68	17.45	17.17	22.42	20.00	(42.72)	(13.03)	25.97	20.55
Median	8.50	13.32	15.13	13.28	15.42	17.62	(45.40)	(16.25)	17.80	17.92
75th Percentile	6.75	11.07	12.70	10.39	11.66	11.32	(61.06)	(25.95)	16.47	13.67
90th Percentile	2.78	8.77	10.70	8.43	9.06	2.94	(66.35)	(42.95)	15.61	7.95
JPM Income and Growth Fund	● 9.16	10.85	21.23	17.74	28.52	17.11	(44.09)	(27.07)	18.11	20.93
NFI-ODCE Value Weight Gross	▲ 7.34	12.50	13.94	10.94	15.99	16.36	(29.76)	(10.01)	15.97	16.32

Cumulative and Quarterly Relative Return vs NFI-ODCE Value Weight Gross

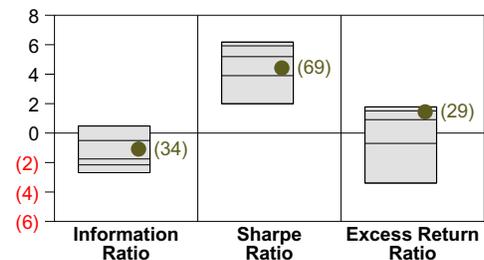


Risk Adjusted Return Measures vs NFI-ODCE Value Weight Gross Rankings Against Real Estate Value Added Open End Funds (Net) Five Years Ended June 30, 2015



	Alpha	Treynor Ratio
10th Percentile	1.42	15.62
25th Percentile	(1.05)	13.72
Median	(3.22)	12.01
75th Percentile	(4.86)	9.89
90th Percentile	(10.49)	7.84

JPM Income and Growth Fund ● (4.09) 11.99



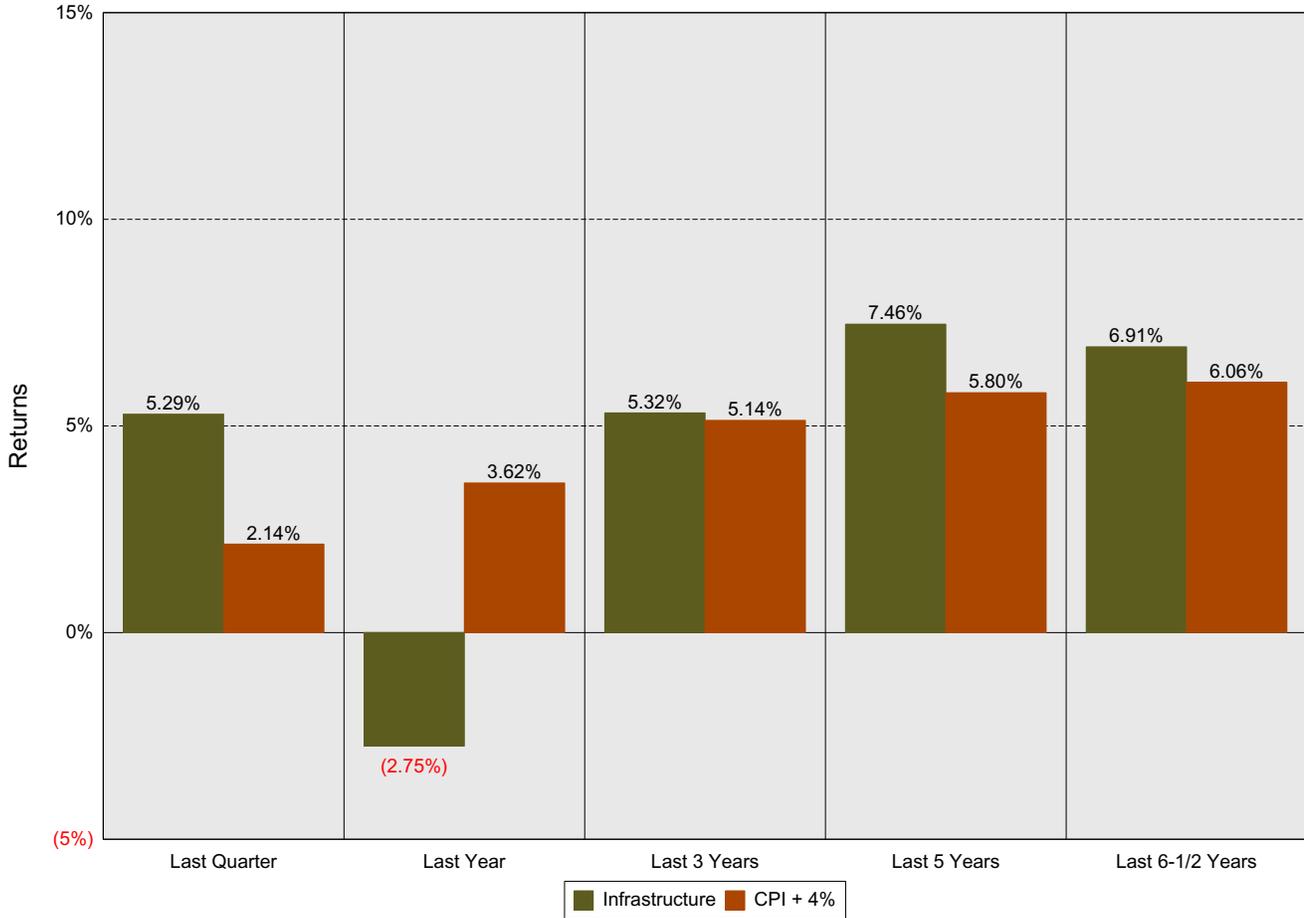
	Information Ratio	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.48	6.18	1.78
25th Percentile	(0.50)	5.92	1.51
Median	(1.75)	5.19	0.91
75th Percentile	(2.16)	3.90	(0.70)
90th Percentile	(2.69)	1.99	(3.40)

JPM Income and Growth Fund ● (1.08) 4.42 1.44

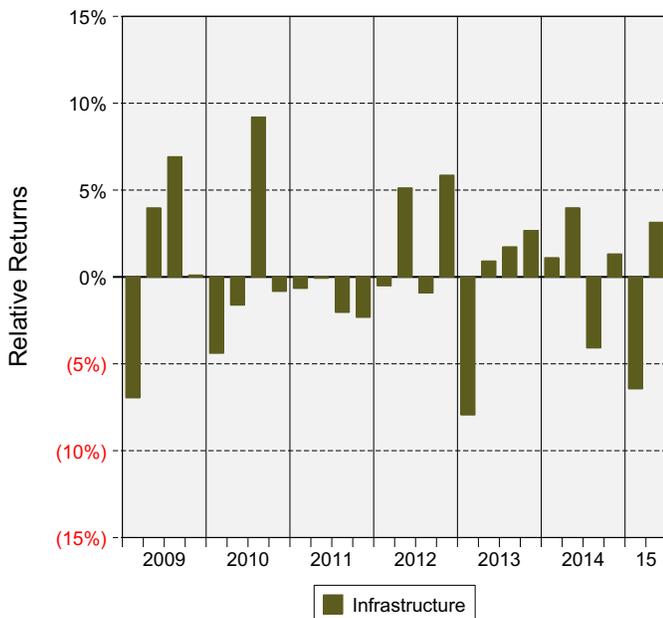
Infrastructure Period Ended June 30, 2015

Quarterly Summary and Highlights

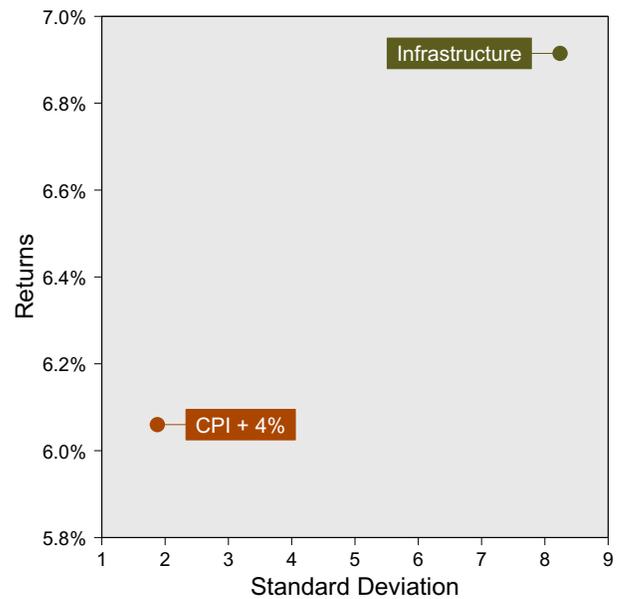
- Infrastructure's portfolio outperformed the CPI + 4% by 3.14% for the quarter and underperformed the CPI + 4% for the year by 6.37%.



Relative Return vs CPI + 4%



Annualized Six and One-Half Year Risk vs Return



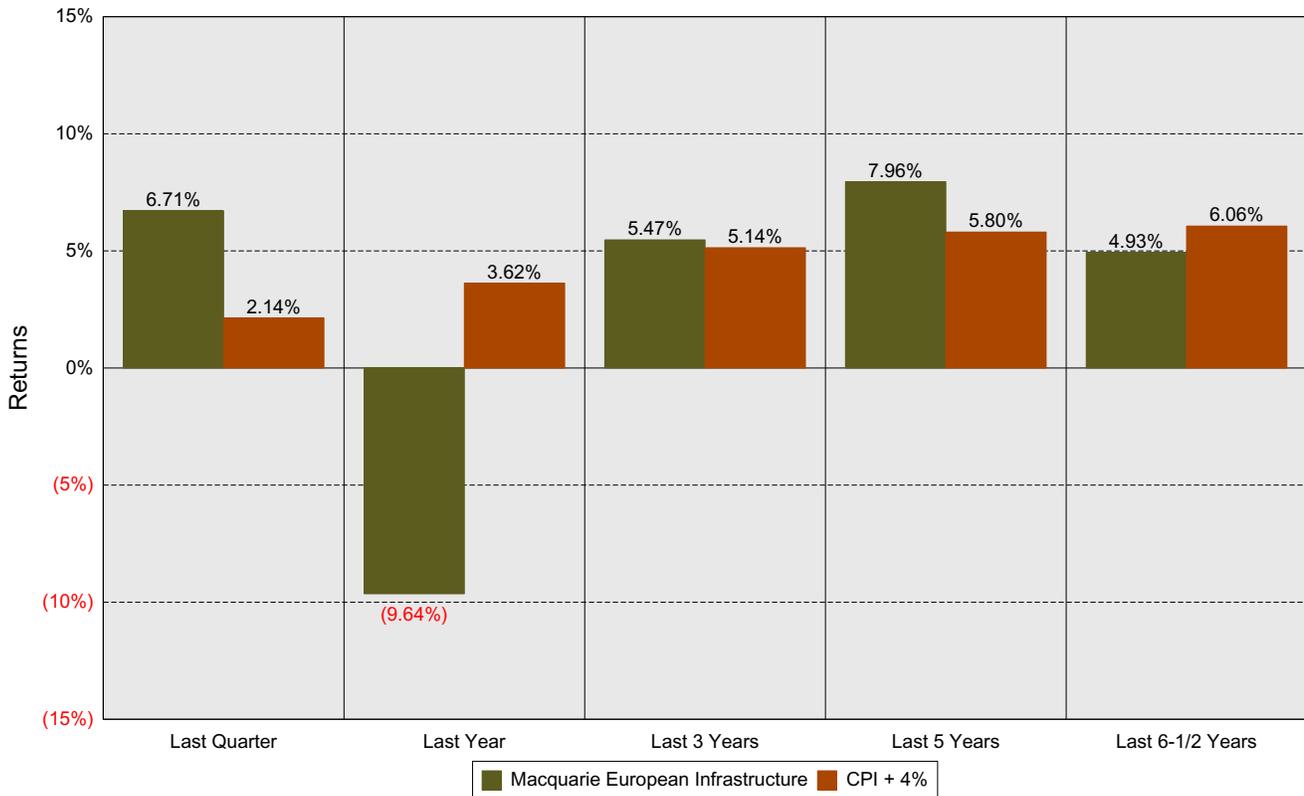
Macquarie European Infrastructure Period Ended June 30, 2015

Investment Philosophy

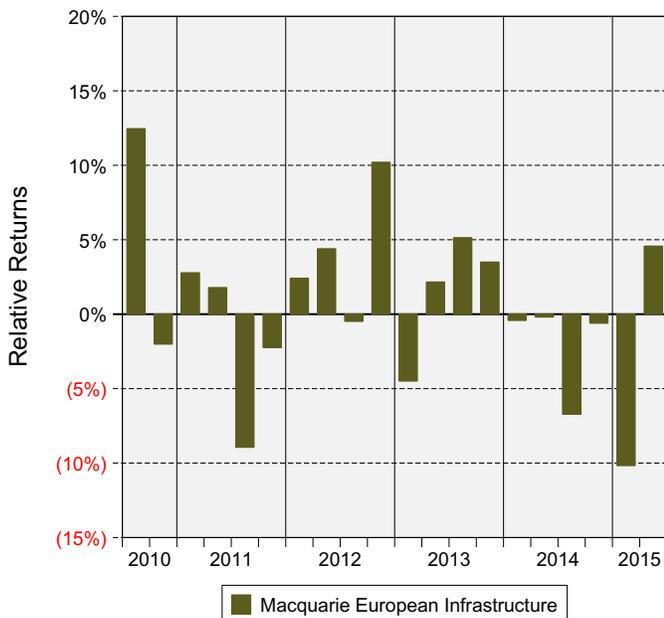
The product was funded in the fourth quarter of 2008.

Quarterly Summary and Highlights

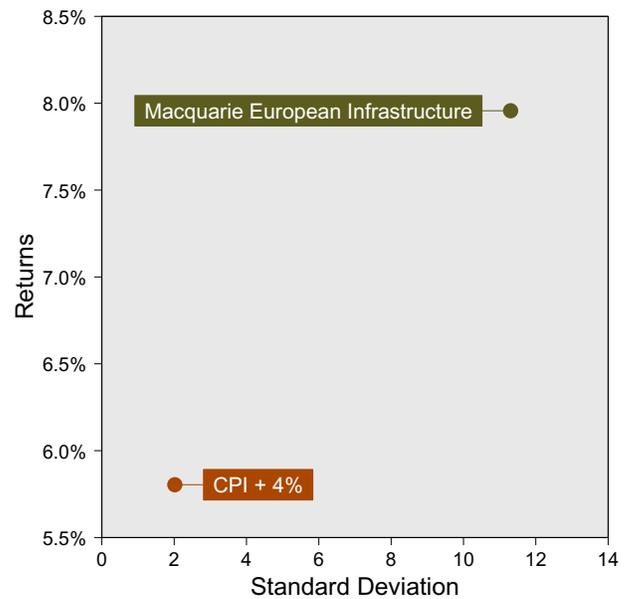
- Macquarie European Infrastructure's portfolio outperformed the CPI + 4% by 4.57% for the quarter and underperformed the CPI + 4% for the year by 13.26%.



Relative Return vs CPI + 4%



Annualized Five Year Risk vs Return



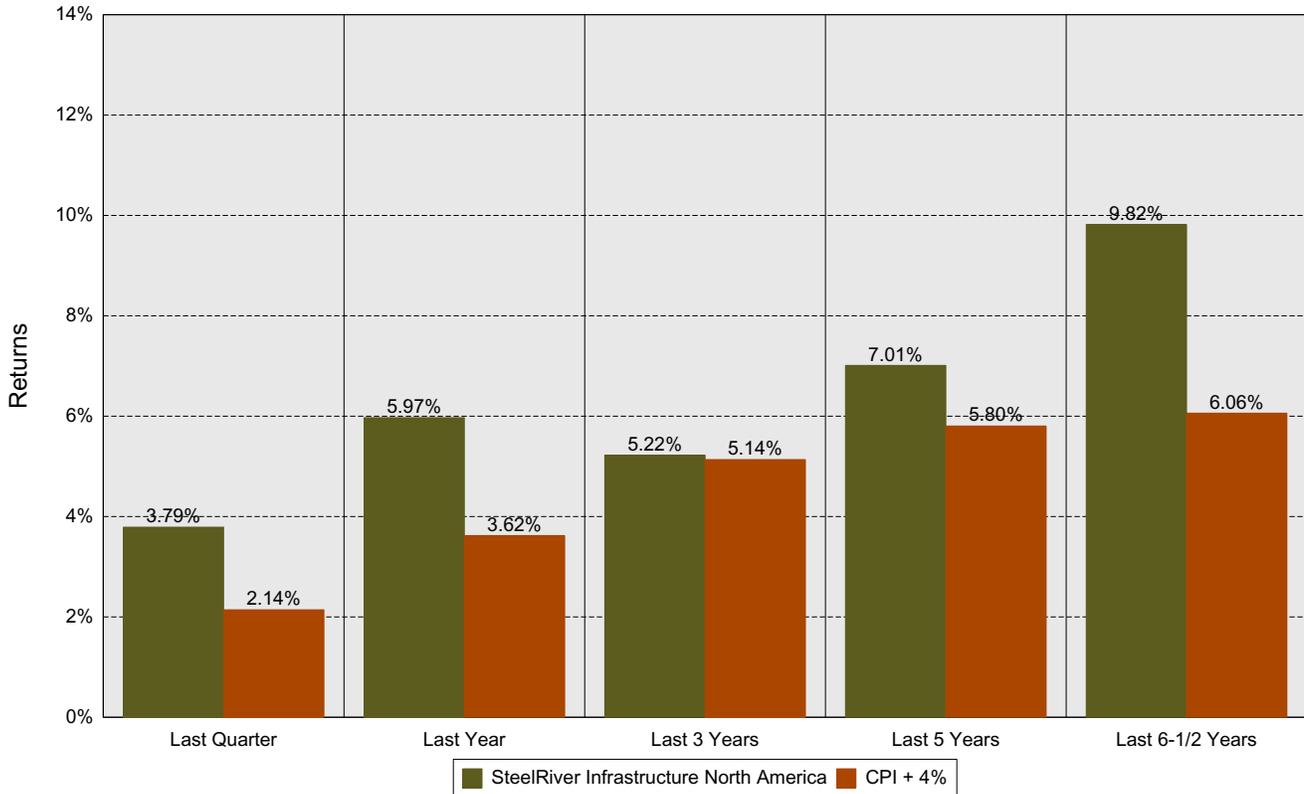
SteelRiver Infrastructure North America Period Ended June 30, 2015

Investment Philosophy

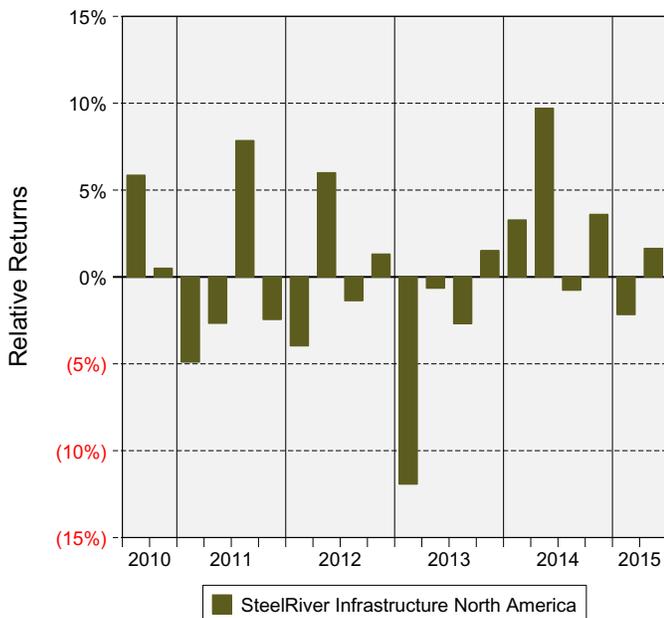
The product was funded in the fourth quarter of 2008.

Quarterly Summary and Highlights

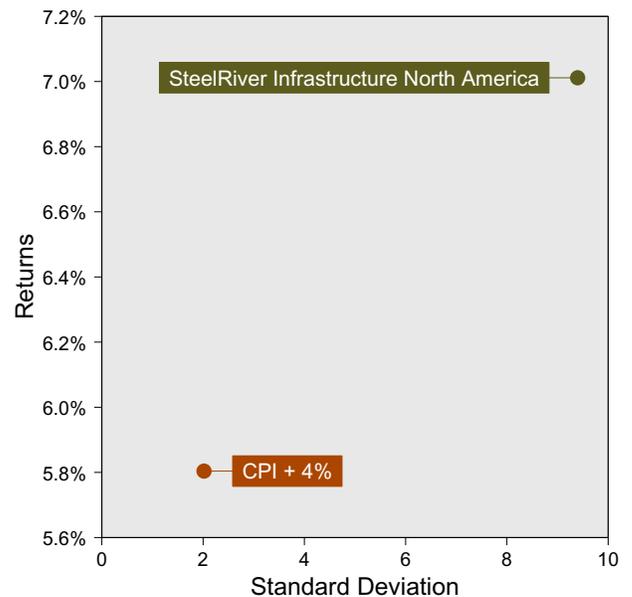
- SteelRiver Infrastructure North America's portfolio outperformed the CPI + 4% by 1.65% for the quarter and outperformed the CPI + 4% for the year by 2.35%.



Relative Return vs CPI + 4%



Annualized Five Year Risk vs Return

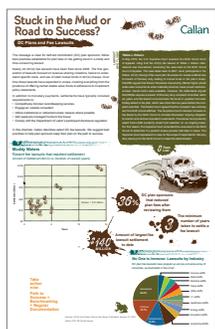


Research and Educational Programs

The Callan Investments Institute provides research that keeps clients updated on the latest industry trends while helping them learn through carefully structured educational programs.

Recent Research

Please visit www.callan.com/research to see all of our publications.



Stuck in the Mud or Road to Success? DC Plans and Fee Lawsuits This charticle describes select fee lawsuits and best practices to help plan sponsors stay on the path to success.

Active Share and Product Pairs Analysis In this paper, author Greg Allen isolates the impact of active share on performance by focusing on “product pairs.”

U.S. Equity Benchmark Review, Year-End 2014 This detailed report compares CRSP, Russell, and S&P indices alongside Callan Active Manager Style Groups.

Capital Market Review, 1st Quarter 2015 A newsletter providing insights on the economy and recent performance in the equity, fixed income, alternatives, and real estate markets.

Hedge Fund Monitor, 1st Quarter 2015 Cover story: Bridging the Gap: Multi-Asset Class Strategies.

Private Markets Trends, Spring 2015 A quarterly newsletter that discusses the market environment, recent events, performance, and other issues involving private equity.

DC Observer, 1st Quarter 2015 Cover story: Is Your Target Date Fund Suitable? Plus the Callan DC Index™.

Market Pulse Flipbook, 1st Quarter 2015 A reference guide covering investment and fund sponsor trends in the U.S. economy, U.S. and non-U.S. equities and fixed income, and alternatives.

Inside Callan’s Database, 1st Quarter 2015 This report graphs performance and risk data from Callan’s proprietary database alongside relevant market indices.

Real Estate Indicators: Too Hot to Touch or Cool Enough to Handle? See seven indicators that have helped signal when the institutional real estate market is overheated or cooled.

The Game of Retirement—Helping Employees Win This charticle provides a high-level look at the three generations DC plan sponsors must target and how best to communicate with them.

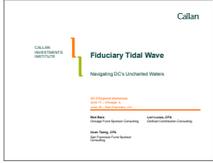
The Investment Vehicle Owner’s Manual This charticle highlights the key features of several popular investment vehicles. It also encourages investors to consider six important questions when making an investment vehicle selection.



2015 Defined Contribution Survey Callan’s annual survey of DC plan sponsors reveals trends in plan structure and management.

Events

Did you miss out on a Callan conference or workshop? Event summaries and speakers' presentations are available on our website: <https://www.callan.com/education/CII/>



The **June Regional Workshop's** topic was "Fiduciary Tidal Wave: Navigating DC's Uncharted Waters." Our speakers were Rod Bare, Chicago Fund Sponsor Consulting; Lori Lucas, CFA, Defined Contribution Consulting; and Uvan Tseng, CFA, San Francisco Fund Sponsor Consulting.

Our next event is the **October Regional Workshop**, to be held October 21 in New York and October 22 in Atlanta. Stay tuned for topic and speaker details! Also, save the date for our annual **National Conference** in San Francisco, January 25-27, 2016.

For more information about research or educational events, please contact Ray Combs: institute@callan.com or 415.974.5060

The Center for Investment Training Educational Sessions

The Center for Investment Training, better known as the "Callan College," provides a foundation of knowledge for industry professionals who are involved in the investment decision-making process. It was founded in 1994 to provide clients and non-clients alike with basic- to intermediate-level instruction. Our next session is:

Introduction to Investments

Chicago, October 27-28, 2015

This session familiarizes fund sponsor trustees, staff, and asset management advisors with basic investment theory, terminology, and practices. It lasts one-and-a-half days and is designed for individuals who have less than two years of experience with asset-management oversight and/or support responsibilities. Tuition for the Introductory "Callan College" session is \$2,350 per person. Tuition includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

Customized Sessions

The "Callan College" is equipped to customize a curriculum to meet the training and educational needs of a specific organization. These tailored sessions range from basic to advanced and can take place anywhere—even at your office.

Learn more at <https://www.callan.com/education/college/> or contact Kathleen Cunnie: 415.274.3029 / cunnie@callan.com

Education: By the Numbers

500 Attendees (on average) of the Institute's annual National Conference

50+ Unique pieces of research the Institute generates each year

3,300 Total attendees of the "Callan College" since 1994

1980 Year the Callan Investments Institute was founded



"We think the best way to learn something is to teach it. Entrusting client education to our consultants and specialists ensures that they have a total command of their subject matter. This is one reason why education and research have been cornerstones of our firm for more than 40 years."

Ron Peyton, Chairman and CEO

List of Managers That Do Business with Callan Associates Inc.

Confidential – For Callan Client Use Only

Callan takes its fiduciary and disclosure responsibilities to clients very seriously. The list below is compiled and updated quarterly because we believe our fund sponsor clients should have a clear understanding of the investment management organizations that do business with our firm. As of 06/30/15, Callan provided educational, consulting, software, database, or reporting services to this list of managers through one or more of the following business units: Institutional Consulting Group, Independent Adviser Group and Fund Sponsor Consulting. Given the complex corporate and organizational ownership structures of investment management firms, parent and affiliate firm relationships are not listed here. The client list below may include names of parent companies who allow their affiliates to use some of the services included in their client contract (eg, educational services including published research and attendance at conferences and workshops). Affiliates will not be listed if they don't separately contract with Callan. Per strict policy these manager relationships do not affect the outcome or process by which any of Callan's services are conducted.

Fund sponsor clients may request a copy of this list at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by the managers employed by their fund. Per company policy, information requests regarding fees are handled exclusively by Callan's Compliance Department.

Clients should also be aware that Callan maintains an asset management division, the Trust Advisory Group (TAG). TAG specializes in the design, implementation and on-going management of multi-manager portfolios for institutional investors. Please refer to Callan's ADV Part 2A for a complete listing of TAG's portfolios. We are happy to provide clients with more specific information regarding TAG, including detail on the portfolios it oversees. Per company policy these requests are handled by TAG's senior management.

Manager Name	Educational Services	Consulting Services
1607 Capital Partners, LLC		Y
Aberdeen Asset Management	Y	Y
Acadian Asset Management, Inc.	Y	
Advisory Research	Y	
Affiliated Managers Group		Y
AllianceBernstein	Y	
Allianz Global Investors U.S. LLC	Y	Y
Allianz Life Insurance Company of North America		Y
Altrinsic Global Advisors, LLC		Y
American Century Investment Management	Y	
Analytic Investors	Y	
Apollo Global Management	Y	
AQR Capital Management	Y	
Ares Management	Y	
Ariel Investments	Y	
Aristotle Capital Management	Y	
Aronson + Johnson + Ortiz	Y	
Artisan Holdings		Y
Atlanta Capital Management Co., L.L.C.	Y	Y
Aviva Investors	Y	
AXA Rosenberg Investment Management	Y	
Babson Capital Management LLC	Y	
Baillie Gifford International LLC	Y	Y
Baird Advisors	Y	Y
Bank of America		Y
Baring Asset Management	Y	
Baron Capital Management	Y	
BlackRock	Y	
BMO Asset Management	Y	
BNP Paribas Investment Partners	Y	
BNY Mellon Asset Management	Y	Y
Boston Company Asset Management, LLC (The)	Y	Y

List of Managers That Do Business with Callan Associates Inc. (continued)

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Manager Name	Educational Services	Consulting Services
Boston Partners	Y	Y
Brandes Investment Partners, L.P.	Y	Y
Brandywine Global Investment Management, LLC	Y	
Brown Brothers Harriman & Company	Y	
Cadence Capital Management	Y	
Capital Group	Y	
CastleArk Management, LLC		Y
Causeway Capital Management	Y	
Central Plains Advisors, Inc.		Y
Chartwell Investment Partners	Y	
ClearBridge Investments, LLC (fka ClearBridge Advisors)	Y	
Cohen & Steers	Y	Y
Columbia Management Investment Advisors, LLC	Y	Y
Columbus Circle Investors	Y	Y
Corbin Capital Partners	Y	
Cornerstone Investment Partners, LLC	Y	
Cramer Rosenthal McGlynn, LLC	Y	
Crawford Investment Council		Y
Credit Suisse Asset Management	Y	
Crestline Investors	Y	Y
Cutwater Asset Management	Y	
DB Advisors	Y	Y
DE Shaw Investment Management LLC	Y	
Delaware Investments	Y	Y
DePrince, Race & Zollo, Inc.	Y	Y
Deutsche Asset & Wealth Management	Y	Y
Diamond Hill Investments	Y	
Donald Smith & Co., Inc.	Y	
DSM Capital Partners		Y
Duff & Phelps Investment Mgmt.	Y	Y
Eagle Asset Management, Inc.		Y
EARNEST Partners, LLC	Y	
Eaton Vance Management	Y	Y
Epoch Investment Partners	Y	
Fayez Sarofim & Company		Y
Federated Investors		Y
Fir Tree Partners	Y	
First Eagle Investment Management	Y	
First Hawaiian Bank		Y
First State Investments	Y	
Fisher Investments	Y	
Franklin Templeton	Y	Y

List of Managers That Do Business with Callan Associates Inc. (continued)

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Manager Name	Educational Services	Consulting Services
Fred Alger Management Co., Inc.	Y	
Fuller & Thaler Asset Management	Y	
GAM (USA) Inc.	Y	
Garcia Hamilton & Associates	Y	
GE Asset Management	Y	Y
Geneva Capital Management	Y	
Goldman Sachs Asset Management	Y	Y
Grand-Jean Capital Management	Y	Y
GMO (fka Grantham, Mayo, Van Otterloo & Co., LLC)	Y	
Great Lakes Advisors, Inc.		Y
The Guardian Life Insurance Company of America		Y
Guggenheim Investments Asset Management (fka Security Global)	Y	
The Hampshire Companies	Y	
Harbor Capital		Y
Hartford Funds	Y	
Hartford Investment Management Co.	Y	Y
Heightman Capital Management Corporation		Y
Henderson Global Investors	Y	Y
Hotchkis & Wiley	Y	
HSBC Global Asset Management	Y	
Income Research & Management	Y	
Insight Investment Management		Y
Institutional Capital LLC	Y	
INTECH Investment Management	Y	
Invesco	Y	Y
Investec Asset Management	Y	
Jacobs Levy Equity Management		Y
Janus Capital Group (fka Janus Capital Management, LLC)	Y	Y
Jensen Investment Management		Y
J.M. Hartwell	Y	
J.P. Morgan Asset Management	Y	Y
KeyCorp		Y
Lazard Asset Management	Y	Y
Lee Munder Capital Group	Y	
Legal & General Investment Management America	Y	
Lincoln National Corporation		Y
Logan Circle Partners, L.P.	Y	
The London Company	Y	
Longview Partners	Y	
Loomis, Sayles & Company, L.P.	Y	Y
Lord Abbett & Company	Y	Y
Los Angeles Capital Management	Y	

List of Managers That Do Business with Callan Associates Inc. (continued)

Confidential – For Callan Client Use Only

Callan takes its fiduciary and disclosure responsibilities to clients very seriously. The list below is compiled and updated quarterly because we believe our fund sponsor clients should have a clear understanding of the investment management organizations that do business with our firm. As of 06/30/15, Callan provided educational, consulting, software, database, or reporting services to this list of managers through one or more of the following business units: Institutional Consulting Group, Independent Adviser Group and Fund Sponsor Consulting. Given the complex corporate and organizational ownership structures of investment management firms, parent and affiliate firm relationships are not listed here. The client list below may include names of parent companies who allow their affiliates to use some of the services included in their client contract (eg, educational services including published research and attendance at conferences and workshops). Affiliates will not be listed if they don't separately contract with Callan. Per strict policy these manager relationships do not affect the outcome or process by which any of Callan's services are conducted.

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Manager Name	Educational Services	Consulting Services
LSV Asset Management	Y	
Lyrical Partners	Y	
MacKay Shields LLC	Y	Y
Mackenzie Investments		Y
Man Investments	Y	
Manulife Asset Management	Y	
Martin Currie	Y	
Marvin & Palmer Associates, Inc.	Y	
MFS Investment Management	Y	Y
MidFirst Bank		Y
Mondrian Investment Partners Limited	Y	Y
Montag & Caldwell, Inc.	Y	Y
Morgan Stanley Alternative Investment Partners	Y	
Morgan Stanley Investment Management	Y	Y
Mount Lucas Management LP	Y	
Mountain Lake Investment Management LLC		Y
MUFG Union Bank, N.A.		Y
Neuberger Berman, LLC (fka, Lehman Brothers)	Y	Y
Newton Capital Management	Y	
Northern Lights Capital Group		Y
Northern Trust Global Investment Services	Y	Y
Nuveen Investments Institutional Services Group LLC	Y	
Old Mutual Asset Management	Y	Y
OppenheimerFunds, Inc.	Y	
Pacific Investment Management Company	Y	
Palisade Capital Management LLC	Y	
Paradigm Asset Management	Y	
Parametric Portfolio Associates	Y	
Peregrine Capital Management, Inc.	Y	Y
Philadelphia International Advisors, LP	Y	
PineBridge Investments (formerly AIG)	Y	
Pinnacle Asset Management	Y	
Pioneer Investment Management, Inc.	Y	
PNC Capital Advisors (fka Allegiant Asset Mgmt)	Y	Y
Polen Capital Management	Y	
Principal Financial Group		Y
Principal Global Investors		Y
Private Advisors	Y	
Prudential Fixed Income Management	Y	
Prudential Investment Management, Inc.	Y	Y
Putnam Investments, LLC	Y	Y
Pyramis Global Advisors	Y	

List of Managers That Do Business with Callan Associates Inc. (continued)

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Manager Name	Educational Services	Consulting Services
Rainier Investment Management	Y	
RBC Global Asset Management (U.S.) Inc.		Y
Research Affiliates		Y
Regions Financial Corporation		Y
RCM		Y
Rothschild Asset Management, Inc.	Y	Y
RS Investments	Y	
Russell Investment Management	Y	
Sankaty Advisors, LLC	Y	
Santander Global Facilities		Y
Schroder Investment Management North America Inc.	Y	Y
Scout Investments	Y	
SEI Investments		Y
SEIX Investment Advisors, Inc.	Y	
Select Equity Group	Y	
Smith Affiliated Capital Corporation	Y	
Smith Graham and Company		Y
Smith Group Asset Management		Y
Standard Life Investments	Y	
Standish (fka, Standish Mellon Asset Management)	Y	
State Street Global Advisors	Y	
Stone Harbor Investment Partners, L.P.	Y	Y
Systematic Financial Management	Y	
T. Rowe Price Associates, Inc.	Y	Y
Taplin, Canida & Habacht	Y	
Timberland Investment Resources	Y	
TCW Asset Management Company	Y	
Thompson, Siegel & Walmsley LLC	Y	
UBS	Y	Y
USAA Real Estate Company	Y	
Van Eck	Y	
Versus Capital Group		Y
Victory Capital Management Inc.	Y	
Vontobel Asset Management	Y	
Voya Investment Management	Y	Y
Vulcan Value Partners, LLC		Y
Waddell & Reed Asset Management Group	Y	Y
WCM Investment Management	Y	
WEDGE Capital Management		Y
Wellington Management Company, LLP	Y	
Wells Capital Management	Y	
Wells Fargo Private Bank		Y

List of Managers That Do Business with Callan Associates Inc. (continued)

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Manager Name	Educational Services	Consulting Services
Western Asset Management Company	Y	
William Blair & Co., Inc.	Y	Y

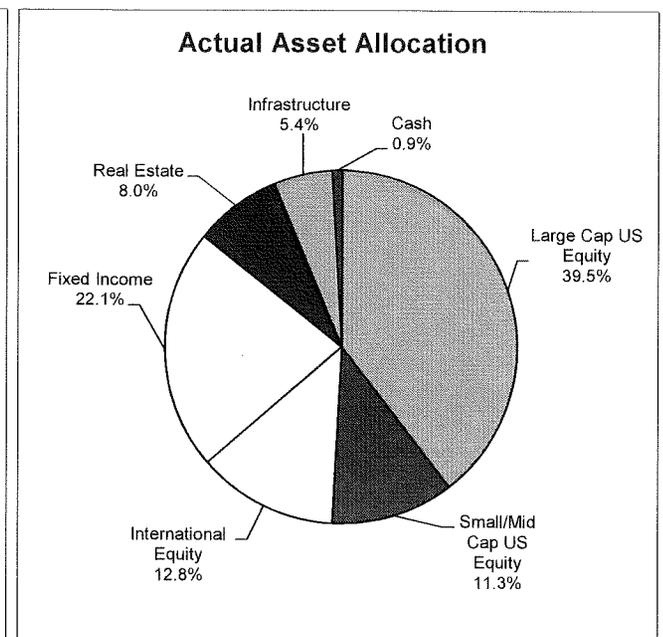
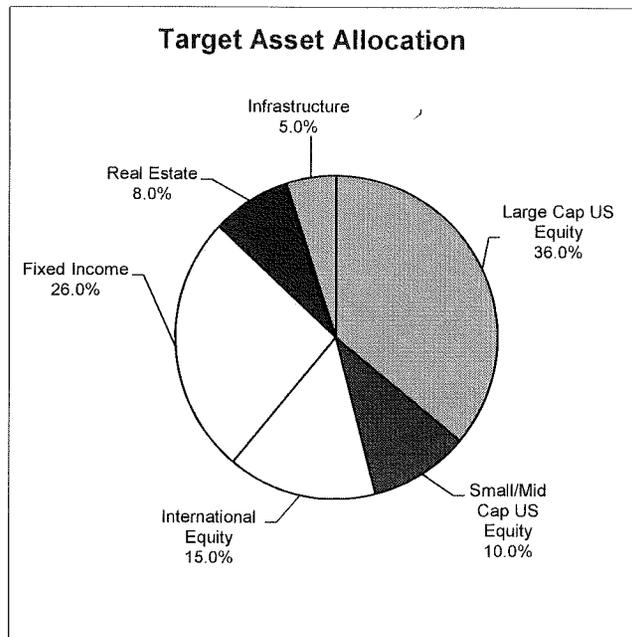
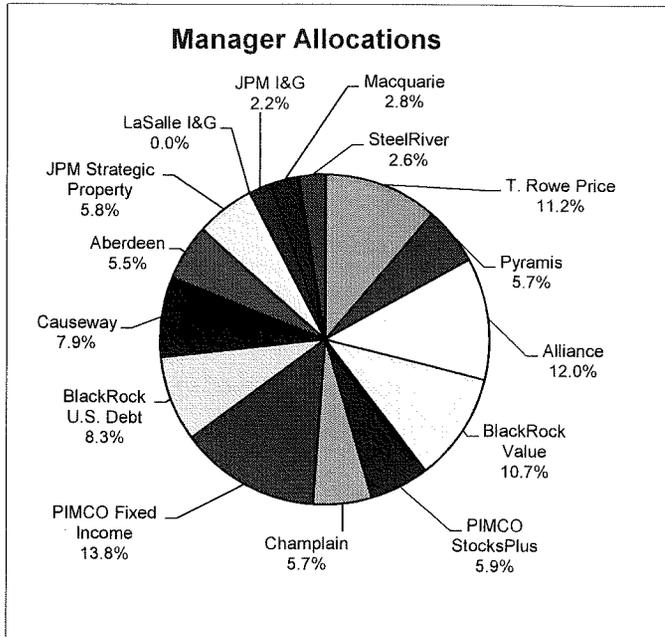
Manager Allocations Compared with Policy Levels

Monthly Report as of: 07/31/15

<i>Managers and Asset Class</i>	<i>Actual</i>		<i>Target</i>		<i>Differences</i>		<i>Range</i>		<i>Outside Range</i>
	<i>(000s)</i>	<i>%</i>	<i>(000s)</i>	<i>%</i>	<i>From Target</i>		<i>Min</i>	<i>Max</i>	
T. Rowe Price	\$ 82,782	11.2%	\$ 74,197	10.0%	1.2%	\$ 8,585	8.0%	12.0%	0.0%
Alliance (S&P 500)	88,644	11.9%	81,617	11.0%	0.9%	7,027	8.0%	14.0%	0.0%
BlackRock Value	79,008	10.6%	74,197	10.0%	0.6%	4,811	8.0%	12.0%	0.0%
PIMCO StocksPlus	43,820	5.9%	37,099	5.0%	0.9%	6,721	3.0%	7.0%	0.0%
Large Cap U.S. Equity	294,254	39.6%	267,110	36.0%	3.6%	27,144	31.0%	41.0%	0.0%
Pyramis	42,392	5.7%	37,099	5.0%	0.7%	5,294	3.0%	7.0%	0.0%
Champlain	42,483	5.7%	37,099	5.0%	0.7%	5,384	3.0%	7.0%	0.0%
Small/Mid Cap U.S. Equity	84,875	11.4%	74,197	10.0%	1.4%	10,677	6.0%	14.0%	0.0%
Causeway Capital Mgmt	58,590	7.9%	55,648	7.5%	0.4%	2,942	5.5%	9.5%	0.0%
Aberdeen Asset Mgmt	40,654	5.5%	55,648	7.5%	-2.0%	(14,994)	5.5%	9.5%	0.0%
International Equity	99,243	13.4%	111,296	15.0%	-1.6%	(12,053)	13.0%	17.0%	0.0%
Total Stocks	478,372	64.4%	452,603	61.0%	3.4%	25,769	56.0%	66.0%	0.0%
PIMCO Fixed Income	102,073	13.8%	118,716	16.0%	-2.2%	(16,643)	13.0%	19.0%	0.0%
BlackRock U.S. Debt	61,869	8.3%	74,197	10.0%	-1.7%	(12,328)	8.0%	12.0%	0.0%
Total Bonds	163,942	22.1%	192,913	26.0%	-3.9%	(28,971)	21.0%	31.0%	0.0%
JPM Strategic Property	42,631	5.7%	37,099	5.0%	0.7%	5,532	3.0%	7.0%	0.0%
LaSalle Income & Growth IV	62	0.0%	11,130	1.5%	-1.5%	(11,068)	0.0%	3.0%	0.0%
JPM Income & Growth	16,427	2.2%	11,130	1.5%	0.7%	5,297	0.0%	3.0%	0.0%
Total Real Estate	59,119	7.9%	59,358	8.0%	-0.1%	(238)	6.0%	10.0%	0.0%
Macquarie	20,665	2.8%	18,549	2.5%	0.3%	2,115	1.5%	3.5%	0.0%
SteelRiver	19,080	2.6%	18,549	2.5%	0.1%	531	1.5%	3.5%	0.0%
Total Infrastructure	39,744	5.4%	37,099	5.0%	0.4%	2,646	3.0%	7.0%	0.0%
Liquidity Fund	794	0.1%	-						
Total Fund	\$ 741,972	100%	\$ 741,972	100%					

Allocation Summaries

As of: 07/31/15



Investment Manager Allocation:

<u>Investment Account</u>	<u>(000s)</u>
1 T. Rowe Price	\$ 82,782
2 Pyramis	42,392
3 Alliance	88,644
4 BlackRock Value	79,008
5 PIMCO StocksPlus	43,820
6 Champlain	42,483
7 PIMCO Fixed Income	102,073
8 BlackRock U.S. Debt	61,869
9 Causeway	58,590
10 Aberdeen	40,654
11 JPM Strategic Property	42,631
12 LaSalle I&G	62
13 JPM I&G	16,427
14 Macquarie	20,665
15 SteelRiver	19,080
Liquidity Account	794
Total Assets	\$ 741,972

Target Asset Allocation:

<u>Asset Class</u>	<u>(000s)</u>
Large Cap US Equity	267,110
Small/Mid Cap US Equity	74,197
International Equity	111,296
Fixed Income	192,913
Real Estate	59,358
Infrastructure	37,099
Total Assets	\$ 741,972

Actual Asset Allocation:

<u>Asset Class</u>	<u>(000s)</u>
Large Cap US Equity	292,941
Small/Mid Cap US Equity	84,169
International Equity	95,303
Fixed Income	163,942
Real Estate	59,119
Infrastructure	39,744
Cash	6,753
Total Assets	\$ 741,972

**TUCSON SUPPLEMENTAL RETIREMENT SYSTEM
CALENDAR YEAR 2015 PERFORMANCE BY MANAGER
NET OF FEES AND CUSTODIAL CHARGES**

	Total Fund	BlackRock U.S. Debt	PIMCO	Total Fixed	Alliance S&P 500	BlackRock Value	PIMCO StocksPlus	T.RowePrice	Pyramis	Champlain	Aberdeen	Causeway Capital	Total Equities	JP Morgan Strat Prop	LaSalle I & G	JP Morgan I & G	Total Real Estate	SteelRiver	Macquarie Capital	Total Infrastructure
JAN	-1.02%	2.10%	1.67%	1.83%	-3.00%	-3.97%	-2.78%	-0.58%	-2.39%	-2.76%	-0.48%	0.53%	-2.02%	0.47%	0.00%	3.00%	1.14%	0.00%	-6.70%	-3.58%
FEB	3.76%	-0.92%	0.76%	0.12%	5.73%	4.86%	5.92%	6.73%	6.88%	5.94%	4.26%	4.42%	5.60%	1.85%	0.00%	0.00%	1.32%	-0.20%	2.16%	1.02%
MAR	-0.57%	0.44%	0.33%	0.37%	-1.58%	-1.37%	-1.46%	-0.55%	1.43%	0.83%	-2.74%	-1.12%	-0.93%	1.35%	2.61%	0.00%	1.00%	0.00%	-4.25%	-2.22%
APR	1.14%	-0.29%	0.20%	0.02%	0.95%	0.94%	0.77%	0.09%	-1.32%	1.02%	4.82%	4.89%	1.39%	0.90%	0.00%	3.36%	1.55%	0.00%	4.33%	2.22%
MAY	0.70%	-0.29%	0.12%	-0.03%	1.29%	1.21%	1.38%	2.03%	3.79%	1.47%	-2.01%	-1.14%	1.05%	1.02%	0.00%	0.00%	0.73%	1.47%	-2.16%	-0.43%
JUN	-1.08%	-1.10%	-1.77%	-1.52%	-1.92%	-1.93%	-2.11%	-1.20%	1.19%	0.06%	-4.19%	-2.71%	-1.66%	1.49%	24.40%	4.95%	2.45%	1.66%	3.61%	2.66%
JUL	1.16%	0.68%	0.57%	0.61%	2.12%	0.48%	2.15%	5.03%	1.16%	-1.52%	-1.48%	1.73%	1.55%	0.85%	0.00%	0.00%	0.61%	0.00%	-0.84%	-0.44%
AUG	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SEP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
OCT	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NOV	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DEC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CYTD	4.07%	0.59%	1.86%	1.38%	3.38%	-0.02%	3.66%	11.83%	10.94%	4.92%	-2.16%	6.53%	4.88%	8.20%	27.65%	11.73%	9.13%	2.95%	-4.29%	-0.92%

Benchmark Returns:																				
Latest Month	0.89%	0.70%	0.27%	0.70%	2.10%	0.44%	2.10%	3.39%	-1.16%	0.74%	-0.28%	2.08%	1.37%	-	-	-	-	0.33%	0.33%	0.33%
Cldr Yr to Date	2.96%	0.60%	1.24%	0.60%	3.36%	-0.19%	3.36%	7.49%	3.54%	3.11%	3.74%	7.72%	4.06%	7.34%	7.34%	7.34%	7.34%	3.98%	3.98%	3.98%
Index	Custom Plan Index	Barclays Aggregate	Fixed Inc Custom	Barclays Aggregate	S & P 500	Russell 1000 Value	S & P 500	Russell 1000 Growth	Russell 2000	Russell Midcap	MSCI All Country Wld x-US N	MSCI EAFE Net Divd	Equity Composite	NCREIF-ODCE (1)	NCREIF-ODCE (1)	NCREIF-ODCE (1)	NCREIF-ODCE (1)	CPI + 4% (2)	CPI + 4% (2)	CPI + 4% (2)

(1) CYTD Index returns thru: 06/30/15

(2) CYTD Index returns thru: 07/31/15

**TUCSON SUPPLEMENTAL RETIREMENT SYSTEM
FISCAL YEAR 2016 PERFORMANCE BY MANAGER
NET OF FEES AND CUSTODIAL CHARGES**

	Total Fund	BlackRock U.S. Debt	PIMCO	Total Fixed	Alliance S&P 500	BlackRock Value	PIMCO StocksPlus	T.RowePrice	Pyramis	Champlain	Aberdeen	Causeway Capital	Total Equities	JP Morgan Strat Prop	LaSalle I & G	JP Morgan I & G	Total Real Estate	SteelRiver	Macquarie Capital	Total Infrastructure
JUL	1.16%	0.68%	0.57%	0.61%	2.12%	0.48%	2.15%	5.03%	1.16%	-1.52%	-1.48%	1.73%	1.55%	0.85%	0.00%	0.00%	0.61%	0.00%	-0.84%	-0.44%
AUG	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SEP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
OCT	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NOV	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DEC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
JAN	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
FEB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MAR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
APR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MAY	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
JUN	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
FYTD	1.16%	0.68%	0.57%	0.61%	2.12%	0.48%	2.15%	5.03%	1.16%	-1.52%	-1.48%	1.73%	1.55%	0.85%	0.00%	0.00%	0.61%	0.00%	-0.84%	-0.44%

Benchmark Returns:																				
Latest Month	0.89%	0.70%	0.27%	0.70%	2.10%	0.44%	2.10%	3.39%	-1.16%	0.74%	-0.28%	2.08%	1.37%	-	-	-	-	0.33%	0.33%	0.33%
Fiscal Yr to Date	0.89%	0.70%	0.27%	0.70%	2.10%	0.44%	2.10%	3.39%	-1.16%	0.74%	-0.28%	2.08%	1.37%	0.00%	0.00%	0.00%	0.00%	0.33%	0.33%	0.33%
Index	Custom Plan Index	Barclays Aggregate	Fixed Inc Custom	Barclays Aggregate	S & P 500	Russell 1000 Value	S & P 500	Russell 1000 Growth	Russell 2000	Russell Midcap	MSCI All Country Wld x-US N	MSCI EAFE Net Divd	Equity Composite	NCREIF - ODCE (1)	CPI + 4% (2)	CPI + 4% (2)	CPI + 4% (2)			

(1) FYTD Index returns thru: 00/00/15

(2) FYTD Index returns thru: 07/31/15

**Tucson Supplemental Retirement System (TSRS)
 BNY Mellon - Securities Lending & Custodial Fee Summary
 FY16**

July 1, 2015 - June 30, 2016

	<i>Gross Earnings</i>	<i>Rebate Paid</i>	<i>Bank Fees</i>	<i>Gross Client Earnings</i>	<i>Administration Fee</i>	<i>FY16 Net Client Earnings</i>	<i>FY15 Net Client Earnings</i>	<i>FY16 Custodian Fees</i>	<i>FY15 Custodian Fees</i>
July	\$ 2,924	\$ (7,613)	\$ 4,214	\$ 6,323	\$ -	\$ 6,323	\$ 6,816	\$ -	\$ -
August	-	-	-	-	-	-	5,775	-	-
September	-	-	-	-	-	-	6,239	-	73,879
October	-	-	-	-	-	-	6,970	-	-
November	-	-	-	-	-	-	6,002	-	-
December	-	-	-	-	-	-	6,655	-	71,675
January	-	-	-	-	-	-	7,214	-	-
February	-	-	-	-	-	-	8,612	-	-
March	-	-	-	-	-	-	11,248	-	75,962
April	-	-	-	-	-	-	11,082	-	-
May	-	-	-	-	-	-	13,175	-	-
June	-	-	-	-	-	-	8,769	-	-
Totals	\$ 2,924	\$ (7,613)	\$ 4,214	\$ 6,323	\$ -	\$ 6,323	\$ 98,557	\$ -	\$ 221,516

cross check: 6,323

TSRS

Schedule of Cash Transfers Between Investment Accounts and/or Fund 072

FY 16

FROM (Transfers Out):

TO (Transfers In):

NOTES:

Transfer Date	Account #	Account Desc.	Amount	Account #	Account Desc.	Amount					
07/17/15	TSRF1002002	Pyramis Small Cap Account	(2,000,000.00)	FUND 072 (1)	INVESTMENT POOL ACCOUNT	2,000,000.00	To meet cash liquidity needs & rebalance portfolio				
07/13/15	TSRF4001002	JP Morgan Strategic Property Fund	(3.67)	TSRF2001002	Liquidity Cash Account	3.67	Automatic transfer of excess cash to liquidity account				
07/16/15	TSRF5002002	SteelRiver IFNA	(216,262.81)	TSRF2001002	Liquidity Cash Account	216,262.81	Automatic transfer of excess cash to liquidity account				
07/31/15	TSRF5002002	SteelRiver IFNA	(84,628.18)	TSRF2001002	Liquidity Cash Account	84,628.18	Automatic transfer of excess cash to liquidity account				
TOTALS			(2,300,894.66)			2,300,894.66					

(1) - INVESTMENT POOL ACCOUNT (Fund 072) Transfer-In Summary:

FY16 -To Date	FY15	FY14	FY13	FY12	FY11	FY10	FY09	FY08	FY07	FY06	TOTAL
2,000,000	28,400,000	24,900,000	21,700,000	27,202,000	29,950,000	20,872,362	26,760,000	10,000,000	17,500,000	2,500,000	211,784,362
2,000,000.00	2,366,667	2,075,000	1,808,333	2,266,833	2,495,833	1,739,363	2,230,000	833,333	1,458,333	208,333	

Causeway Capital Management LLC
The Balance between Crude Oil Supply and Demand
August 14, 2015

“Formula for success: rise early, work hard, strike oil.”

- J. Paul Getty

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EXECUTIVE SUMMARY

The Current Supply/Demand Imbalance

From peak to trough, crude oil prices plunged about 60% in 2014 – and slid again recently, testing lows of earlier this year. Excess supply, combined with a market expectation for softening global demand, has weighed on oil prices. Unlike past behavior, the Organization of the Petroleum Exporting Countries (OPEC) has not cut production to support the market price. This appears to us as a rational strategy. The resulting lower crude oil prices should spur demand and constrain uneconomic supply. We currently expect that the self-correcting mechanism inherent in the crude oil markets will likely bring about a recovery in oil prices by 2017.

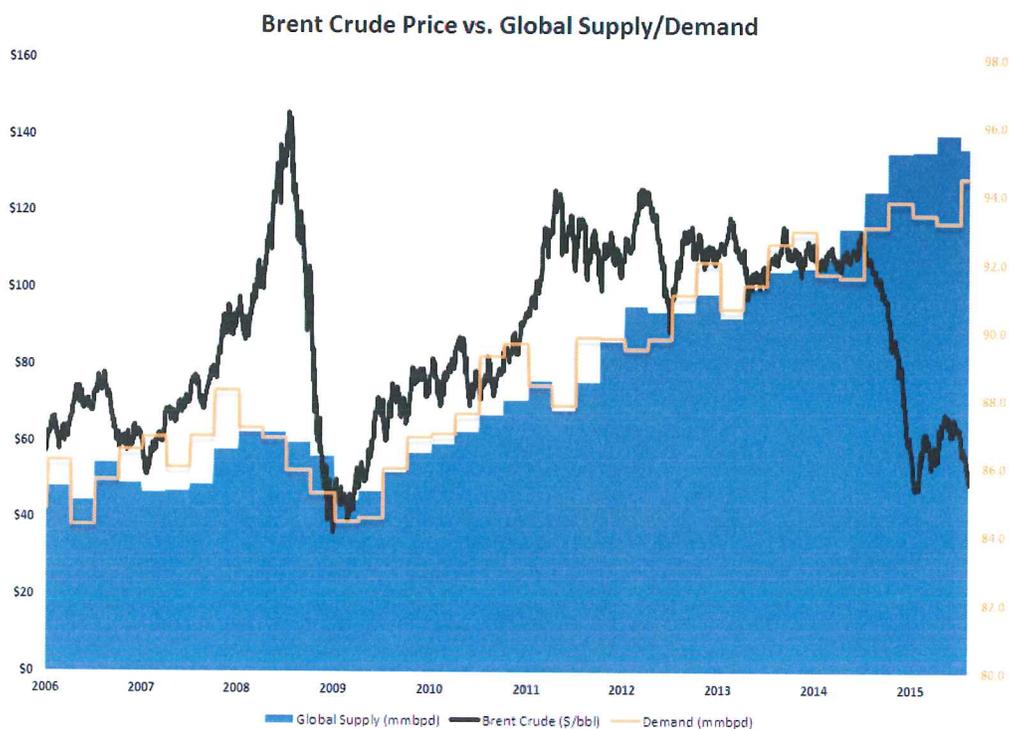
At present, crude oil demand has turned up, perhaps responding to lower prices. This year, according to the International Energy Agency (IEA) July 2015 forecast, global demand growth will rise to 1.4 million barrels per day (mmbpd) after a weak 2014 when it registered only 700 thousand barrels per day (kbpd). Given the progressive downward revisions in the IEA demand forecast for 2016, we expect that annual demand growth will hold steady at least 1 mmbpd. This base level of demand assumes pressure from energy efficiency in Organisation for Economic Co-Operation and Development (OECD) regions and the drag from slowing growth in non-OECD regions. China remains the greatest risk in terms of near-term demand as their economic pace decelerates.

Global supply will likely continue to outpace demand this year due to significant production increases from OPEC and the lag in production slowdown from both US shale and from Non-OPEC, Non-US project deliveries. We believe the recent drop in oil prices will elicit the supply reaction that Saudi Arabia was seeking, and will result in significant market tightening in 2016 as non-OPEC production declines.

Due to the current oversupply situation exacerbated by an uncertain amount of Iranian barrels returning to the market in 2016, crude oil prices may drift below marginal cost of the swing US shale producers for the next 12-18 months.

However, if it becomes clear that non-OPEC supply has diminished, a Brent crude oil price of \$70 will be required to incentivize sufficient US shale production to balance the market in 2017 and beyond. After 2017, an even higher oil price may be required to incentivize new supply projects to offset base declines outside of OPEC and the United States.

The Saudis are seeking an equilibrium in which demand growth remains steady and non-OPEC supply grows at a pace that meets some, but not all of this demand.



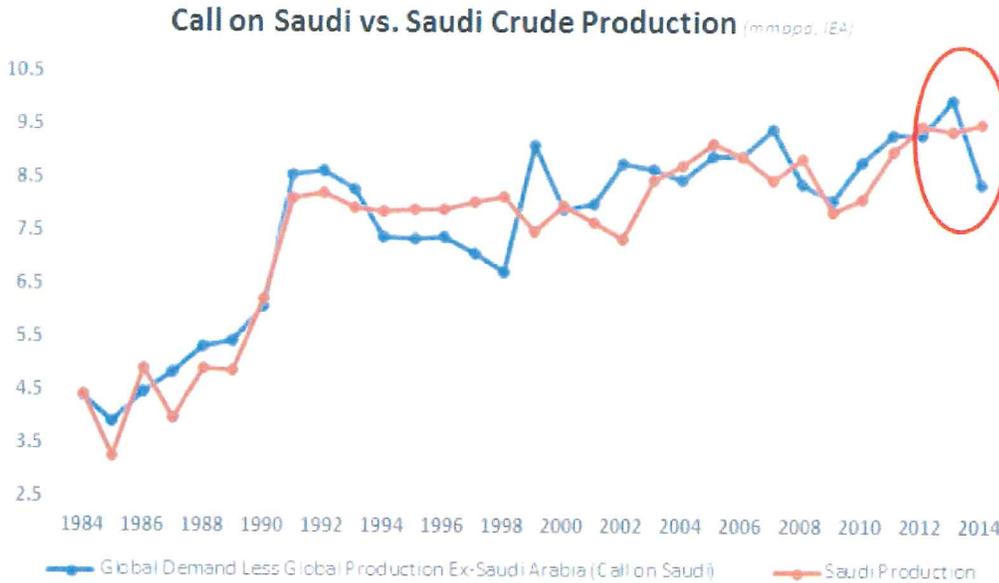
Source: International Energy Agency, Bloomberg

Updated Causeway Forecast Assumptions

TOPIC	PRIOR TO 2015	WHAT HAS HAPPENED	CURRENT
1) Demand	<ul style="list-style-type: none"> With demand stable historically, supply has largely determined oil prices. 	<ul style="list-style-type: none"> Over long periods of time, global oil demand has been very stable. However, 2014 was weak, and emerging market concerns raise downside risks for future demand. 2015 and 2016 should exhibit a recovery in demand, helped in part by the stimulus generated by lower oil prices. 	<ul style="list-style-type: none"> Although the supply side has the greatest uncertainty, downside risks to demand include ineffective monetary policy and economic stagnation. In lower oil price scenarios, price elasticity should spur greater oil consumption.
2) Supply	<ul style="list-style-type: none"> Only OPEC has enough spare capacity to boost supply materially. The inevitable decline in well production (decline rate) constrains supply. Disruptions, operational or geopolitical, occur frequently, posing price risk to upside. 	<ul style="list-style-type: none"> US shale expansion continues, and could be a sustainable source of global production growth, <i>contingent on the level of oil prices</i>. Further upside risks to supply have emerged from countries within OPEC, namely Iran and Iraq. In addition, non-OPEC, non-US production has proved resilient. The Saudis have declared that they will not cut production to balance the market, and will instead allow the lower oil price to balance the market. 	<ul style="list-style-type: none"> The oil price should settle at a level at which global production growth meets demand growth, without requiring the Saudis to cut production significantly to balance the market. In the medium-term, we should also assume increases in supply within OPEC, from countries such as Iran. The potential for supply outages, and low OPEC spare capacity relative to demand, implies upside price risk in the event of disruptions.
3) Oil pricing mechanism	<ul style="list-style-type: none"> Since spare capacity is low, i.e., a “normal” market, oil should price between the marginal cost of supply (\$90) and the marginal cost of demand (\$130). 	<ul style="list-style-type: none"> \$110/bbl oil incentivized non-OPEC supply growth that exceeded global demand by nearly 2 mmbpd. This extreme level of oversupply would have required an unacceptably large production cut by the Saudis in order to balance the market. Because of this near-term oversupply, marginal cost no longer represents a relevant floor to the oil price. As the shortest-cycle source of supply, US shale is now the most relevant swing producer. Marginal costs of all sources of supply are adjusting to a lower oil price, but not all cost savings are sustainable. 	<ul style="list-style-type: none"> The current market expectation is for oversupply to persist for at least the next two years. However, we believe the market will tighten faster than expected if Brent remains at – or below \$50/bbl. The Saudis will likely aim for an equilibrium where OPEC supply growth satisfies some, but not all, of global demand. The equilibrium price must incentivize supply growth from both US shale and other sources to satisfy demand growth and replace production declines. We believe the oil price will approach this equilibrium price, estimated at \$70/bbl Brent, within the next two years.

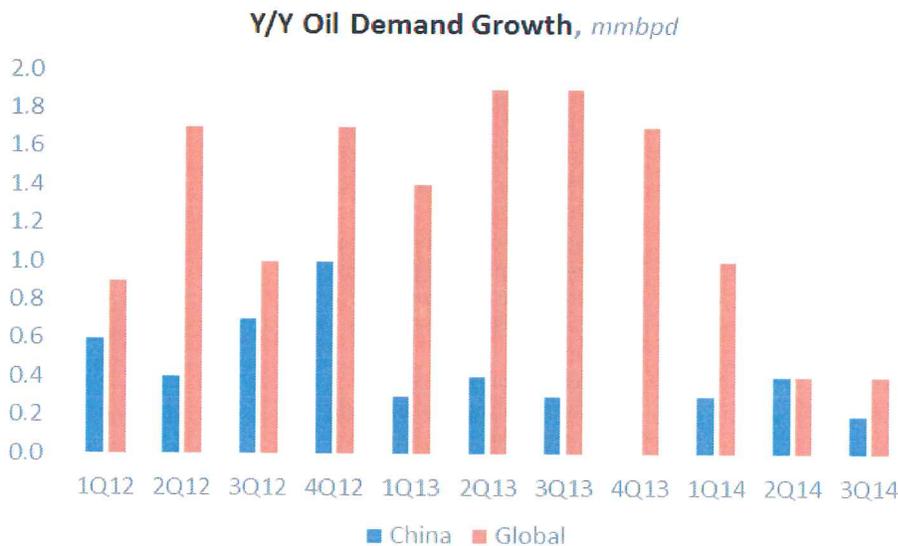
RECENT DEVELOPMENTS

As the largest OPEC producer, Saudi Arabia has historically adjusted its crude oil production to balance the global market. We estimate that the significant decrease in the “call on Saudi” production last year would have required an approximately 2 mmbpd unilateral cut in production from the Saudis to balance the market. Instead, the Saudis chose to retain market share, and let the global market reach equilibrium.



Source: International Energy Agency

We may never know the precise reason(s) for OPEC’s failure to reduce supply in 2014. However, based on expert reports, we suspect that the Saudis were highly concerned about waning global oil demand, particularly in China. With lower oil prices creating more incentive for usage, structural (rather than temporary) demand may rise.

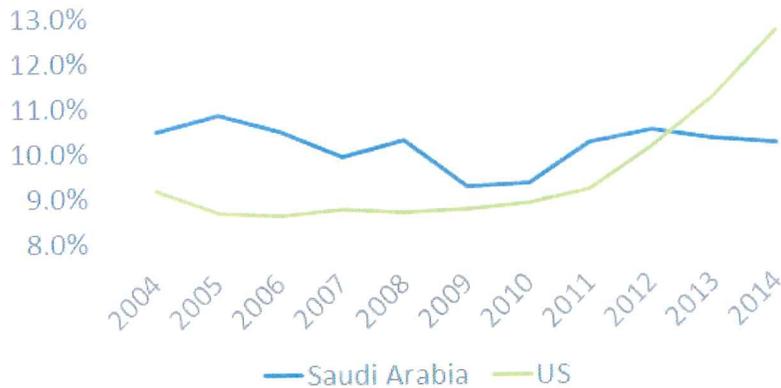


Source: International Energy Agency

Other motivation for the Saudi inaction may have come from their concern about new sources of supply. In the last two years, US shale gained a significant share of the global oil supply market at the expense of OPEC and the Saudis. An OPEC cut

supporting higher prices may have incentivized even greater volumes of shale production, leading to even further share losses to US oil & gas producers.

Share of Global Oil Production

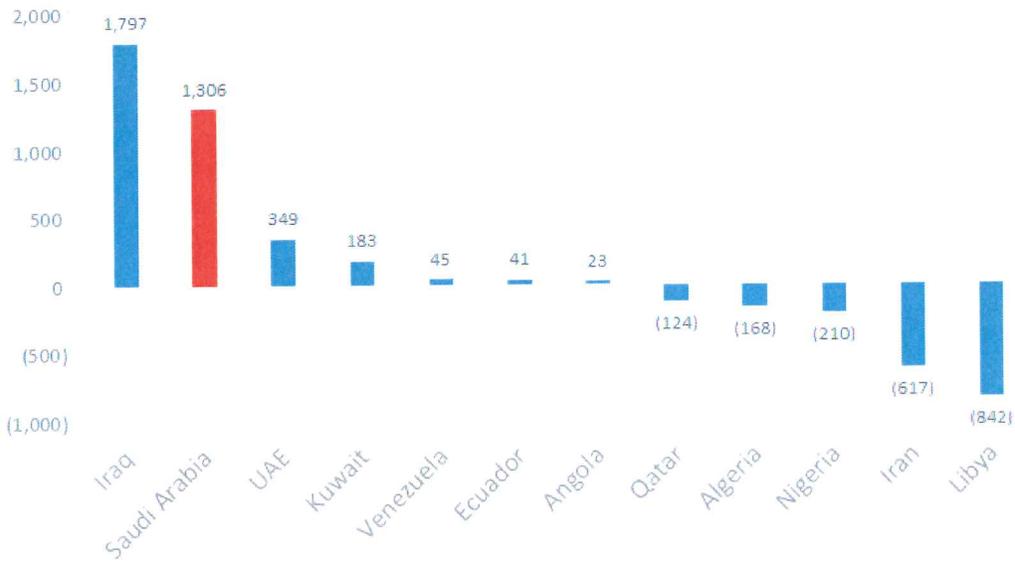


Source: International Energy Agency

We also recognize the importance of intra-OPEC compliance. In the past, the Saudis have adjusted their production in excess of their share in order to balance the oil market, while other OPEC members enjoy higher production. With Libya, Iran and several other members producing substantially less than their historical averages, the Saudis may have received considerable pressure to cut production, allowing other members to take market share.

June 2015 Production Relative to 10-year Historical Average

(kbpd)



Source: Bloomberg; each bar represents the difference between the country's June 2015 production and its 10-year historical average.

Other motivations to allow a slump in crude oil prices may include geopolitical concerns. A prolonged period of low oil prices would exacerbate the economic headwinds facing adversaries and competitors such as Iran, Russia, and ISIS, and others.

SUPPLY/DEMAND SCENARIOS

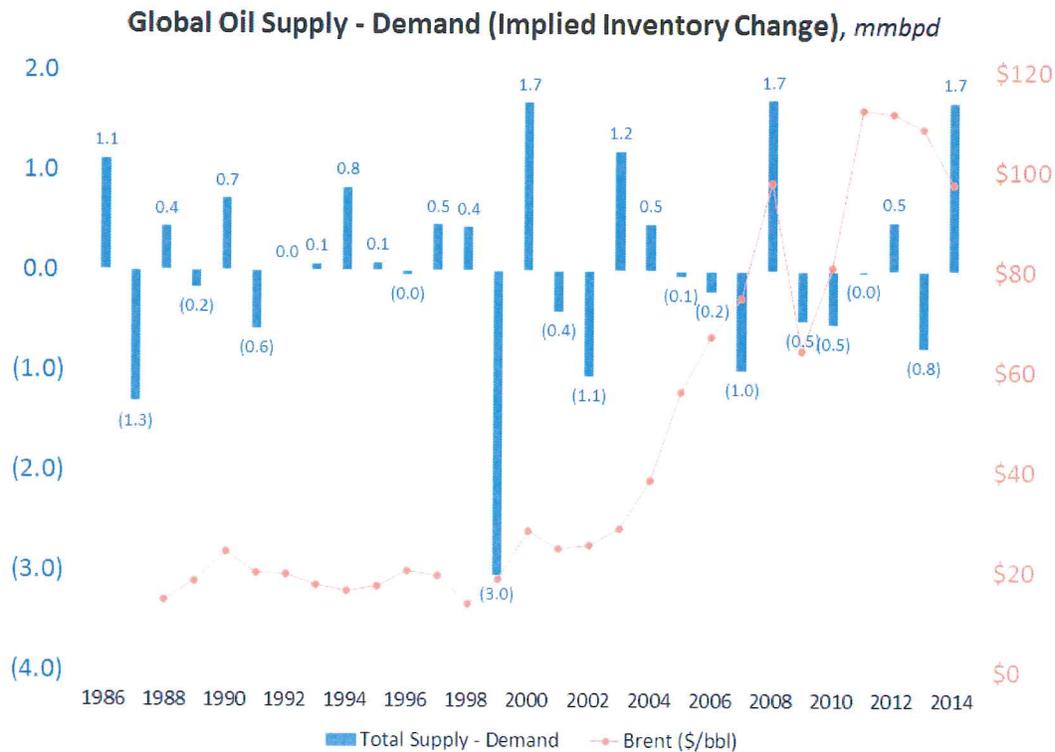
- In 2015, we expect global oil supply growth to exceed demand growth by 1.1 mmbpd, as non-OPEC grows by 1.0 mmbpd (consistent with current IEA forecasts) and OPEC and the Saudis increase production by 1.5 mmbpd (consistent with year-to-date growth through June).
- Under the current market forward curve for Brent crude oil of \$55/bbl and \$60/bbl in 2016 and 2017, we believe activity in the United States will respond to the deteriorating project returns and production will decline by 400 kbpd.

Scenario 1 - Market Forwards

	2012	2013	2014	2015E	2016E	2017E
Average Brent (\$/bbl)	\$112	\$109	\$100	\$55	\$55	\$60
Demand (mmbpd) (A)	1.8	1.3	0.7	1.4	1.0	1.0
US	1.1	1.1	1.6	0.9	(0.4)	0.0
Non-US	(0.2)	0.3	0.9	0.1	(0.3)	(0.4)
Non-OPEC	0.9	1.4	2.5	1.0	(0.7)	(0.4)
Non-Saudi	0.9	(0.7)	(0.3)	0.8	0.6	0.3
Saudi	0.5	(0.1)	0.1	0.7	0.0	0.0
OPEC	1.4	(0.8)	(0.2)	1.5	0.6	0.3
Supply (mmbpd) (B)	2.3	0.5	2.3	2.5	(0.1)	(0.1)
Supply - Demand (B - A)	0.5	(0.8)	1.6	1.1	(1.1)	(1.1)

Source: Causeway Research, International Energy Agency

- We believe that the forward curve has misjudged the likely 2016 supply/demand dynamics. As a 1.1 mmbpd inventory reduction becomes apparent, we believe the oil price will rise to reflect the rapidly tightening market. As shown below, a 1.1 mmbpd tightening of the supply/demand balance would be a very large move historically.



Source: International Energy Agency

- We believe oil prices should rise to a level that would support the market, restoring equilibrium in 2017 and beyond. We see an equilibrium scenario as demand growing 1 mmbpd coupled with 500 kbpd of US shale supply growth, flat non-US,

non-OPEC supply and 500 kbpd of OPEC supply, comprised of 200 kbpd from Saudi Arabia (maintaining/growing its market share) and 300 kbpd from other OPEC (principally Iran and Iraq).

- We estimate that \$65 West Texas Intermediate (WTI) or \$70 Brent is the price required for US shale to add 500 kbpd without stretching capital expenditures unreasonably beyond cash flow. There is likely upside to this price assumption as there may be additional higher-cost offshore barrels that need to be incentivized to offset the declining base and keep non-US, non-OPEC production flat.

Scenario 2 - Market Balance

	2012	2013	2014	2015E	2016E	2017E	Balance
Average Brent (\$/bbl)	\$112	\$109	\$100	\$55	\$60	\$65	\$70
Demand (mmbpd)	1.8	1.3	0.7	1.4	1.0	1.0	1.0
US	1.1	1.1	1.6	0.9	(0.2)	0.4	0.5
Non-US	(0.2)	0.3	0.9	0.1	(0.3)	(0.4)	0.0
Non-OPEC	0.9	1.4	2.5	1.0	(0.5)	0.0	0.5
Non-Saudi	0.9	(0.7)	(0.3)	0.8	0.6	0.3	0.3
Saudi	0.5	(0.1)	0.1	0.7	0.0	0.0	0.2
OPEC	1.4	(0.8)	(0.2)	1.5	0.6	0.3	0.5
Supply (mmbpd)	2.3	0.5	2.3	2.5	0.1	0.3	1.0
Supply - Demand	0.5	(0.8)	1.6	1.1	(0.9)	(0.7)	0.0

Source: Causeway Research, International Energy Agency

- In our downside scenario, we use the IEA's forecast for US shale growth of 300 kbpd in 2016, though we believe this forecast is a remnant of when oil prices were expected to be in excess of \$65/bbl in 2016, as it would have required a quick ramp up of the rig count in the second half of 2015, which is unlikely now with WTI below \$50.
- In this scenario, we also assume higher growth out of OPEC (perhaps Iran growing at the high end of the 500-700 kbpd forecast coupled with Iraq and other OPEC growth), which will push the market further into oversupply in 2016 and defer any price recovery by an additional year.

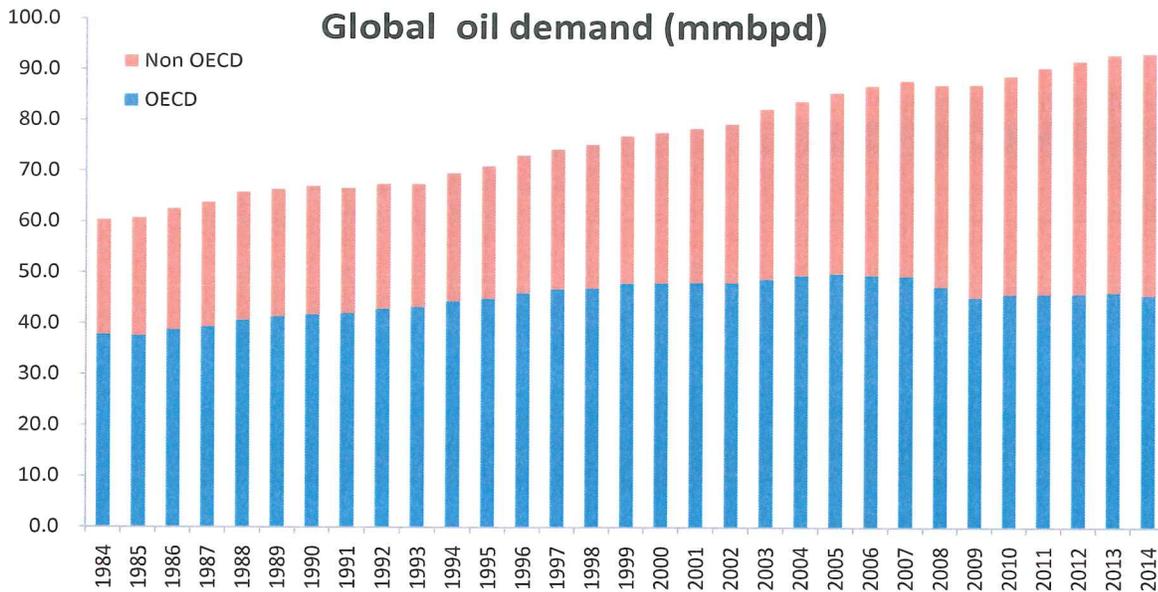
Scenario 3 - Downside

	2012	2013	2014	2015E	2016E	2017E
Average Brent (\$/bbl)	\$112	\$109	\$100	\$55	\$50	\$55
Demand (mmbpd)	1.8	1.3	0.7	1.4	1.0	1.0
US	1.1	1.1	1.6	0.9	0.3	0.0
Non-US	(0.2)	0.3	0.9	0.1	0.0	0.0
Non-OPEC	0.9	1.4	2.5	1.0	0.3	0.0
Non-Saudi	0.9	(0.7)	(0.3)	0.8	1.0	0.3
Saudi	0.5	(0.1)	0.1	0.7	0.0	0.0
OPEC	1.4	(0.8)	(0.2)	1.5	1.0	0.3
Supply (mmbpd)	2.3	0.5	2.3	2.5	1.3	0.3
Supply - Demand	0.5	(0.8)	1.6	1.1	0.3	(0.7)

Source: Causeway Research, International Energy Agency

OIL DEMAND FUNDAMENTALS

Global oil demand has grown at a steady compound annual growth rate (CAGR) of 1.4% and 1.1% in the past 30 and 10 years, respectively.

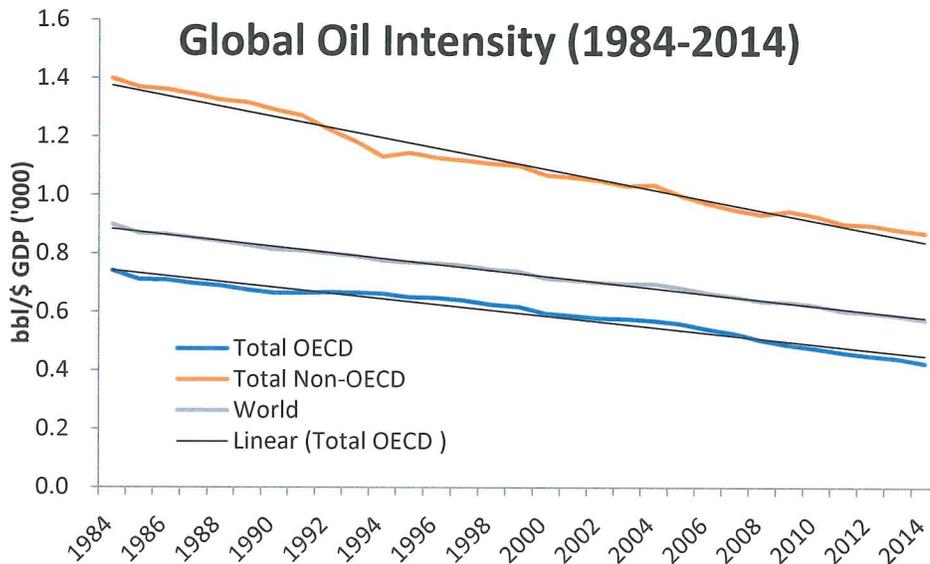


Source: International Energy Agency

Oil intensity has historically trended down at a very consistent pace

Global oil intensity¹

Oil intensity has declined moderately at a modest pace over time. Historically, oil intensity tends to be more stable in developed economies, whereas for emerging economies, depending on the stage of development, it tends to run at high levels and diminishes as the economy matures.



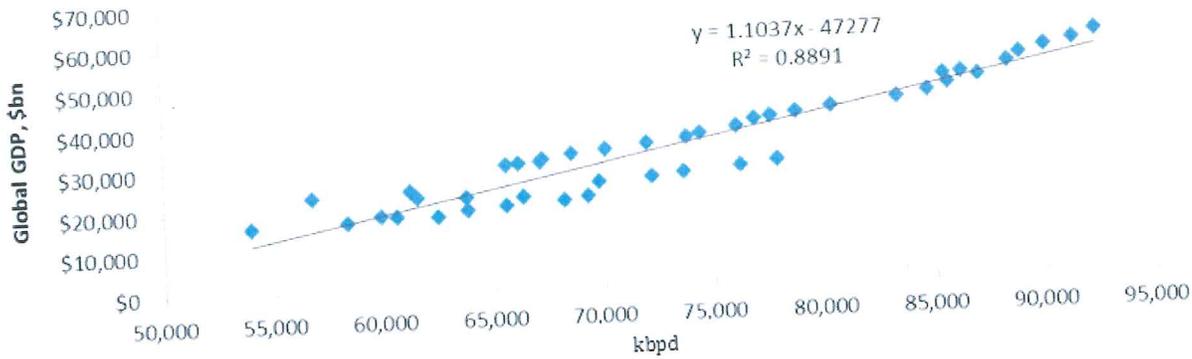
Source: Causeway Research, International Energy Agency, Goldman Sachs Research

¹ Oil demand (bbl) / Real GDP (\$)

Relationship between oil consumption and global gross domestic product (GDP)

Global oil demand is highly correlated to economic expansion. GDP growth and energy intensity of growth remain much higher in the emerging economies/markets (EM), which should continue as the middle class in those countries expands. Other factors besides GDP that drive oil demand, to a lesser extent, include the level of crude prices, the local price of gasoline and weather.

Global GDP vs. Oil Demand



Source: Causeway Research, International Energy Agency, Goldman Sachs Research

Oil demand growth varies across geographies.

Though world oil demand has grown steadily historically, there have been marked differences between oil demand growth trends of OECD and non-OECD markets. OECD growth of oil demand has been, at best, flat to a slight decline, exhibiting a 30-year CAGR of 0.6% and 10-year CAGR of -0.8%, and non-OECD demand growth has accelerated, with a 30-year CAGR of 2.5% and 10-year CAGR of 3.4%.

The key driver of oil demand growth has been transportation.

Transportation is the main source of long-term global demand growth.

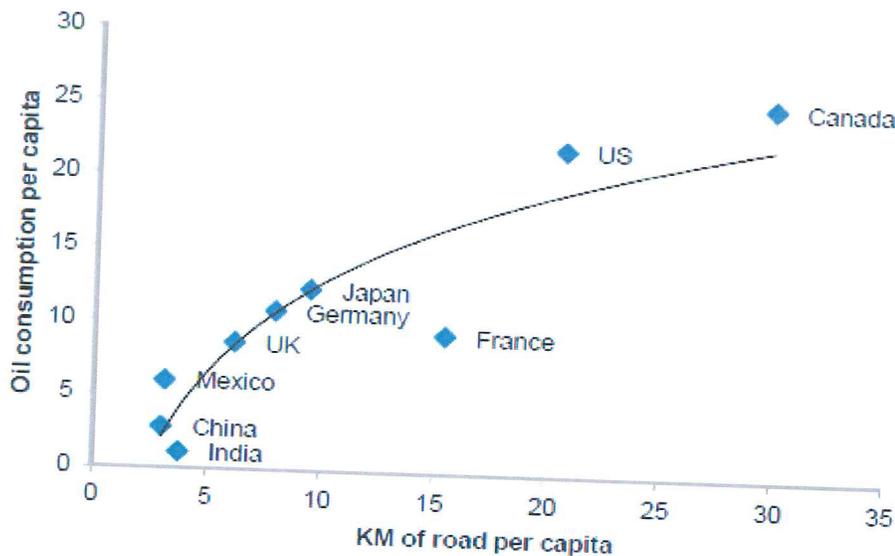
- From 1971-2012, transportation accounted for roughly 90% of demand growth, and represented 64% of total global oil demand in 2014.
- With the highest energy density of the major fossil fuels, oil products are well-suited for transport, where weight and volume are constraints.

Structural and behavioral differences between countries drive per capita consumption, perhaps more than income.

- Miles of road per capita is a very good indicator of per capita oil consumption, which does not favor North America conservation.
- Infrastructure investment and small changes in per capita consumption in Asia can have an outsized impact on global demand.

Per Capita Oil Consumption vs. Miles of Road Per Capita

(Y-axis: oil consumption per capita, x-axis: km of road per 1000 people)



Source: CIA World Factbook, IEA, Morgan Stanley Commodity Research

Transportation demand can be hard to ration without a step change in technology or substitution. Transportation remains vital for economic growth. Lower population densities and structural differences in North America make closing the efficiency gap with Europe and Japan highly unlikely.

KEY CONSIDERATIONS FOR OIL DEMAND

Key driver of growth: non-OECD, especially China

According to the IEA, non-OECD countries constituted 51% of oil demand in 2014, up from about 37% in 2000. China led global demand growth, with demand doubling from 4.6 mmbpd in 2000 to over 10 mmbpd in 2014. China represented 11% of global demand in 2014, and over the past ten years has accounted for 20% of global demand growth.

Emerging markets should continue to drive demand growth in the future:

- EM per capita consumption remains low, especially in China and India² and incomes are rising.
- GDP growth and energy intensity of growth (GDP multiplier) remain much higher in EM, which should continue as the middle class expands.
- Growth is coming off a large base, providing more per barrel growth even if growth rates slow in percentage terms.
- The mix of product demand growth may be shifting to more crude oil-intensive uses.

Sensitivity to Non-OECD and Chinese economic weakness

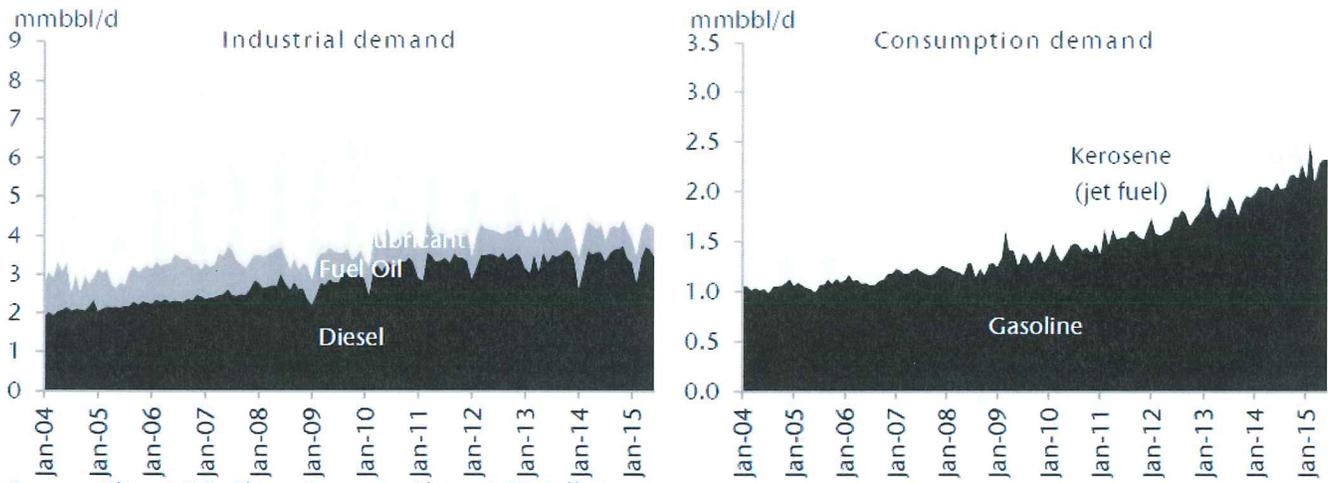
The IMF's expectation for real GDP growth in developing economies is expected to be in the range of 4.7%-5.3% from 2015 to 2020. For China, the range is 6-7% for the respective period. Again, applying the GDP multiplier of 0.5, a 1 percentage point drop in non-OECD economies as a whole would result in a decline of 245 kbpd. If Chinese GDP were to decline by 1 percentage point, oil demand in China would likely shrink by 50 kbpd.

However, we believe the latest data will show that non-OECD and Chinese end demand for crude oil remains robust and is above our estimated run rate, despite a consensus bleak view on the economy.

As China's economy rebalances toward services (from manufacturing and construction) and consumption (from investment), new patterns of resource consumption develop. Diesel demand increased 1.3% year-over-year in the first half of 2015, in line

² India oil demand was less than half of China at 37% in 2014.

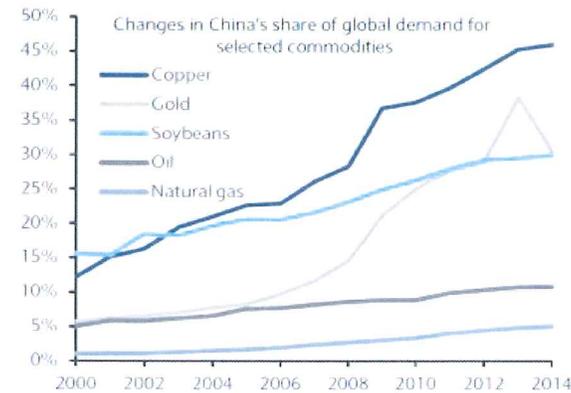
with electricity demand and decoupled from GDP growth. In 2013 and 2014, diesel consumption growth was -0.1% and 1.5%. Chinese gasoline and kerosene demand, on the other hand, increased 12.1% and 17.4% respectively. Chinese gasoline consumption has grown at an annual rate of approximately 10% since 2011.



Source: China NBS, China Customs, China OGP, Jefferies

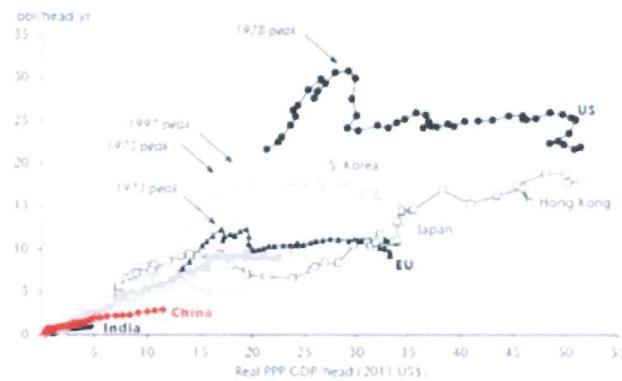
The following chart also demonstrates that relative to other commodities, oil has not enjoyed the same magnitude of Chinese growth, following a steadier path associated with changes in consumption, rather than investment. Following the maturation path of other countries, China has just started in terms of oil consumption intensity per unit of economic output.

China's share of global demand for many important commodities has soared in the past decade



Source: USDA, BP, Woodmac, WGC, CRU, Barclays Research

Oil consumption intensity vs. Per capita PPP GDP, 1965-2013

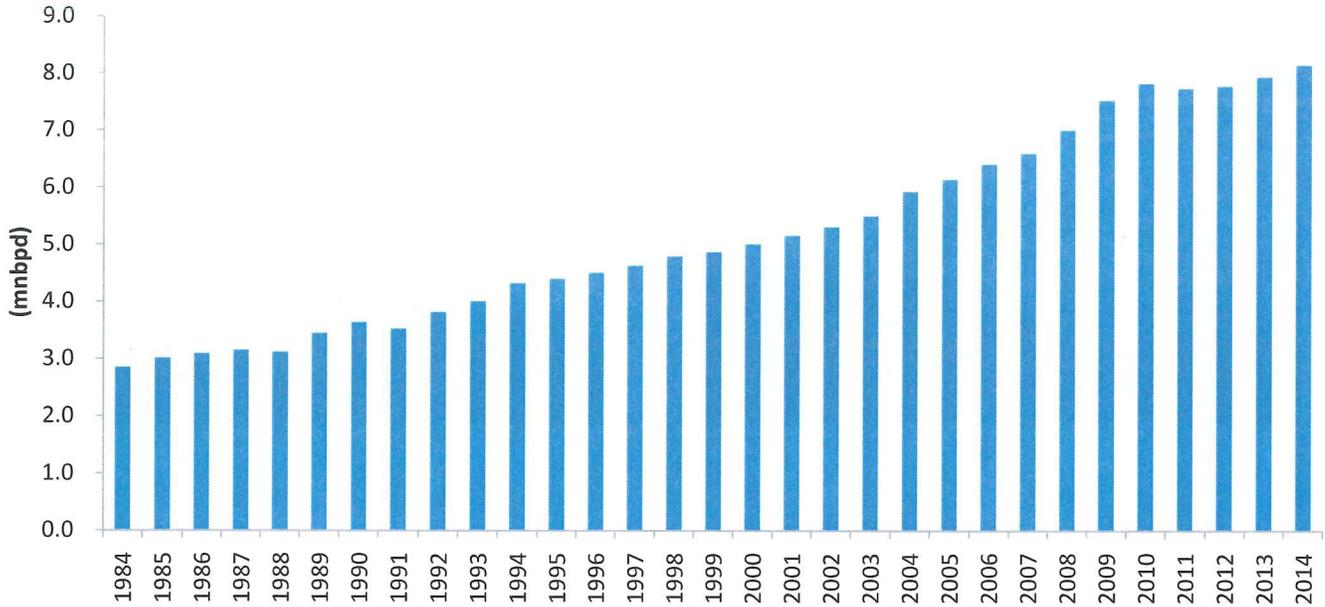


Source: World Bank, BP, Jefferies

Middle East oil demand growth

The Middle East comprised 9% of global oil demand in 2014, and has expanded at a 30-year CAGR of 3.6% and at a 10-year CAGR of 3.2%. As an exporting region, the Gulf States have domestic growth closely linked to commodity price levels, and domestic population growth, rather than price, drives oil demand. In a major oil exporting nation, demand elasticity to oil price is subject to distortion from massive subsidies resulting in inefficient use of oil.

Middle East Oil Demand



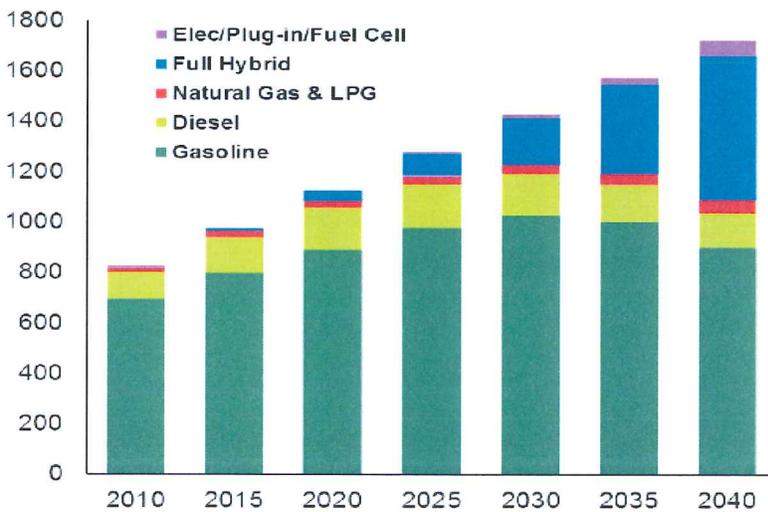
Source: International Energy Agency

Impact from increase in fuel efficiency

ExxonMobil's forecast this year of fleet mix in the longer term shows that combustion engine technology will ultimately cede share, but will not decrease in absolute terms until 2035.

Fleet by Type

Million



Source: ExxonMobil

In the US market, electric vehicles (EVs) in 2015 comprised 0.07% of the car fleet, representing 0.4% of new car sales. If EVs were to take up 10% market share of new car sales, this could lead to a 50 kbpd loss of oil demand the first year (loss of -0.6% of oil demand). Even with a 10% market share in new car sales, it would only represent 0.7% of the fleet in the first year. Hybrids represent 1.6% of the fleet and 2.4% of new car sales. The twelve month moving average of hybrids as a percentage of new car sales peaked 3.5% in the fall of 2013, and has fallen to 2.6% in June 2015. EV sales are rising, but remain immaterial in number to change the fleet composition.

Fuel Efficient Vehicle U.S. Sales Share

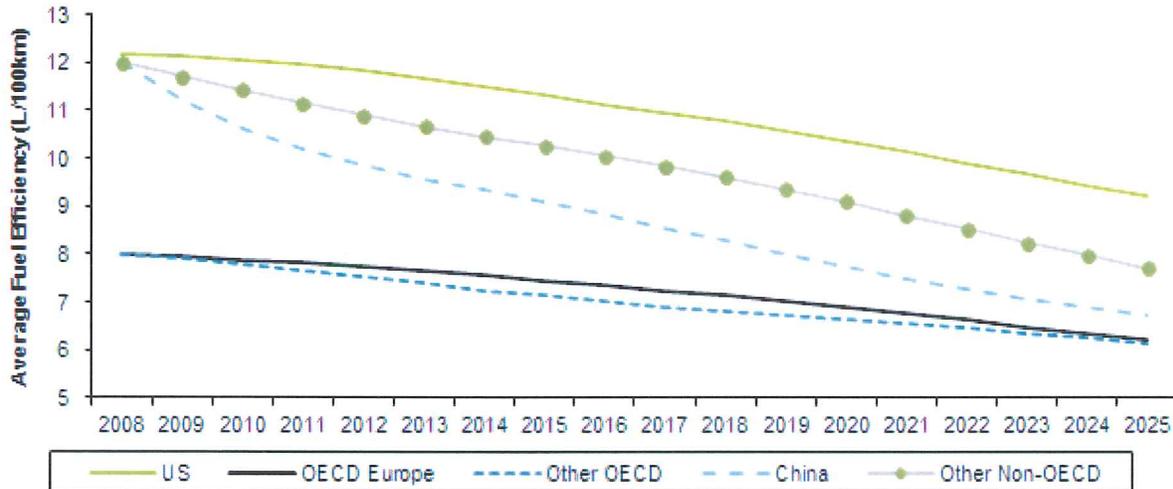


Source: WardsAuto

In order to assess the impact of more stringent Corporate Average Fuel Economy (CAFE) standards, we made the following assumptions:

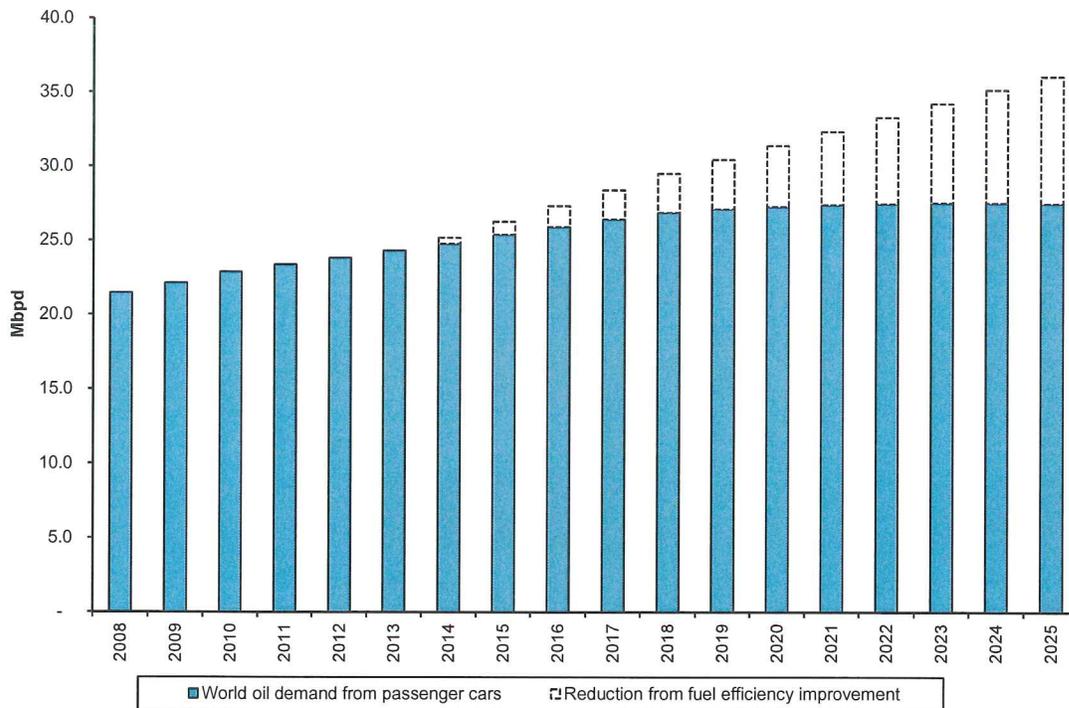
- Efficiency stays the same until the day the vehicles are scrapped. When new vehicles are added to the fleet, they are compliant with the year's CAFE standard (and with actual fuel efficiency of approximately 72% of CAFE standard). For the United States, proposed improvement in fuel efficiency is around 4.1% per annum from 2015 to 2025.
- Scrappage of 6% .

The trend of fuel efficiency over time is as follows:



Source: Bernstein Research

- Without fuel efficiency improvements, world oil demand from passenger cars would rise to 36.1 mmbpd by 2025



Source: Bernstein Research

Oil demand price elasticity

Oil price elasticity appears highest in the United States and in emerging Asia as consumption changes in response to price.

In the United States, a 10% change in gasoline prices over less than 12 months has resulted in a 0.5% change in gasoline demand. Over periods longer than a year, a 10% change in gasoline prices results in a 4% change in gasoline consumption. Given that a 10% change in crude prices results in a 5% change in the price of gasoline at the pump (adjusting for refining, distribution, sales, and taxes), this suggests a short-run elasticity of 0.25% (0.5% x 0.5) and a long-run elasticity of 2% (4% x 0.5) in gasoline consumption to a 10% change in crude prices. With gasoline accounting for about 28% of global demand, then the short- and long-run elasticity of global oil demand to a 10% change in crude prices should be c. 0.1% (0.25 x 0.28) and c. 0.5% (2% x 0.28), respectively. For example, a 50% fall in crude prices would be expected to boost global demand by 0.5% in the short run and 2.5% in the long run based on this data.

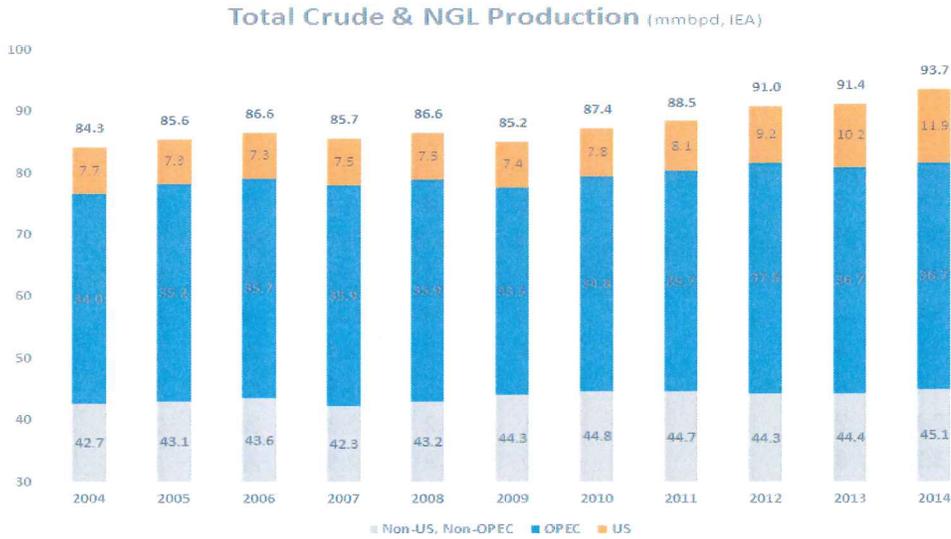
It is worth noting that in the first half of 2015, the strongest area of demand growth came from emerging Asia, specifically China and India, largely in response to low prices. This demand response may, in fact, exhibit just the characteristics that OPEC intended by keeping supply abundant.

INVENTORY LEVELS

OECD days of supply and inventories were a good price signal historically, especially when viewed over longer time periods. However, OECD stocks are now becoming less effective as the non-OECD countries take greater market share. This shifts inventories to regions with opaque data. Revisions are common and result in large miscellaneous-to-balance (i.e. “missing barrels”) terms in IEA balances. Oil supply outpaced demand by 3.3 mmbpd in the second quarter 2015, on data supplied by the International Energy Agency, the largest imbalance since the second quarter of 1998. However, OECD inventories built by less than half of that, leaving 167 million bbl of global crude oil barrels to be allocated to emerging countries, or “missing barrels.” Historically, most of the missing barrels have come from the IEA underestimating oil demand.

SUPPLY OUTLOOK

- We divide total global oil production into three broad categories: 1) US, 2) OPEC, and 3) Non-US, Non-OPEC. Since 2010, the United States has dominated global growth as production surged from under 8 mmbpd to nearly 12 mmbpd.
- Meanwhile, OPEC production has been largely stable in the 35-37 mmbpd range and Non-US, Non-OPEC production has held about flat at 45 mmbpd.



Source: International Energy Agency

Global Oil Production

mmbpd

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Saudi Arabia	9.2	8.9	8.5	8.9	7.9	8.1	9.0	9.5	9.4	9.5
Iraq	1.8	1.9	2.1	2.4	2.4	2.4	2.7	3.0	3.1	3.3
Iran	3.9	3.9	4.0	3.9	3.7	3.7	3.6	3.0	2.7	2.8
Angola	0.0	0.0	1.7	1.9	1.8	1.7	1.6	1.8	1.7	1.7
Libya	1.6	1.7	1.7	1.7	1.6	1.6	0.5	1.4	0.9	0.5
Other	13.4	13.3	13.4	12.5	11.3	12.0	12.5	12.7	12.7	12.5
OPEC Crude Oil	29.8	29.7	31.4	31.2	28.7	29.5	29.9	31.3	30.5	30.3
OPEC NGLs	4.2	4.6	4.5	4.7	4.8	5.4	5.8	6.2	6.3	6.4
Total OPEC	34.0	34.3	35.9	35.9	33.5	34.8	35.7	37.5	36.7	36.7
United States	7.3	7.3	7.5	7.5	7.4	7.8	8.1	9.2	10.2	11.9
Russia	9.6	9.8	10.1	10.0	10.2	10.5	10.6	10.7	10.8	10.9
Norway/UK	4.8	4.4	4.2	4.0	3.9	3.5	3.2	2.9	2.7	2.8
Canada	3.1	3.2	3.3	3.3	3.2	3.4	3.5	3.8	4.0	4.3
Brazil	2.0	2.1	2.2	2.4	2.0	2.1	2.2	2.2	2.1	2.4
Mexico	3.8	3.7	3.5	3.2	3.0	3.0	2.9	2.9	2.9	2.8
China	3.6	3.7	3.7	3.8	3.9	4.1	4.1	4.2	4.2	4.2
Other	16.2	16.7	15.3	16.6	18.1	18.3	18.2	17.6	17.7	17.8
Non-OPEC, Non-US	43.1	43.6	42.3	43.2	44.3	44.8	44.7	44.2	44.4	45.1
Total Global Production	84.4	85.3	85.7	86.6	85.2	87.4	88.5	90.8	91.4	93.7

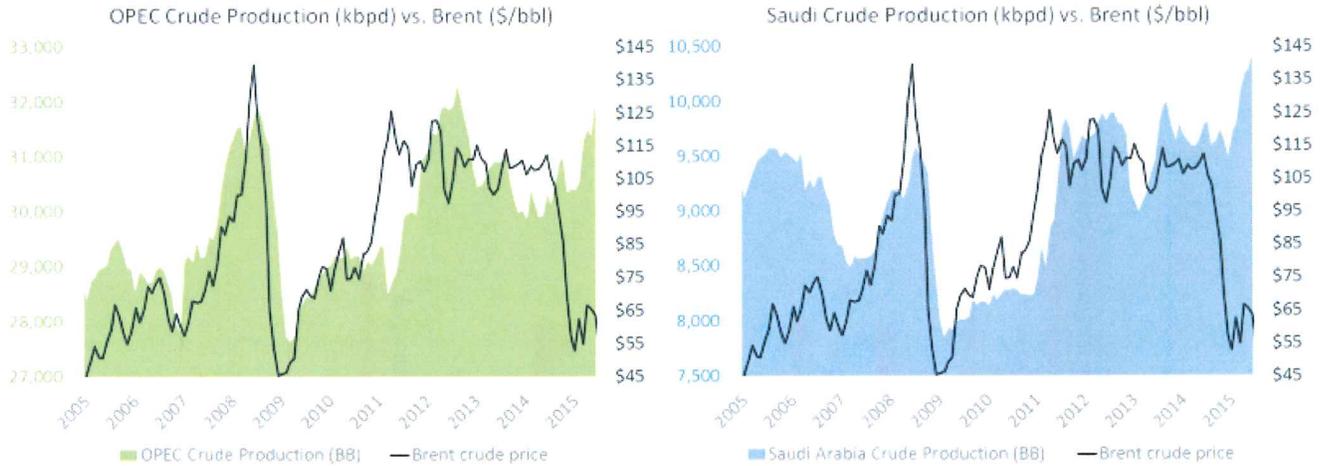
Annual Change

Saudi Arabia	0.4	(0.2)	(0.4)	0.4	(1.0)	0.2	0.9	0.5	(0.1)	0.1
Iraq	(0.2)	0.1	0.2	0.3	0.1	(0.1)	0.3	0.3	0.1	0.3
Iran	(0.1)	0.0	0.1	(0.1)	(0.2)	(0.0)	(0.1)	(0.6)	(0.3)	0.1
Angola	0.0	0.0	1.7	0.2	(0.1)	(0.0)	(0.1)	0.1	(0.1)	(0.1)
Libya	0.1	0.1	0.0	0.0	(0.2)	0.0	(1.1)	0.9	(0.5)	(0.4)
Other	0.5	(0.1)	0.2	(0.9)	(1.2)	0.7	0.5	0.1	0.0	(0.2)
OPEC Crude	0.8	(0.1)	1.7	(0.1)	(2.6)	0.8	0.4	1.4	(0.8)	(0.2)
OPEC NGLS	0.3	0.5	(0.1)	0.1	0.1	0.5	0.4	0.4	0.1	0.1
Total OPEC	1.0	0.3	1.5	0.0	(2.4)	1.3	0.9	1.8	(0.7)	(0.1)
US	(0.3)	0.0	0.1	0.0	(0.1)	0.3	0.4	1.1	1.1	1.6
Russia	0.3	0.2	0.2	(0.1)	0.2	0.2	0.2	0.1	0.1	0.1
Norway/UK	(0.4)	(0.4)	(0.2)	(0.2)	(0.1)	(0.3)	(0.4)	(0.3)	(0.1)	0.0
Canada	(0.0)	0.1	0.1	(0.1)	(0.0)	0.2	0.1	0.2	0.3	0.3
Brazil	0.2	0.1	0.1	0.2	(0.3)	0.1	0.0	(0.0)	(0.0)	0.2
Mexico	(0.1)	(0.1)	(0.2)	(0.3)	(0.2)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)
China	0.1	0.0	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.0
Other	0.6	0.9	(1.5)	1.4	1.7	0.7	0.4	(0.3)	0.2	0.3
Non-OPEC, non-US	0.7	1.0	(1.4)	1.0	1.3	1.1	0.3	(0.2)	0.3	0.9
Total Global Production	1.1	0.9	0.4	0.9	(1.4)	2.2	1.1	2.3	0.5	2.3

Source: International Energy Agency

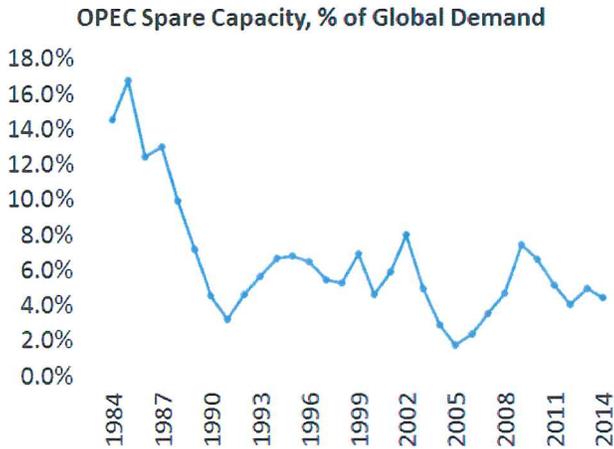
Supply: OPEC

OPEC is a 12-member organization whose members coordinate production to ensure that the oil market remains in balance within a particular price band. OPEC was originally created in 1960 by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela.



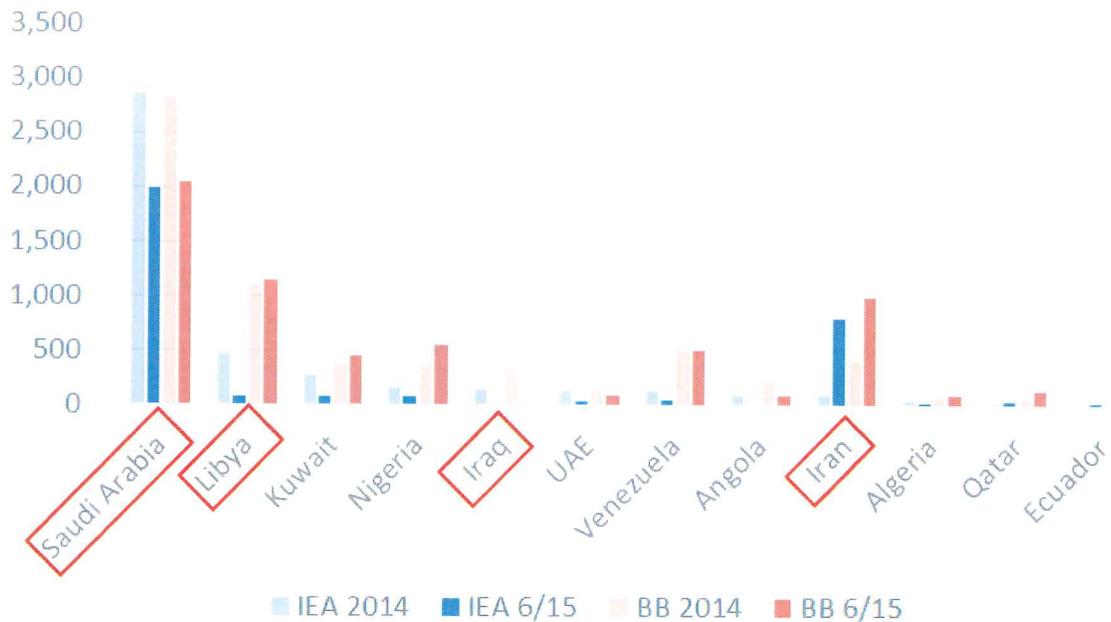
Source: Bloomberg

- To sustain high oil prices, OPEC has historically utilized a quota system to ensure that excess supply or *spare capacity* was withheld from the market. Over the past 20 years, OPEC has acted to reduce quotas after price declines in order to prop up prices, with varying degrees of success. The current production quota of 30 mmbpd has been in place since 2012.
- For the past decade, OPEC spare capacity has been closely watched due to the relationship between spare capacity (relative to global demand) and the global oil price; when spare capacity is low, the oil price has generally been higher (at or above marginal cost).

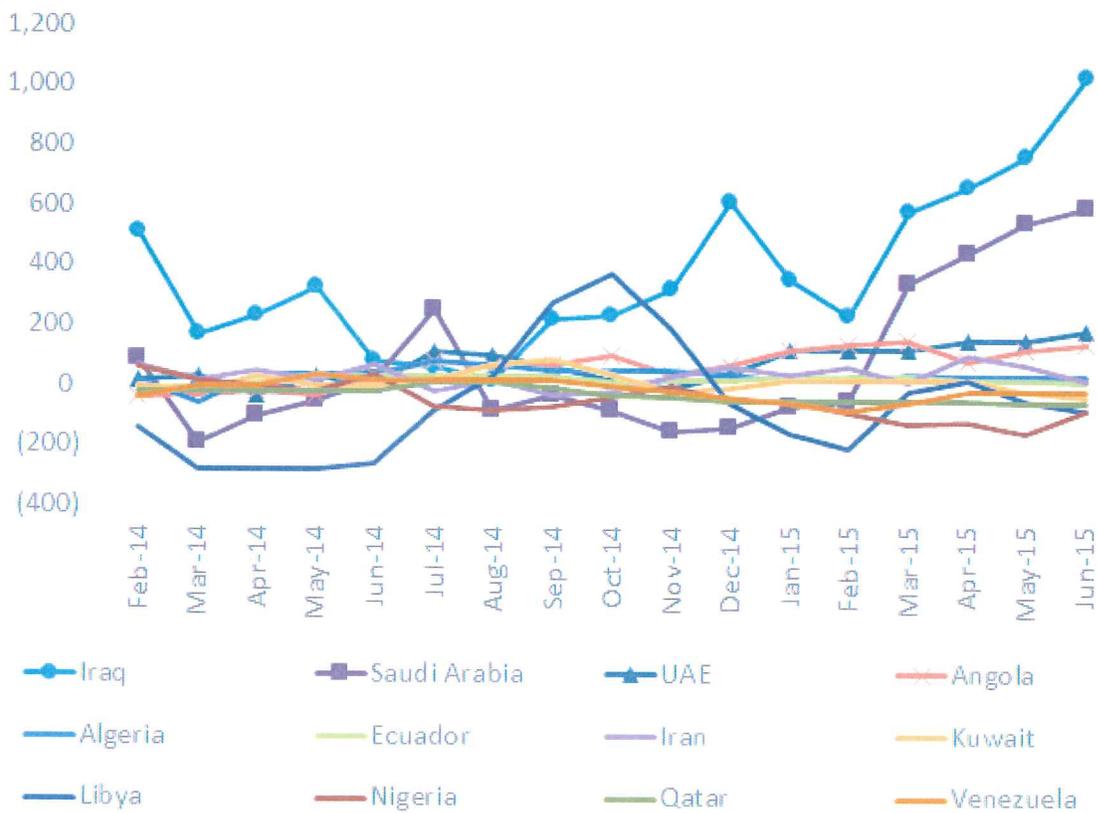


Source: Bernstein Research, International Energy Agency

OPEC Spare Capacity Estimates, IEA vs. Bloomberg (kbpd)

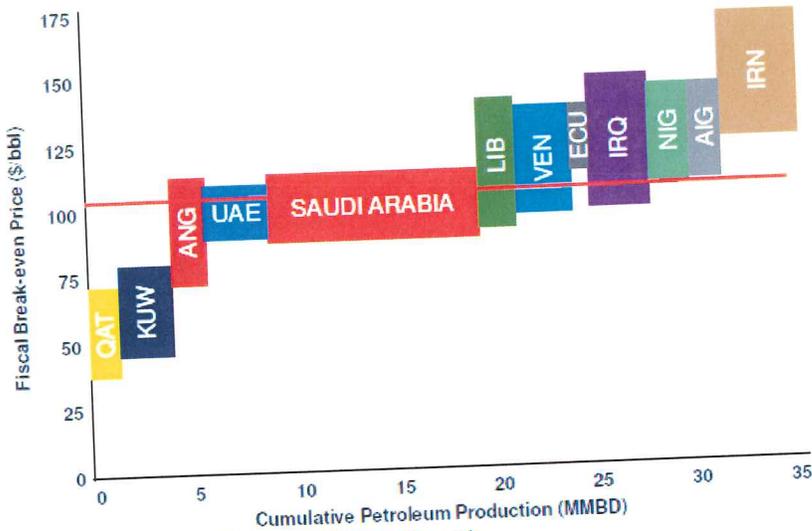


OPEC: Cumulative Production Change since Jan '14 (kbpd; IEA)



Source: International Energy Agency

- The economies of the OPEC member countries are highly dependent on oil export revenues. Nearly half of OPEC's production comes from countries which require an oil price over \$100 in order for their budgets to break even.
 - The notion that OPEC countries *have* to have higher oil prices is incorrect, as they can run debt-funded budget deficits and constrain spending, but it is clear that these countries are impacted greatly by oil prices and would *like* to have higher oil prices.



Source: IMF, ARICORP, Evercore ISI Energy Research

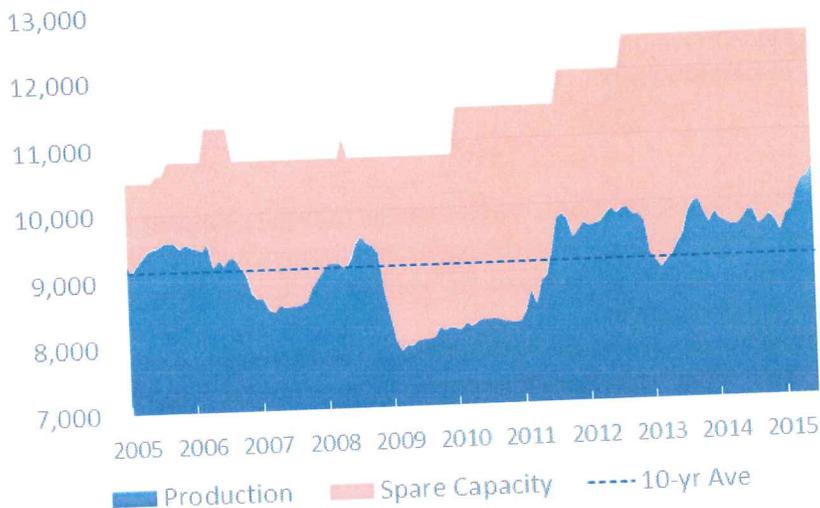
$$P = \alpha^{-1}(\text{EXP} - \text{NHFR} + yC) / (xQ + yE)$$

Oil export price required = price dislocation factor (govt expenditures - non-oil fiscal revenues + hydrocarbon taxation x oil industry costs) / (oil royalty rate x oil production + oil taxes x exports)

Saudi Arabia

- Saudi Arabia is the largest and most important member of OPEC, with over 10 mmbpd of crude production (about a third of the OPEC total); about 25% of production is exported. Importantly, Saudi Arabia also controls the majority of OPEC spare capacity (see previous chart).
- 6 mmbpd of Saudi's production comes from a single field, Ghawar, which is the largest oil field in the world.

Saudi Arabia Crude Production (kbpd)

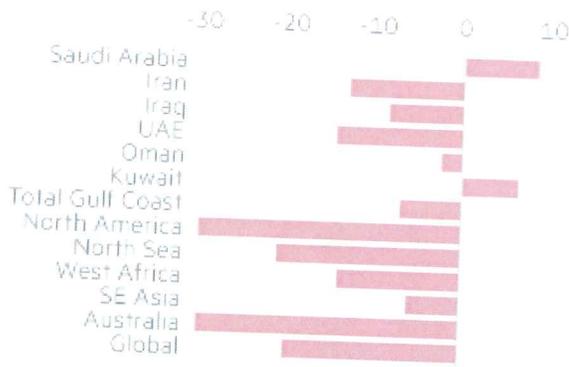


Source: Bloomberg

- Saudi Arabia is currently estimated to have about 2 mmbpd of spare capacity, which is not high historically (see below). We understand from industry experts that despite the 12 mmbpd headline capacity number, 11 mmbpd is very close to a functional ceiling and even current production levels of around 10.5 mmbpd could be very strained in terms of Saudi Arabia's ability to produce without damaging their fields. In the past, Saudi Arabia has declared a policy of having at least 1.5-2 mmbpd of spare capacity on hand in case of potential crises that reduce oil supplies.

Oil and gas investments in 2015

Estimated yearly change in exploration and production spending



Source: Rystad Energy

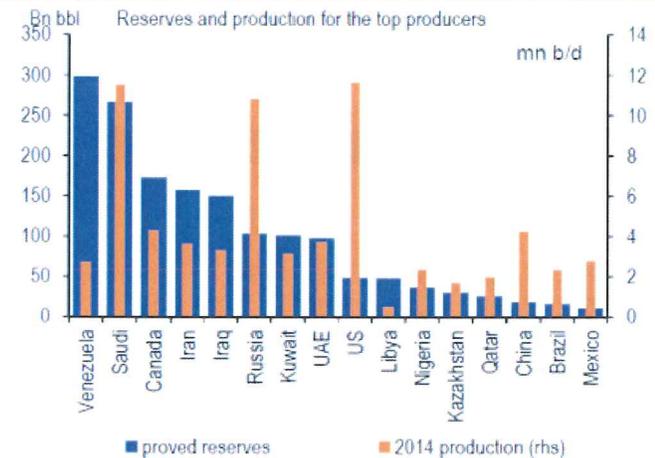
- The massive increase in Saudi Arabia's rig count in 2013, which was not accompanied by a corresponding increase in production, led to speculation that it was becoming increasingly difficult to maintain stable output from existing wells. In 2012, Saudi launched a \$35 bn 5-year exploration and production investment plan, but this was explicitly meant merely to sustain current capacity at 12.5 mmbpd.
- In the mid-2000s, Saudi Aramco considered a 15 mmbpd target to meet global demand, but these plans were later shelved and the government declared that it considered 12.5 mmbpd capacity sufficient through 2020. The most recent major project was the 900 kbpd offshore heavy crude field Manifa, but this project served to offset declines elsewhere as opposed to increasing total capacity. Manifa cost \$17 bn and the country had to wait six years from sanction to first oil.
- In the medium-term, Saudi capacity has the potential to move even higher with the addition of the 250 kbpd Shaybah expansion by April 2016, as well as new technology implementation which could boost production by over 100 kbpd by reactivating the Dammam field.
- Saudi Aramco highlights in its 2014 Annual Review that its exploration program discovered eight new fields in 2014, the most in its history, and these discoveries represent progress toward the long-term goal of growing the resource base. Saudi's reserve base has been flat at 260 bn barrels for the past five years.

Iran

- Iran used to be the fourth-largest oil producer in the world behind Saudi Arabia, Russia and the US. Production fell significantly in 2012 due to the impact of US-led sanctions, which shut out the participation of Independent Oil Companies (IOCs). The primary IOCs were Eni and Statoil, and Iran limited exports to 1 mmbpd. (In reality, exports have been as high as 1.2 mmbpd; top importers include China, South Korea, Japan and India.)
- With the increasing likelihood of Iran sanctions lifted this summer, we expect 500-700 kbpd to return to the market at some point between year-end 2015 and the first half of 2016. While Iran claims they can add as much as 1 mmbpd within a few months, experts generally agree that given the lack of investment over the past few years, a ramp up will be challenging and time-consuming. Considering pre-sanctions production of 3.6 mmbpd in 2011 and a natural decline in capacity that would come with lowered investments, many believe that Iran's true capacity today is less than the 3.3-3.5 mmbpd implied by the 500-700 kbpd estimate. Others expect that beyond the initial 700 kbpd increase, a further 300 kpd increase could be gradually reached by 2020 with some further investment by IOCs.

- There could be near-term upside risk to the 500-700 kbpd estimate, depending on how much of the Iranian oil in storage (rumored to be 30 mmbpd floating, 20 mmbpd onshore) comes to market. While storage wouldn't be emptied entirely, a worst-case scenario of 50 mmbpd of oil in storage released over six months would represent nearly 280 kbpd of incremental supply over that six-month period.
- In the longer-term, Iran may be capable of ramping production back up to close to 4 mmbpd by the end of the decade with incremental investment from IOCs. However, there would be a long lead time for new investments; it typically takes ten or more years from the start of a licensing round to first production.

With 158 billion of barrels of proved reserves, Iran has the world's 4th largest proved oil reserves



Source: IEA, Woodmac

Iraq

- Iraq is the second-largest OPEC producer and has matched Saudi Arabia's growth of 700 kbpd since the November OPEC meeting. For over a decade, Iraq has not been subject to a formal OPEC quota; this is not expected to change before 2017.
- Of Iraq's 4 mmbpd production, 3 mmbpd comes from the giant southern oil fields (key asset Rumaila field), 500 kbpd is from the north (Kirkuk) and 500 kbpd is from the autonomous region of Kurdistan. Kurdistan production capacity has the potential to increase by another 500 kbpd over the next decade, though conflict with Iraq will limit near-term export capacity.
- Iraq is expected to be a steady source of production growth within OPEC, adding 300-400 kbpd per year.

Libya

- Libya oil production was between 1.5-1.7 mmbpd for the 20-year period leading up to the 2011 civil war. In 2011, production slipped to nearly zero after the abandonment of production facilities and exodus of foreign workers.
- Despite recovery to 1.6 mmbpd in 2012, production has ranged between 200-800 kbpd for the past year and a half due to continued security issues, as the long-running conflict between the country's two rival governments has forced a halt to operations at strategic fields and terminals.
- Libyan production is expected to ramp up by 80-200 kbpd following the lifting of force majeure at the Ras Lanuf terminal in July. Longer-term, if/when the civil conflict is resolved, Libya will be a source of upside production risk as it returns to the historical 1.2 mmbpd level.

Other OPEC Members

- Angola (1.6 mmbpd) is set to grow by 50-75 kbpd per annum in 2018-2020 due to large startups like Block 32 Kaombo, but will decline modestly in 2015-2017 as startups are insufficient to offset the steep decline (production is 100% offshore, 75% deepwater or ultra-deepwater).
- Venezuela (2.4 mmbpd) and Nigeria (1.8 mmbpd) are member nations that constitute a significant portion of supply, yet represent potentially politically unstable regions that could suffer outages.

Supply: United States

Summary

As of the second quarter of 2015, the United States produced 9.7 mmbpd of crude oil (as reported by the IEA) and another 3.3 mmbpd of natural gas liquids (NGLs) for a total of 13.0 mmbpd (as reported by the IEA). As shown in the table below, approximately 5 mmbpd is from shale (tight/unconventional), of which over 90% is from the Big 3 shale areas: the Bakken, Eagle Ford and Permian.

U.S. Crude Oil Production (kb/d)

	2007	2008	2009	2010	2011	2012	2013	2014	1Q15	2Q15
Bakken	138	182	229	321	432	686	891	1,115	1,227	1,237
Eagle Ford	54	55	52	85	265	627	1,043	1,445	1,682	1,676
Permian: Vertical	849	850	842	870	925	992	1,024	1,068	1,039	999
Permian: Horizontal	0	22	37	64	116	199	325	571	992	949
Permian	849	875	880	923	1,018	1,191	1,350	1,640	1,968	2,031
Total Key Basin Production	1,042	1,112	1,161	1,329	1,715	2,504	3,283	4,200	4,877	4,944
Niobrara	125	133	133	144	165	201	265	377	458	447
Oklahoma	175	184	183	189	209	254	311	340	353	351
Other Unconventional Production	300	317	316	333	375	455	576	717	811	798
Alaska	722	683	646	600	562	526	515	496	503	492
California	599	586	567	551	532	539	545	560	567	567
Other U.S. Onshore	1,065	1,080	1,037	1,057	1,088	1,157	1,235	1,295	1,243	1,276
Offshore U.S.	1,350	1,222	1,622	1,613	1,371	1,315	1,306	1,447	1,476	1,503
Total U.S.	5,077	4,999	5,349	5,483	5,643	6,496	7,460	8,714	9,476	9,579
<i>o/w: shale (tight/unconventional)</i>	492	579	635	791	1,165	1,967	2,835	3,849	4,649	4,743
Y/Y Change		(78)	350	133	161	853	964	1,254	1,335	962

Source: Energy Information Administration

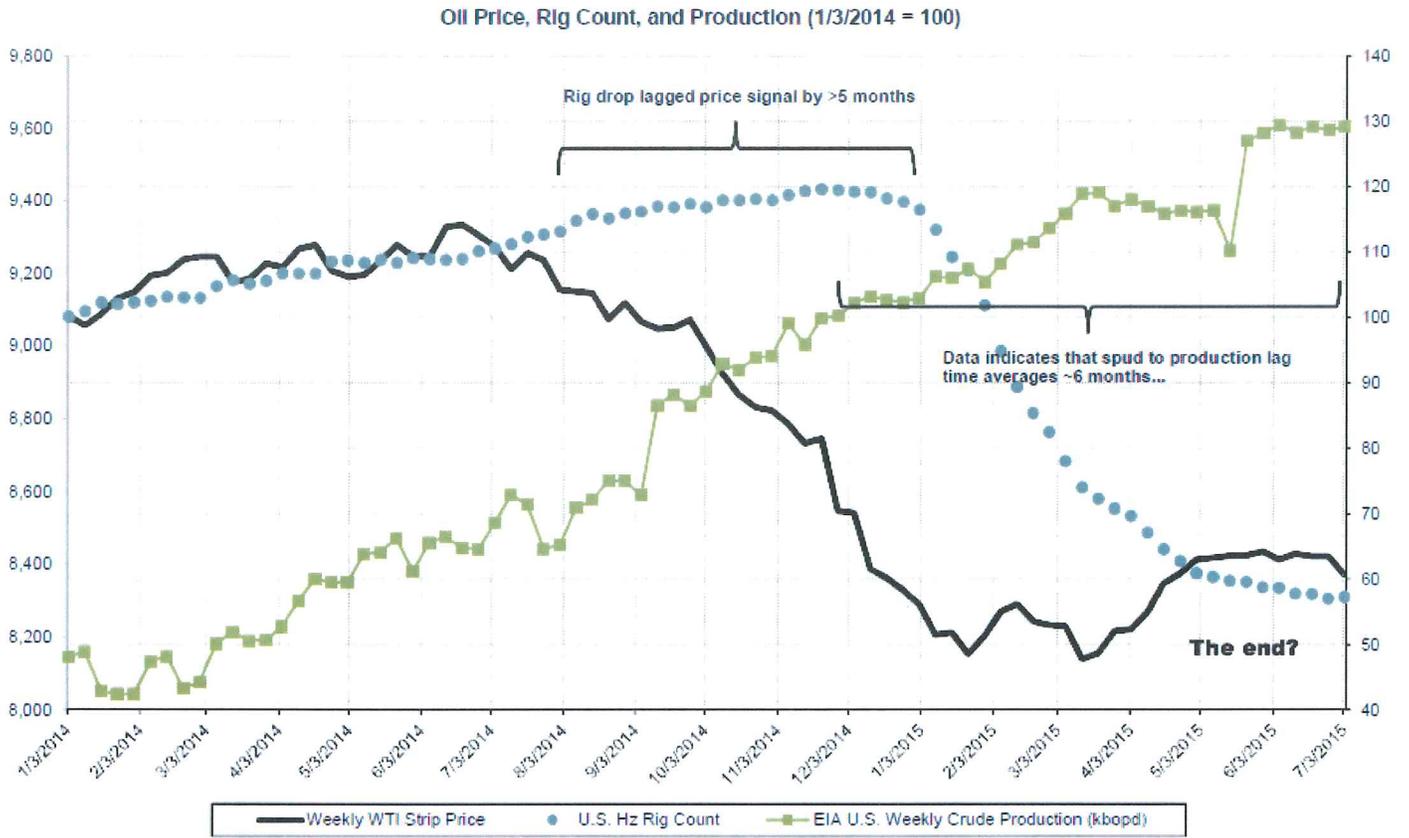
2015 YTD

In response to the drop in oil prices, the US rig count plummeted from over 1,900 in the fourth quarter of 2014 to under 900 as of July 2015. Of this amount, 650 are oil rigs; we further estimate that about 440 of these are horizontal rigs targeting shale oil production (the Baker Hughes data below classifies rigs as horizontal or oil separately, but does not specifically classify horizontal rigs targeting oil).

Using alternate data compiling the horizontal rig count for the four major shale oil basins, we see a similar decline of approximately 50% from the fourth quarter of 2014 to the second quarter of 2015, with every basin participating in the dramatic reduction.

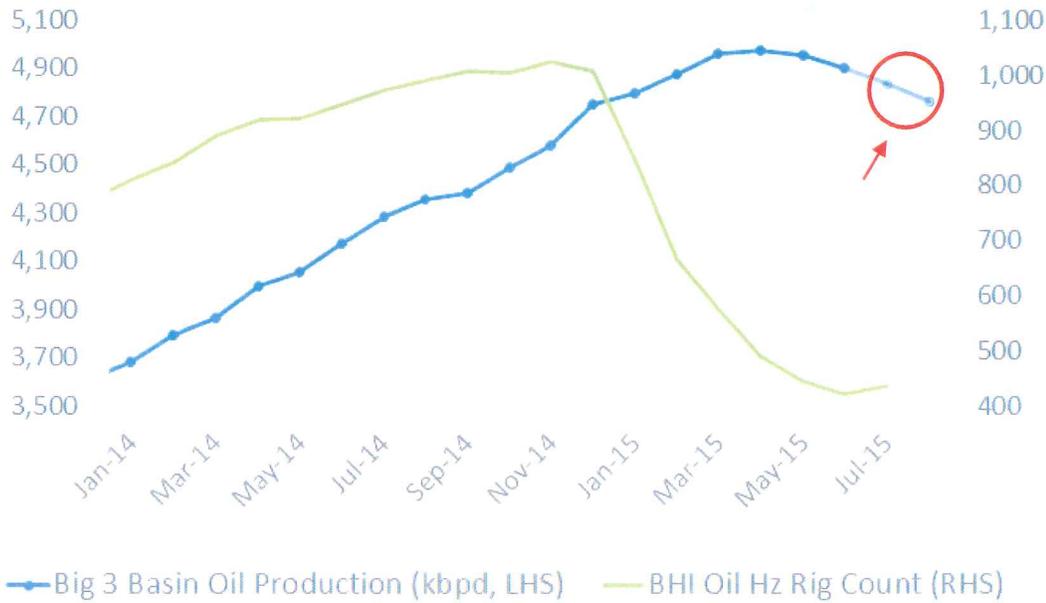
However, despite the significant decline in rig count, shale oil production has yet to decline, as shown below.

The supply response to price can take ~12 months



Source: EIA; Bloomberg; HPDI; Baker Hughes; Bernstein analysis and estimates. "Spud" is the start of drilling on a new well.

Oil Production vs. Rig Count



Source: Energy Information Administration, Baker Hughes

We believe production has been slow to roll over for two reasons: 1) the lag time between drilling and completion (about six months), and 2) increased productivity per well this year due to “high-grading,” or shifting more drilling to the “core” of areas.

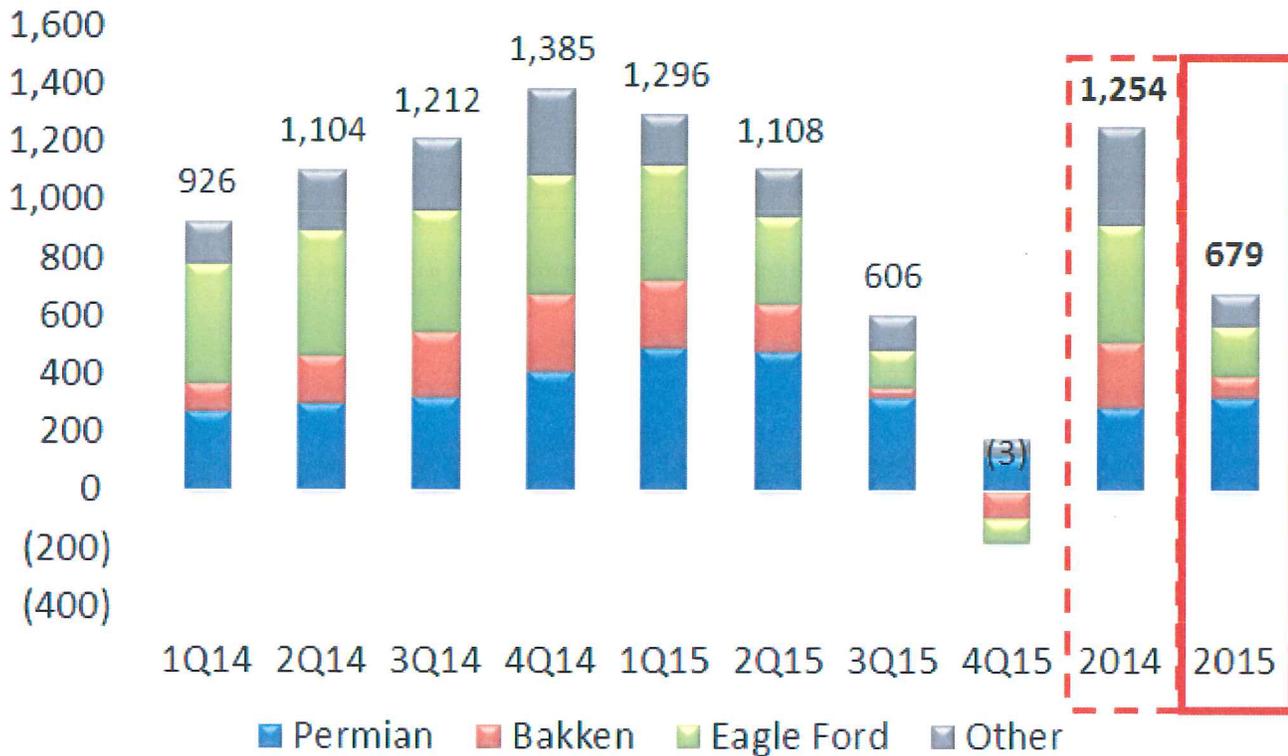
Lag time

The lag time between drilling a well and the well actually being placed on production is generally about six months, depending on the extent of pad drilling and availability of completion services. The lag time this year has extended to the wider end of that range, as operators have purposefully stretched out their inventory of drilled-and-uncompleted wells in order to defer production (and completion costs) for a time with expected higher oil prices.

The significant drop in the rig count for the major shale areas occurred in the first quarter of 2015; therefore, with a two-quarter lag, we expect the most significant impact on production to be in the third quarter of 2015.

For 2015, we expect the first half of 2015 to roll off of the US rig count to result in a contraction in year-on-year growth to around 600 kbpd in third quarter of 2015 and flat in fourth quarter of 2015, for an average full-year 2015 growth of about 700 kbpd.

U.S. Oil Production Y/Y Growth (kb/d)

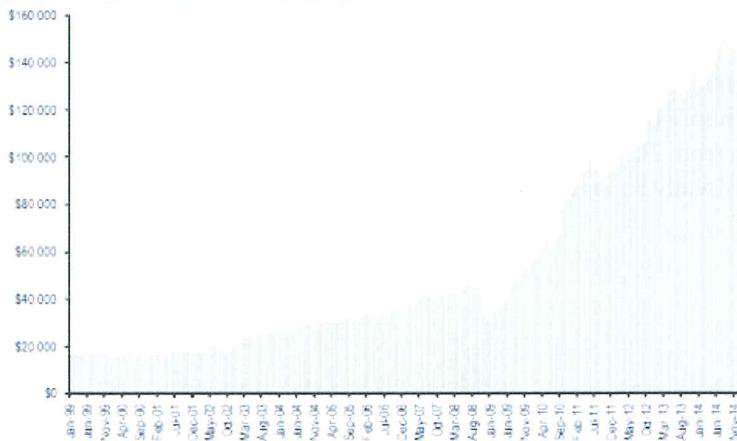


Source: Energy Information Administration

Operator Behavior

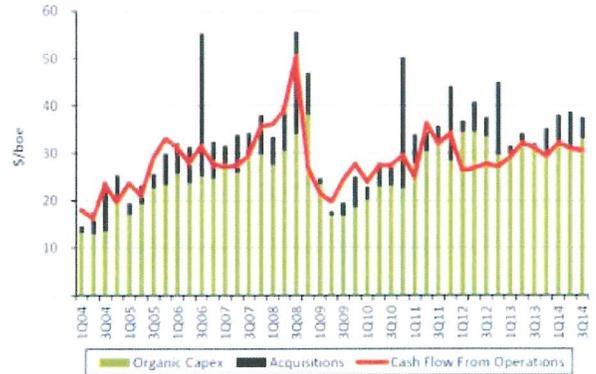
The US shale boom was arguably one made possible not only by high oil prices, but also accommodative bond markets.

J.P. Morgan High Yield Energy Index Market Value (\$ millions)



Source: J.P. Morgan High Yield Strategy

EGPs spend all their cash flow...and then some

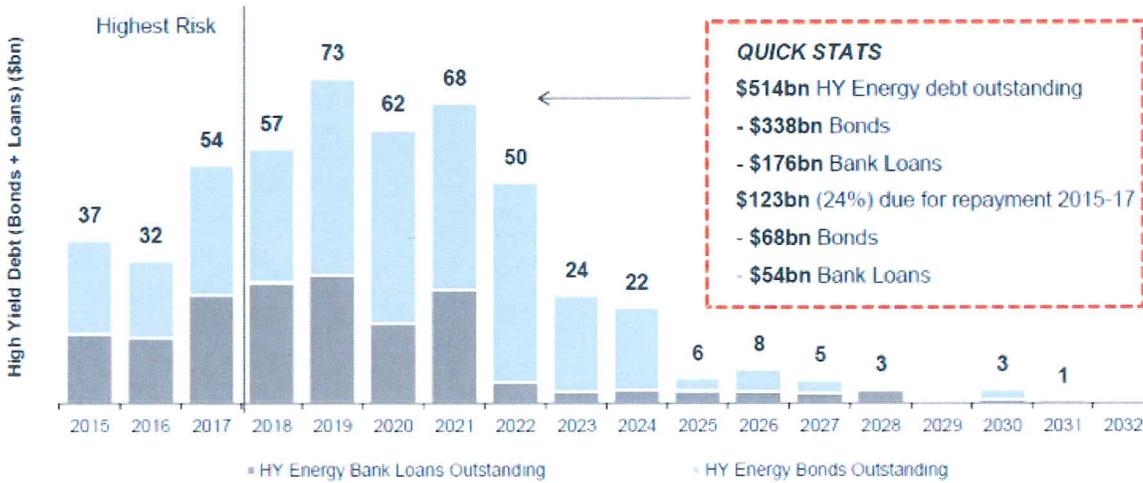


Source: Corporate reports and Bernstein analysis.

About a quarter of global high yield energy debt needs to be refinanced in the next three years – this should add to management’s urgency to maintain balance sheet strength.

There is \$123bn high yield debt due for repayment by 2017. 44% of this (\$54bn) is bank loans .

Global Energy Industry - High Yield Debt Repayment Schedule



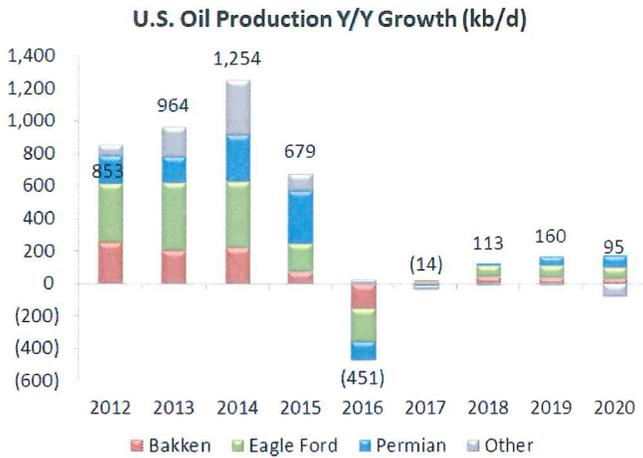
Source: Dealogic Analytics, Bernstein analysis

Over the past year, the equity markets have punished operators with higher than average debt leverage.

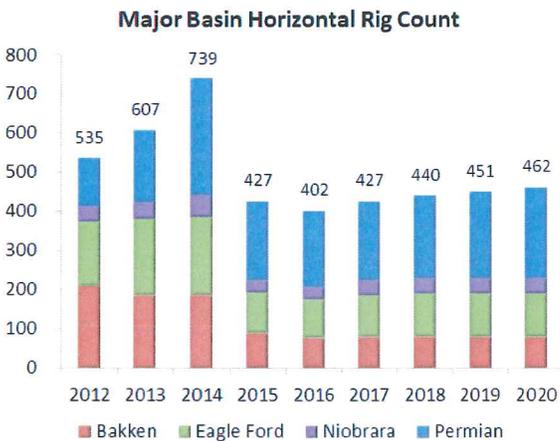
Current Forwards

At current forwards (WTI \$50 in 2016, \$55 in 2017), we estimate that US production will decline by 450 kbpd in 2016 and will be about flat in 2017.

- The key assumption is that the **rig count has to decline further to hold capital expenditures within cash flow**, as operators in this environment have become increasingly focused on spending within their means and holding financial leverage flat. We estimate that leverage (net debt/EBITDA) would still tick up from about 2.5x in 2015 to 2.7x in 2017.
- We assume continued productivity gains beyond the high-grading related gains seen in 2015, though such gains moderate in the Permian and Niobrara basins where high-grading was most prevalent.
- We also assume that well costs decrease by 33% from 2014 levels; this represents an additional 12% decrease from the roughly 24% savings that we estimate have already been realized this year.



Reflects Causeway estimates for 2015 onward
Source: Causeway Research, Energy Information Administration



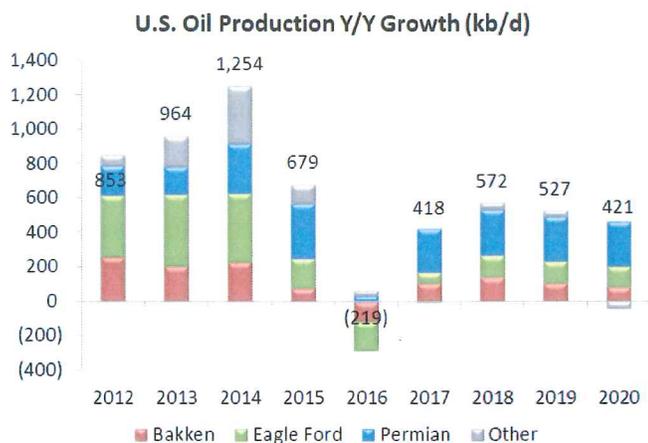
Reflects Causeway estimates for 2015 onward
Source: Causeway Research, Baker Hughes

Market Balance

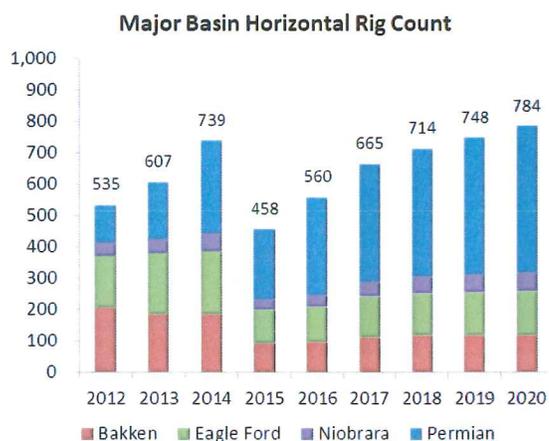
As mentioned previously, we project that the global supply/demand balance necessitates growth of about 500 kbpd from the United States by 2017 and beyond.

- To achieve this level of growth, the rig count has to increase by about 100 per year in 2016 and 2017.
- If WTI were to remain at current forwards (WTI \$53 in 2016, \$56 in 2017) while production still ramped up to this level, cash flow overspend would be over 135% (vs. 2014 at 125%) and leverage would increase from 2.5x to 2.7x.

- To fund this level of growth, WTI needs to rise to at least \$65 to limit cash flow overspend to below 120% over the 2015-2017 period.
- At flat WTI of \$45, overspend would balloon to nearly 150% by 2017 and leverage would increase to 3.4x, even after assuming additional well cost savings as in the scenario above.



Reflects Causeway estimates for 2015 onward
 Source: Causeway Research, Energy Information Administration



Reflects Causeway estimates for 2015 onward
 Source: Causeway Research, Baker Hughes

Supply: Non-US, Non-OPEC

The “Non-US, Non-OPEC” category comprises 45 mmbpd of crude and NGL production from 25 distinct IEA country classifications.

Growth for this group has been stagnant for the past five years, as growth from Canada and Brazil has been offset by declines from the North Sea, Mexico and Other.

mmbpd

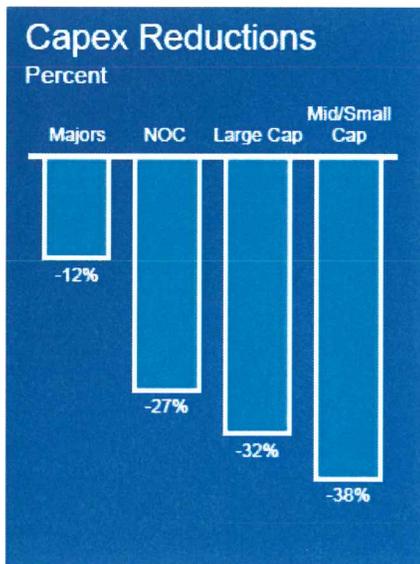
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	CAGR
Russia	9.6	9.8	10.1	10.0	10.2	10.5	10.6	10.7	10.8	10.9	1.4%
Norway/UK	4.8	4.4	4.2	4.0	3.9	3.5	3.2	2.9	2.7	2.8	(6.0%)
Canada	3.1	3.2	3.3	3.3	3.2	3.4	3.5	3.8	4.0	4.3	3.8%
Brazil	2.0	2.1	2.2	2.4	2.0	2.1	2.2	2.2	2.1	2.4	1.9%
Mexico	3.8	3.7	3.5	3.2	3.0	3.0	2.9	2.9	2.9	2.8	(3.2%)
China	3.6	3.7	3.7	3.8	3.9	4.1	4.1	4.2	4.2	4.2	1.7%
Other	16.2	16.7	15.3	16.6	18.1	18.3	18.2	17.6	17.7	17.8	1.1%
Non-OPEC, Non-US	43.1	43.6	42.3	43.2	44.3	44.8	44.7	44.2	44.4	45.1	0.5%

As of July, the IEA projects Non-US, Non-OPEC production growth of 100 kbpd in 2015 and -300 kbpd in 2016.

We see five regions growing production in 2015-2016: Brazil (100-150 kbpd p.a.), Canada (100-200 kbpd), Russia (0-100 kbpd), Malaysia (60-80 kbpd), and Norway (0-50 kbpd). In our forecasts (in-line with current IEA forecasts), a number of growth projects deliver front-loaded growth in 2015 for net growth of about 100 kbpd, but a gradual increase of the decline rate along with a decrease of the growth pipeline flips net growth to negative in 2016 and 2017.

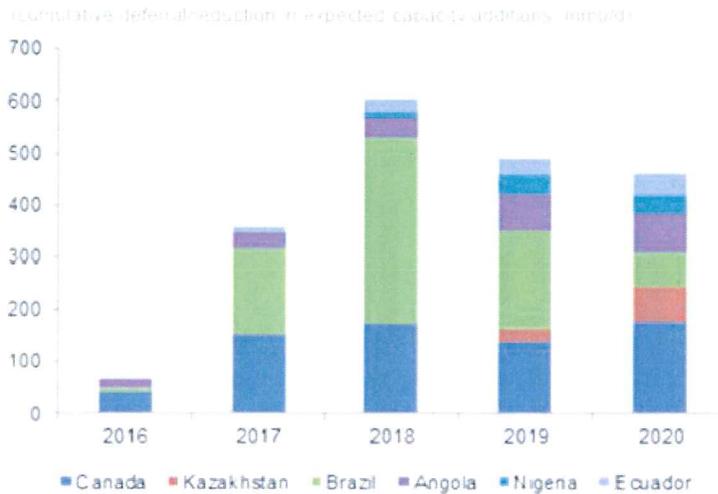
As a reference, IEA projections for non-OPEC supply has often proved optimistic (and this includes the United States, which would have surprised to the upside in recent years).

Major producers have already cut capex plans significantly, with further cuts likely to follow in the second half of 2015 if oil prices stay below \$60. We expect that capex cuts will have the biggest impact on 2017 production. The decrease in projected 2017 supply is consistent with the large number of project deferrals that have already been announced impacting growth projections in 2017 and beyond.



Source: Chevron Corporation

Projects Already Being Deferred or Cancelled Outside the US



Source: PricewaterhouseCoopers - IEA, Middle Eastern Commodity Research

Supply/Demand and Inventory Analysis

Marginal Cost

US Shale

In the *Supply: United States* section we estimated that WTI had to be at least \$65 in order to fund sufficient rig count increases to get back to approximately 500 kbpd of US shale-driven growth in 2017-2020. This was based on well cost savings of about 24% vs. 2014 levels. As shown below, 24% is higher than the savings that most operators are expecting for this year, so we believe we are being conservative from a marginal cost perspective (i.e. the actual marginal cost could be higher than \$60).

As an example, Continental Resources (CLR) disclosed that it would need to spend \$2.4 bn to keep production flat; however, implied annualized cash flow (EBITDAX as a proxy) at \$49 oil fell \$600 mm short. Extrapolating cash flow per barrel of \$33 on 144 kbpd of production, CLR would require oil prices of \$60 to cover its maintenance capex and maintain flat production.

Case Study: Continental Resources Marginal Cost

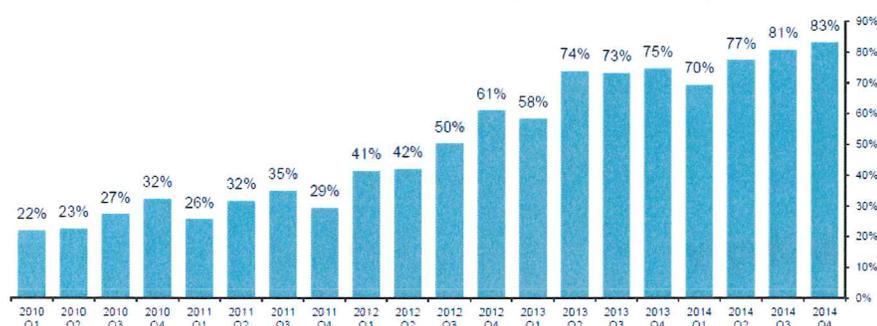
1Q15 production (kbpd)	144	
1Q15 average WTI price	\$48.6	
Annualized production	52,560	
1Q15 EBITDAX	439	
Annualized EBITDAX	1,756	
EBITDAX/bbl	\$33.4	
Maintenance capex	(2,370)	<i>Company guidance of capex req to maintain flat production</i>
Cash shortfall	(614)	
Shortfall/bbl	(\$11.7)	
Breakeven price	\$60	<i>Implied price required to maintain production</i>

Source: RHB

"Risk" of further efficiencies

In terms of further efficiencies, much of the benefit to be had in terms of cost savings and reduced drilling time per well associated with pad drilling has been realized, as the vast majority of horizontal wells are now on pads.

% of New Bakken H₂ Wells Drilled on Pads



Source: HPDI, Bernstein estimates

"Risk" of further well cost savings

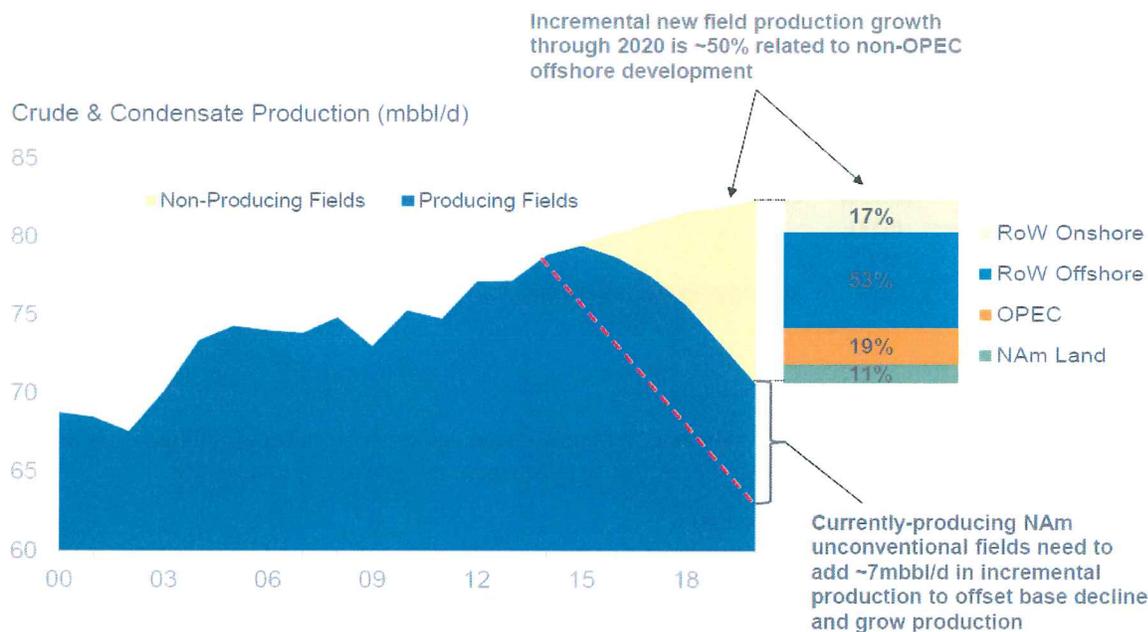
In terms of further cost savings should oil prices remain at depressed levels, we believe there is limited room for further cost savings.

- 60% of well costs are related to completion costs (fracking), and we understand from operators and service providers that those costs are already at or below cash breakeven levels for those service providers (the market is oversupplied so service companies are taking work just to increase utilization).
- While half of completion costs are labor, even if labor were to fall by 20%, this would only decrease completion costs by 10%, and therefore well costs by 6%.
- Regarding other potential cost reductions, day rates are about still about \$5,000 per day above cash costs of \$13,000; but even if these were driven down 28% to cash costs, they only represent 15% of the total so this would only reduce well costs by 4%.
- The incremental "worst case" completion labor cost reductions corresponds to our "bear" case scenario under which well costs decrease by 33% vs. 2014 levels. Even with these incremental savings, we projected that the rig count would have to be cut further from current levels in order to sustain capex within cash flow at current forward prices.

Non-OPEC, Non-US

In our central scenario of 1 mmbpd demand, 500 kbpd is met by US shale and the other 500 kbpd is met by OPEC, with Non-OPEC, Non-US held flat. However, if the oil price is insufficient to incentivize Non-OPEC, Non-US production, that 45 mmbpd category will decline (estimated decline rate of about 5% or 200 kbpd). Therefore, the marginal cost of this Non-OPEC, Non-US category becomes important.

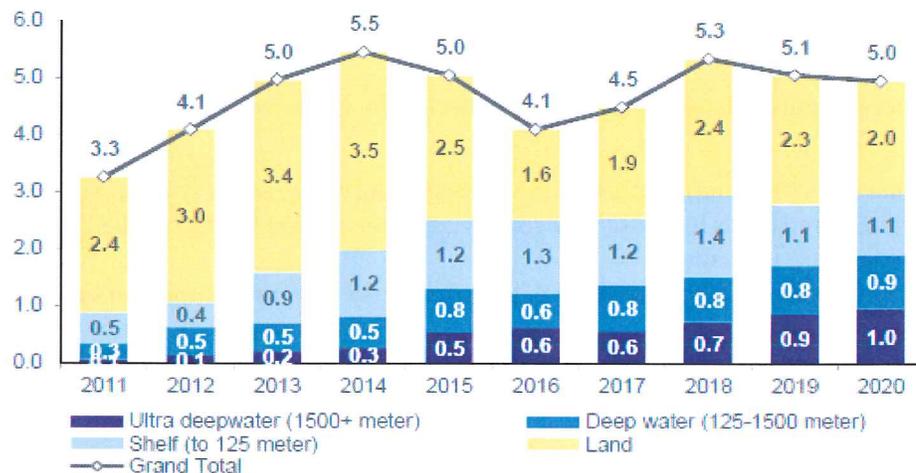
Incremental production through 2020 requires offshore development



Source: Rystad Energy, Morgan Stanley Research estimates

Capacity Additions Increasingly Offshore and Complex

(Gross supply additions by type, mmbbl/d)



Source: Rystad Energy estimates, Wood Mackenzie, IEA, HDPI, JODI, Morgan Stanley Commodity

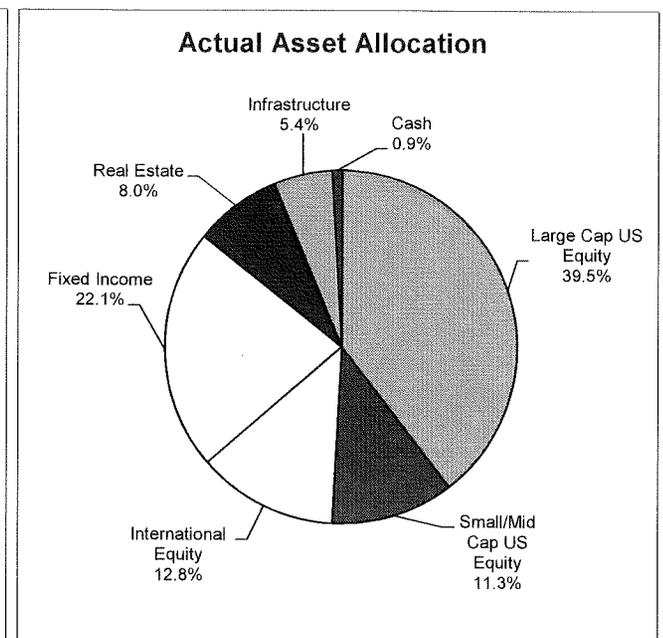
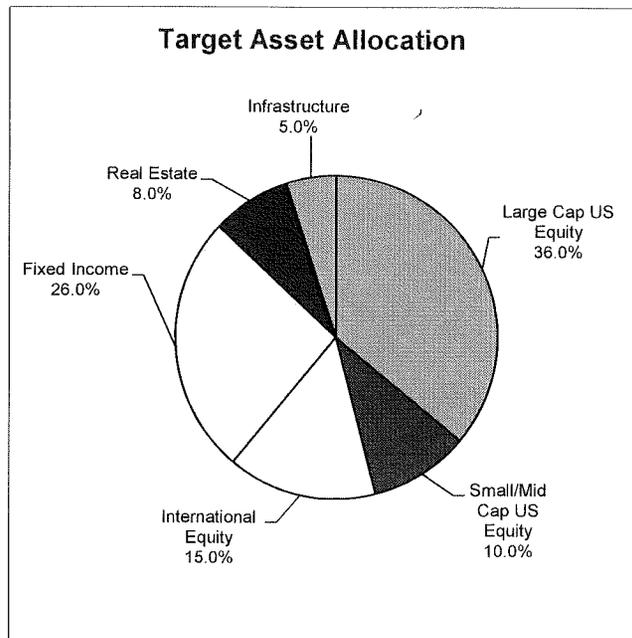
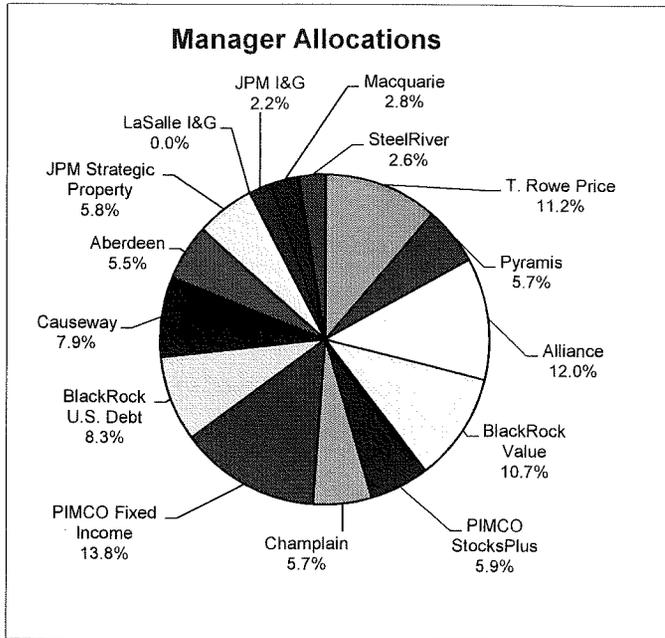
Manager Allocations Compared with Policy Levels

Monthly Report as of: 07/31/15

<i>Managers and Asset Class</i>	<i>Actual</i>		<i>Target</i>		<i>Differences</i>		<i>Range</i>		<i>Outside Range</i>
	<i>(000s)</i>	<i>%</i>	<i>(000s)</i>	<i>%</i>	<i>From Target</i>		<i>Min</i>	<i>Max</i>	
T. Rowe Price	\$ 82,782	11.2%	\$ 74,197	10.0%	1.2%	\$ 8,585	8.0%	12.0%	0.0%
Alliance (S&P 500)	88,644	11.9%	81,617	11.0%	0.9%	7,027	8.0%	14.0%	0.0%
BlackRock Value	79,008	10.6%	74,197	10.0%	0.6%	4,811	8.0%	12.0%	0.0%
PIMCO StocksPlus	43,820	5.9%	37,099	5.0%	0.9%	6,721	3.0%	7.0%	0.0%
Large Cap U.S. Equity	294,254	39.6%	267,110	36.0%	3.6%	27,144	31.0%	41.0%	0.0%
Pyramis	42,392	5.7%	37,099	5.0%	0.7%	5,294	3.0%	7.0%	0.0%
Champlain	42,483	5.7%	37,099	5.0%	0.7%	5,384	3.0%	7.0%	0.0%
Small/Mid Cap U.S. Equity	84,875	11.4%	74,197	10.0%	1.4%	10,677	6.0%	14.0%	0.0%
Causeway Capital Mgmt	58,590	7.9%	55,648	7.5%	0.4%	2,942	5.5%	9.5%	0.0%
Aberdeen Asset Mgmt	40,654	5.5%	55,648	7.5%	-2.0%	(14,994)	5.5%	9.5%	0.0%
International Equity	99,243	13.4%	111,296	15.0%	-1.6%	(12,053)	13.0%	17.0%	0.0%
Total Stocks	478,372	64.4%	452,603	61.0%	3.4%	25,769	56.0%	66.0%	0.0%
PIMCO Fixed Income	102,073	13.8%	118,716	16.0%	-2.2%	(16,643)	13.0%	19.0%	0.0%
BlackRock U.S. Debt	61,869	8.3%	74,197	10.0%	-1.7%	(12,328)	8.0%	12.0%	0.0%
Total Bonds	163,942	22.1%	192,913	26.0%	-3.9%	(28,971)	21.0%	31.0%	0.0%
JPM Strategic Property	42,631	5.7%	37,099	5.0%	0.7%	5,532	3.0%	7.0%	0.0%
LaSalle Income & Growth IV	62	0.0%	11,130	1.5%	-1.5%	(11,068)	0.0%	3.0%	0.0%
JPM Income & Growth	16,427	2.2%	11,130	1.5%	0.7%	5,297	0.0%	3.0%	0.0%
Total Real Estate	59,119	7.9%	59,358	8.0%	-0.1%	(238)	6.0%	10.0%	0.0%
Macquarie	20,665	2.8%	18,549	2.5%	0.3%	2,115	1.5%	3.5%	0.0%
SteelRiver	19,080	2.6%	18,549	2.5%	0.1%	531	1.5%	3.5%	0.0%
Total Infrastructure	39,744	5.4%	37,099	5.0%	0.4%	2,646	3.0%	7.0%	0.0%
Liquidity Fund	794	0.1%	-						
Total Fund	\$ 741,972	100%	\$ 741,972	100%					

Allocation Summaries

As of: 07/31/15



Investment Manager Allocation:

<u>Investment Account</u>	<u>(000s)</u>
1 T. Rowe Price	\$ 82,782
2 Pyramis	42,392
3 Alliance	88,644
4 BlackRock Value	79,008
5 PIMCO StocksPlus	43,820
6 Champlain	42,483
7 PIMCO Fixed Income	102,073
8 BlackRock U.S. Debt	61,869
9 Causeway	58,590
10 Aberdeen	40,654
11 JPM Strategic Property	42,631
12 LaSalle I&G	62
13 JPM I&G	16,427
14 Macquarie	20,665
15 SteelRiver	19,080
Liquidity Account	794
Total Assets	\$ 741,972

Target Asset Allocation:

<u>Asset Class</u>	<u>(000s)</u>
Large Cap US Equity	267,110
Small/Mid Cap US Equity	74,197
International Equity	111,296
Fixed Income	192,913
Real Estate	59,358
Infrastructure	37,099
Total Assets	\$ 741,972

Actual Asset Allocation:

<u>Asset Class</u>	<u>(000s)</u>
Large Cap US Equity	292,941
Small/Mid Cap US Equity	84,169
International Equity	95,303
Fixed Income	163,942
Real Estate	59,119
Infrastructure	39,744
Cash	6,753
Total Assets	\$ 741,972

**TUCSON SUPPLEMENTAL RETIREMENT SYSTEM
CALENDAR YEAR 2015 PERFORMANCE BY MANAGER
NET OF FEES AND CUSTODIAL CHARGES**

	Total Fund	BlackRock U.S. Debt	PIMCO	Total Fixed	Alliance S&P 500	BlackRock Value	PIMCO StocksPlus	T.RowePrice	Pyramis	Champlain	Aberdeen	Causeway Capital	Total Equities	JP Morgan Strat Prop	LaSalle I & G	JP Morgan I & G	Total Real Estate	SteelRiver	Macquarie Capital	Total Infrastructure
JAN	-1.02%	2.10%	1.67%	1.83%	-3.00%	-3.97%	-2.78%	-0.58%	-2.39%	-2.76%	-0.48%	0.53%	-2.02%	0.47%	0.00%	3.00%	1.14%	0.00%	-6.70%	-3.58%
FEB	3.76%	-0.92%	0.76%	0.12%	5.73%	4.86%	5.92%	6.73%	6.88%	5.94%	4.26%	4.42%	5.60%	1.85%	0.00%	0.00%	1.32%	-0.20%	2.16%	1.02%
MAR	-0.57%	0.44%	0.33%	0.37%	-1.58%	-1.37%	-1.46%	-0.55%	1.43%	0.83%	-2.74%	-1.12%	-0.93%	1.35%	2.61%	0.00%	1.00%	0.00%	-4.25%	-2.22%
APR	1.14%	-0.29%	0.20%	0.02%	0.95%	0.94%	0.77%	0.09%	-1.32%	1.02%	4.82%	4.89%	1.39%	0.90%	0.00%	3.36%	1.55%	0.00%	4.33%	2.22%
MAY	0.70%	-0.29%	0.12%	-0.03%	1.29%	1.21%	1.38%	2.03%	3.79%	1.47%	-2.01%	-1.14%	1.05%	1.02%	0.00%	0.00%	0.73%	1.47%	-2.16%	-0.43%
JUN	-1.08%	-1.10%	-1.77%	-1.52%	-1.92%	-1.93%	-2.11%	-1.20%	1.19%	0.06%	-4.19%	-2.71%	-1.66%	1.49%	24.40%	4.95%	2.45%	1.66%	3.61%	2.66%
JUL	1.16%	0.68%	0.57%	0.61%	2.12%	0.48%	2.15%	5.03%	1.16%	-1.52%	-1.48%	1.73%	1.55%	0.85%	0.00%	0.00%	0.61%	0.00%	-0.84%	-0.44%
AUG	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SEP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
OCT	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NOV	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DEC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CYTD	4.07%	0.59%	1.86%	1.38%	3.38%	-0.02%	3.66%	11.83%	10.94%	4.92%	-2.16%	6.53%	4.88%	8.20%	27.65%	11.73%	9.13%	2.95%	-4.29%	-0.92%

Benchmark Returns:																				
Latest Month	0.89%	0.70%	0.27%	0.70%	2.10%	0.44%	2.10%	3.39%	-1.16%	0.74%	-0.28%	2.08%	1.37%	-	-	-	-	0.33%	0.33%	0.33%
Cldr Yr to Date	2.96%	0.60%	1.24%	0.60%	3.36%	-0.19%	3.36%	7.49%	3.54%	3.11%	3.74%	7.72%	4.06%	7.34%	7.34%	7.34%	7.34%	3.98%	3.98%	3.98%
Index	Custom Plan Index	Barclays Aggregate	Fixed Inc Custom	Barclays Aggregate	S & P 500	Russell 1000 Value	S & P 500	Russell 1000 Growth	Russell 2000	Russell Midcap	MSCI All Country Wld x-US N	MSCI EAFE Net Divd	Equity Composite	NCREIF-ODCE (1)	NCREIF-ODCE (1)	NCREIF-ODCE (1)	NCREIF-ODCE (1)	CPI + 4% (2)	CPI + 4% (2)	CPI + 4% (2)

(1) CYTD Index returns thru: 06/30/15

(2) CYTD Index returns thru: 07/31/15

**TUCSON SUPPLEMENTAL RETIREMENT SYSTEM
FISCAL YEAR 2016 PERFORMANCE BY MANAGER
NET OF FEES AND CUSTODIAL CHARGES**

	Total Fund	BlackRock U.S. Debt	PIMCO	Total Fixed	Alliance S&P 500	BlackRock Value	PIMCO StocksPlus	T.RowePrice	Pyramis	Champlain	Aberdeen	Causeway Capital	Total Equities	JP Morgan Strat Prop	LaSalle I & G	JP Morgan I & G	Total Real Estate	SteelRiver	Macquarie Capital	Total Infrastructure
JUL	1.16%	0.68%	0.57%	0.61%	2.12%	0.48%	2.15%	5.03%	1.16%	-1.52%	-1.48%	1.73%	1.55%	0.85%	0.00%	0.00%	0.61%	0.00%	-0.84%	-0.44%
AUG	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
SEP	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
OCT	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
NOV	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DEC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
JAN	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
FEB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MAR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
APR	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MAY	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
JUN	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
FYTD	1.16%	0.68%	0.57%	0.61%	2.12%	0.48%	2.15%	5.03%	1.16%	-1.52%	-1.48%	1.73%	1.55%	0.85%	0.00%	0.00%	0.61%	0.00%	-0.84%	-0.44%

Benchmark Returns:																				
Latest Month	0.89%	0.70%	0.27%	0.70%	2.10%	0.44%	2.10%	3.39%	-1.16%	0.74%	-0.28%	2.08%	1.37%	-	-	-	-	0.33%	0.33%	0.33%
Fiscal Yr to Date	0.89%	0.70%	0.27%	0.70%	2.10%	0.44%	2.10%	3.39%	-1.16%	0.74%	-0.28%	2.08%	1.37%	0.00%	0.00%	0.00%	0.00%	0.33%	0.33%	0.33%
Index	Custom Plan Index	Barclays Aggregate	Fixed Inc Custom	Barclays Aggregate	S & P 500	Russell 1000 Value	S & P 500	Russell 1000 Growth	Russell 2000	Russell Midcap	MSCI All Country Wld x-US N	MSCI EAFE Net Divd	Equity Composite	NCREIF - ODCE (1)	CPI + 4% (2)	CPI + 4% (2)	CPI + 4% (2)			

(1) FYTD Index returns thru: 00/00/15

(2) FYTD Index returns thru: 07/31/15

**Tucson Supplemental Retirement System (TSRS)
 BNY Mellon - Securities Lending & Custodial Fee Summary
 FY16**

July 1, 2015 - June 30, 2016

	Gross Earnings	Rebate Paid	Bank Fees	Gross Client Earnings	Administration Fee	FY16 Net Client Earnings	FY15 Net Client Earnings	FY16 Custodian Fees	FY15 Custodian Fees
July	\$ 2,924	\$ (7,613)	\$ 4,214	\$ 6,323	\$ -	\$ 6,323	\$ 6,816	\$ -	\$ -
August	-	-	-	-	-	-	5,775	-	-
September	-	-	-	-	-	-	6,239	-	73,879
October	-	-	-	-	-	-	6,970	-	-
November	-	-	-	-	-	-	6,002	-	-
December	-	-	-	-	-	-	6,655	-	71,675
January	-	-	-	-	-	-	7,214	-	-
February	-	-	-	-	-	-	8,612	-	-
March	-	-	-	-	-	-	11,248	-	75,962
April	-	-	-	-	-	-	11,082	-	-
May	-	-	-	-	-	-	13,175	-	-
June	-	-	-	-	-	-	8,769	-	-
Totals	\$ 2,924	\$ (7,613)	\$ 4,214	\$ 6,323	\$ -	\$ 6,323	\$ 98,557	\$ -	\$ 221,516

cross check: 6,323

TSRS

Schedule of Cash Transfers Between Investment Accounts and/or Fund 072

FY 16

FROM (Transfers Out):

TO (Transfers In):

NOTES:

Transfer Date	Account #	Account Desc.	Amount	Account #	Account Desc.	Amount					
07/17/15	TSRF1002002	Pyramis Small Cap Account	(2,000,000.00)	FUND 072 (1)	INVESTMENT POOL ACCOUNT	2,000,000.00	To meet cash liquidity needs & rebalance portfolio				
07/13/15	TSRF4001002	JP Morgan Strategic Property Fund	(3.67)	TSRF2001002	Liquidity Cash Account	3.67	Automatic transfer of excess cash to liquidity account				
07/16/15	TSRF5002002	SteelRiver IFNA	(216,262.81)	TSRF2001002	Liquidity Cash Account	216,262.81	Automatic transfer of excess cash to liquidity account				
07/31/15	TSRF5002002	SteelRiver IFNA	(84,628.18)	TSRF2001002	Liquidity Cash Account	84,628.18	Automatic transfer of excess cash to liquidity account				
TOTALS			(2,300,894.66)			2,300,894.66					

(1) - INVESTMENT POOL ACCOUNT (Fund 072) Transfer-In Summary:

FY16 -To Date	FY15	FY14	FY13	FY12	FY11	FY10	FY09	FY08	FY07	FY06	TOTAL
2,000,000	28,400,000	24,900,000	21,700,000	27,202,000	29,950,000	20,872,362	26,760,000	10,000,000	17,500,000	2,500,000	211,784,362
2,000,000.00	2,366,667	2,075,000	1,808,333	2,266,833	2,495,833	1,739,363	2,230,000	833,333	1,458,333	208,333	

Causeway Capital Management LLC
The Balance between Crude Oil Supply and Demand
August 14, 2015

“Formula for success: rise early, work hard, strike oil.”

- J. Paul Getty

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EXECUTIVE SUMMARY

The Current Supply/Demand Imbalance

From peak to trough, crude oil prices plunged about 60% in 2014 – and slid again recently, testing lows of earlier this year. Excess supply, combined with a market expectation for softening global demand, has weighed on oil prices. Unlike past behavior, the Organization of the Petroleum Exporting Countries (OPEC) has not cut production to support the market price. This appears to us as a rational strategy. The resulting lower crude oil prices should spur demand and constrain uneconomic supply. We currently expect that the self-correcting mechanism inherent in the crude oil markets will likely bring about a recovery in oil prices by 2017.

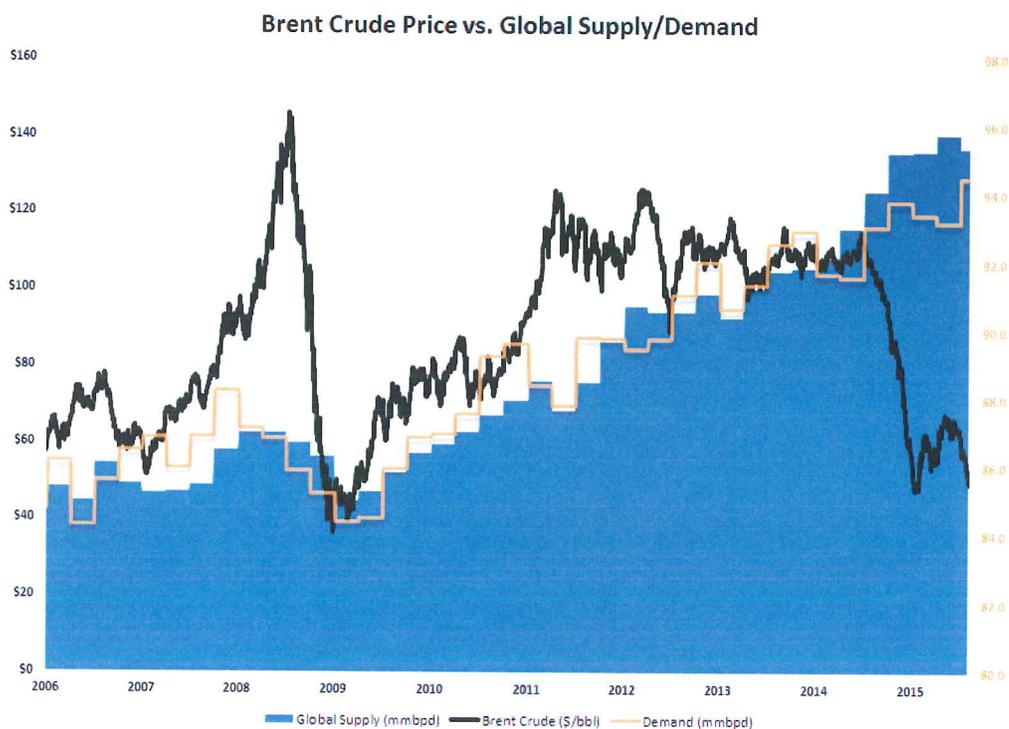
At present, crude oil demand has turned up, perhaps responding to lower prices. This year, according to the International Energy Agency (IEA) July 2015 forecast, global demand growth will rise to 1.4 million barrels per day (mmbpd) after a weak 2014 when it registered only 700 thousand barrels per day (kbpd). Given the progressive downward revisions in the IEA demand forecast for 2016, we expect that annual demand growth will hold steady at least 1 mmbpd. This base level of demand assumes pressure from energy efficiency in Organisation for Economic Co-Operation and Development (OECD) regions and the drag from slowing growth in non-OECD regions. China remains the greatest risk in terms of near-term demand as their economic pace decelerates.

Global supply will likely continue to outpace demand this year due to significant production increases from OPEC and the lag in production slowdown from both US shale and from Non-OPEC, Non-US project deliveries. We believe the recent drop in oil prices will elicit the supply reaction that Saudi Arabia was seeking, and will result in significant market tightening in 2016 as non-OPEC production declines.

Due to the current oversupply situation exacerbated by an uncertain amount of Iranian barrels returning to the market in 2016, crude oil prices may drift below marginal cost of the swing US shale producers for the next 12-18 months.

However, if it becomes clear that non-OPEC supply has diminished, a Brent crude oil price of \$70 will be required to incentivize sufficient US shale production to balance the market in 2017 and beyond. After 2017, an even higher oil price may be required to incentivize new supply projects to offset base declines outside of OPEC and the United States.

The Saudis are seeking an equilibrium in which demand growth remains steady and non-OPEC supply grows at a pace that meets some, but not all of this demand.



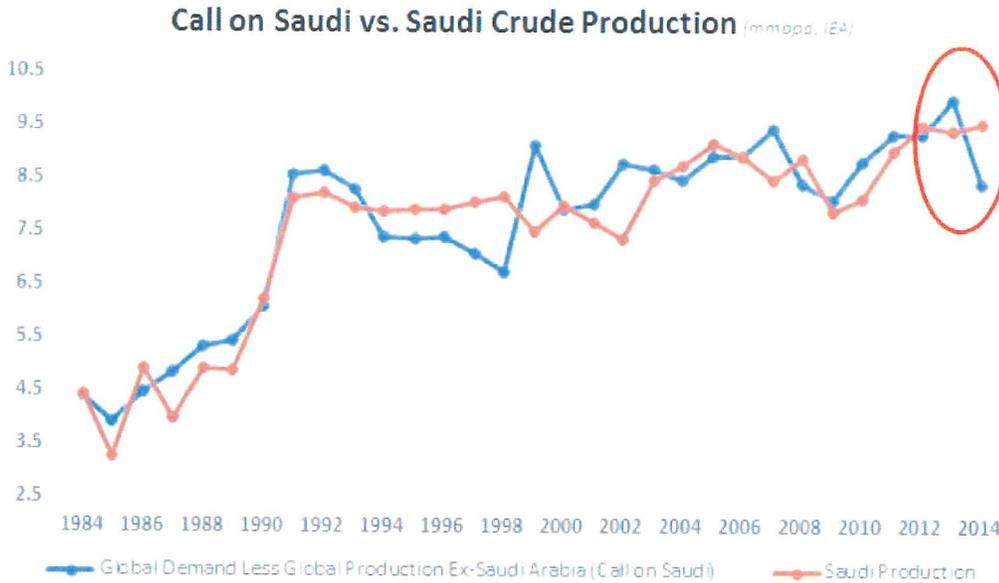
Source: International Energy Agency, Bloomberg

Updated Causeway Forecast Assumptions

TOPIC	PRIOR TO 2015	WHAT HAS HAPPENED	CURRENT
1) Demand	<ul style="list-style-type: none"> With demand stable historically, supply has largely determined oil prices. 	<ul style="list-style-type: none"> Over long periods of time, global oil demand has been very stable. However, 2014 was weak, and emerging market concerns raise downside risks for future demand. 2015 and 2016 should exhibit a recovery in demand, helped in part by the stimulus generated by lower oil prices. 	<ul style="list-style-type: none"> Although the supply side has the greatest uncertainty, downside risks to demand include ineffective monetary policy and economic stagnation. In lower oil price scenarios, price elasticity should spur greater oil consumption.
2) Supply	<ul style="list-style-type: none"> Only OPEC has enough spare capacity to boost supply materially. The inevitable decline in well production (decline rate) constrains supply. Disruptions, operational or geopolitical, occur frequently, posing price risk to upside. 	<ul style="list-style-type: none"> US shale expansion continues, and could be a sustainable source of global production growth, <i>contingent on the level of oil prices</i>. Further upside risks to supply have emerged from countries within OPEC, namely Iran and Iraq. In addition, non-OPEC, non-US production has proved resilient. The Saudis have declared that they will not cut production to balance the market, and will instead allow the lower oil price to balance the market. 	<ul style="list-style-type: none"> The oil price should settle at a level at which global production growth meets demand growth, without requiring the Saudis to cut production significantly to balance the market. In the medium-term, we should also assume increases in supply within OPEC, from countries such as Iran. The potential for supply outages, and low OPEC spare capacity relative to demand, implies upside price risk in the event of disruptions.
3) Oil pricing mechanism	<ul style="list-style-type: none"> Since spare capacity is low, i.e., a “normal” market, oil should price between the marginal cost of supply (\$90) and the marginal cost of demand (\$130). 	<ul style="list-style-type: none"> \$110/bbl oil incentivized non-OPEC supply growth that exceeded global demand by nearly 2 mmbpd. This extreme level of oversupply would have required an unacceptably large production cut by the Saudis in order to balance the market. Because of this near-term oversupply, marginal cost no longer represents a relevant floor to the oil price. As the shortest-cycle source of supply, US shale is now the most relevant swing producer. Marginal costs of all sources of supply are adjusting to a lower oil price, but not all cost savings are sustainable. 	<ul style="list-style-type: none"> The current market expectation is for oversupply to persist for at least the next two years. However, we believe the market will tighten faster than expected if Brent remains at – or below \$50/bbl. The Saudis will likely aim for an equilibrium where OPEC supply growth satisfies some, but not all, of global demand. The equilibrium price must incentivize supply growth from both US shale and other sources to satisfy demand growth and replace production declines. We believe the oil price will approach this equilibrium price, estimated at \$70/bbl Brent, within the next two years.

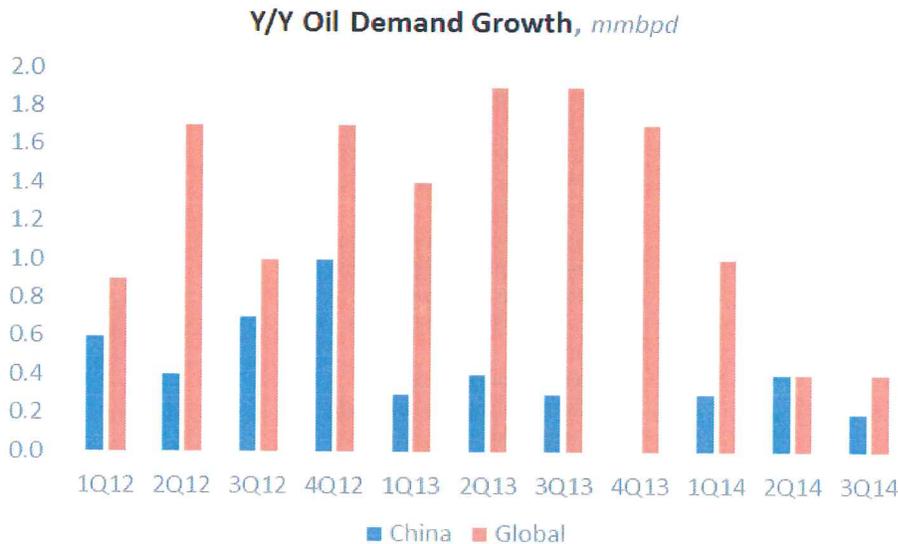
RECENT DEVELOPMENTS

As the largest OPEC producer, Saudi Arabia has historically adjusted its crude oil production to balance the global market. We estimate that the significant decrease in the “call on Saudi” production last year would have required an approximately 2 mmbpd unilateral cut in production from the Saudis to balance the market. Instead, the Saudis chose to retain market share, and let the global market reach equilibrium.



Source: International Energy Agency

We may never know the precise reason(s) for OPEC’s failure to reduce supply in 2014. However, based on expert reports, we suspect that the Saudis were highly concerned about waning global oil demand, particularly in China. With lower oil prices creating more incentive for usage, structural (rather than temporary) demand may rise.

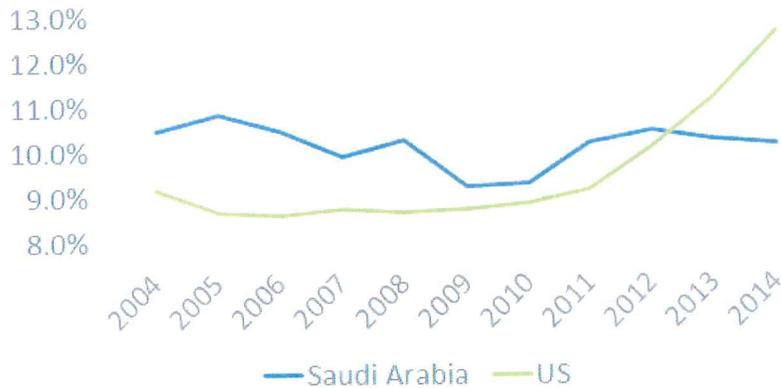


Source: International Energy Agency

Other motivation for the Saudi inaction may have come from their concern about new sources of supply. In the last two years, US shale gained a significant share of the global oil supply market at the expense of OPEC and the Saudis. An OPEC cut

supporting higher prices may have incentivized even greater volumes of shale production, leading to even further share losses to US oil & gas producers.

Share of Global Oil Production

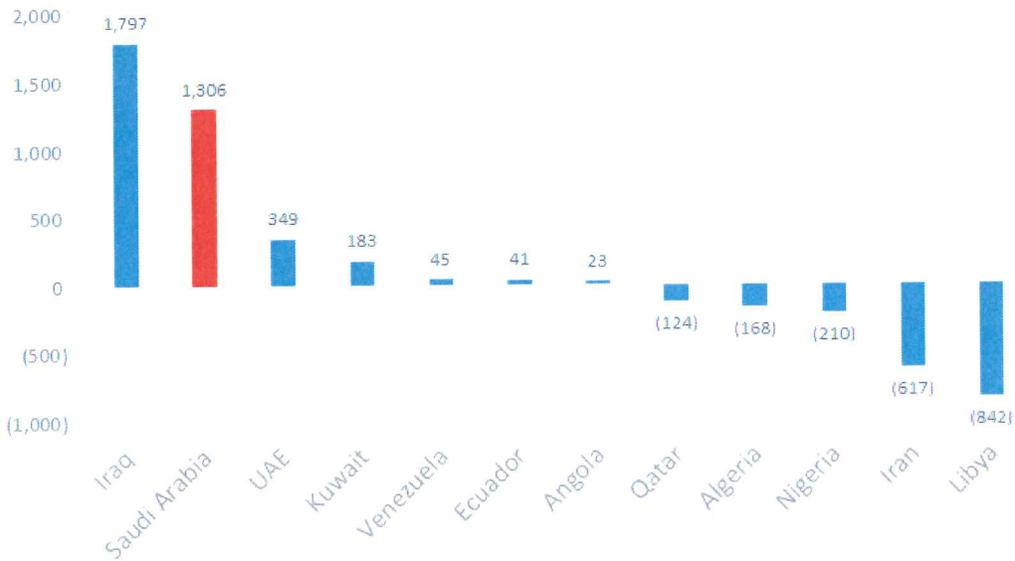


Source: International Energy Agency

We also recognize the importance of intra-OPEC compliance. In the past, the Saudis have adjusted their production in excess of their share in order to balance the oil market, while other OPEC members enjoy higher production. With Libya, Iran and several other members producing substantially less than their historical averages, the Saudis may have received considerable pressure to cut production, allowing other members to take market share.

June 2015 Production Relative to 10-year Historical Average

(kbpd)



Source: Bloomberg; each bar represents the difference between the country's June 2015 production and its 10-year historical average.

Other motivations to allow a slump in crude oil prices may include geopolitical concerns. A prolonged period of low oil prices would exacerbate the economic headwinds facing adversaries and competitors such as Iran, Russia, and ISIS, and others.

SUPPLY/DEMAND SCENARIOS

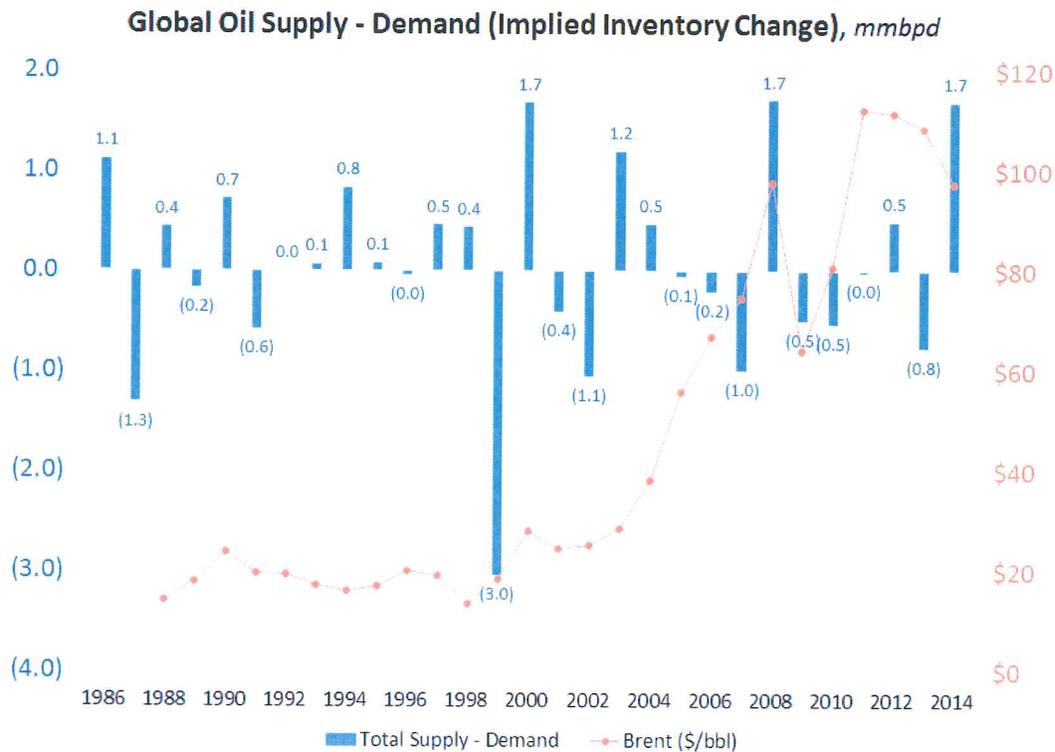
- In 2015, we expect global oil supply growth to exceed demand growth by 1.1 mmbpd, as non-OPEC grows by 1.0 mmbpd (consistent with current IEA forecasts) and OPEC and the Saudis increase production by 1.5 mmbpd (consistent with year-to-date growth through June).
- Under the current market forward curve for Brent crude oil of \$55/bbl and \$60/bbl in 2016 and 2017, we believe activity in the United States will respond to the deteriorating project returns and production will decline by 400 kbpd.

Scenario 1 - Market Forwards

	2012	2013	2014	2015E	2016E	2017E
Average Brent (\$/bbl)	\$112	\$109	\$100	\$55	\$55	\$60
Demand (mmbpd) (A)	1.8	1.3	0.7	1.4	1.0	1.0
US	1.1	1.1	1.6	0.9	(0.4)	0.0
Non-US	(0.2)	0.3	0.9	0.1	(0.3)	(0.4)
Non-OPEC	0.9	1.4	2.5	1.0	(0.7)	(0.4)
Non-Saudi	0.9	(0.7)	(0.3)	0.8	0.6	0.3
Saudi	0.5	(0.1)	0.1	0.7	0.0	0.0
OPEC	1.4	(0.8)	(0.2)	1.5	0.6	0.3
Supply (mmbpd) (B)	2.3	0.5	2.3	2.5	(0.1)	(0.1)
Supply - Demand (B - A)	0.5	(0.8)	1.6	1.1	(1.1)	(1.1)

Source: Causeway Research, International Energy Agency

- We believe that the forward curve has misjudged the likely 2016 supply/demand dynamics. As a 1.1 mmbpd inventory reduction becomes apparent, we believe the oil price will rise to reflect the rapidly tightening market. As shown below, a 1.1 mmbpd tightening of the supply/demand balance would be a very large move historically.



Source: International Energy Agency

- We believe oil prices should rise to a level that would support the market, restoring equilibrium in 2017 and beyond. We see an equilibrium scenario as demand growing 1 mmbpd coupled with 500 kbpd of US shale supply growth, flat non-US,

non-OPEC supply and 500 kbpd of OPEC supply, comprised of 200 kbpd from Saudi Arabia (maintaining/growing its market share) and 300 kbpd from other OPEC (principally Iran and Iraq).

- We estimate that \$65 West Texas Intermediate (WTI) or \$70 Brent is the price required for US shale to add 500 kbpd without stretching capital expenditures unreasonably beyond cash flow. There is likely upside to this price assumption as there may be additional higher-cost offshore barrels that need to be incentivized to offset the declining base and keep non-US, non-OPEC production flat.

Scenario 2 - Market Balance

	2012	2013	2014	2015E	2016E	2017E	Balance
Average Brent (\$/bbl)	\$112	\$109	\$100	\$55	\$60	\$65	\$70
Demand (mmbpd)	1.8	1.3	0.7	1.4	1.0	1.0	1.0
US	1.1	1.1	1.6	0.9	(0.2)	0.4	0.5
Non-US	(0.2)	0.3	0.9	0.1	(0.3)	(0.4)	0.0
Non-OPEC	0.9	1.4	2.5	1.0	(0.5)	0.0	0.5
Non-Saudi	0.9	(0.7)	(0.3)	0.8	0.6	0.3	0.3
Saudi	0.5	(0.1)	0.1	0.7	0.0	0.0	0.2
OPEC	1.4	(0.8)	(0.2)	1.5	0.6	0.3	0.5
Supply (mmbpd)	2.3	0.5	2.3	2.5	0.1	0.3	1.0
Supply - Demand	0.5	(0.8)	1.6	1.1	(0.9)	(0.7)	0.0

Source: Causeway Research, International Energy Agency

- In our downside scenario, we use the IEA's forecast for US shale growth of 300 kbpd in 2016, though we believe this forecast is a remnant of when oil prices were expected to be in excess of \$65/bbl in 2016, as it would have required a quick ramp up of the rig count in the second half of 2015, which is unlikely now with WTI below \$50.
- In this scenario, we also assume higher growth out of OPEC (perhaps Iran growing at the high end of the 500-700 kbpd forecast coupled with Iraq and other OPEC growth), which will push the market further into oversupply in 2016 and defer any price recovery by an additional year.

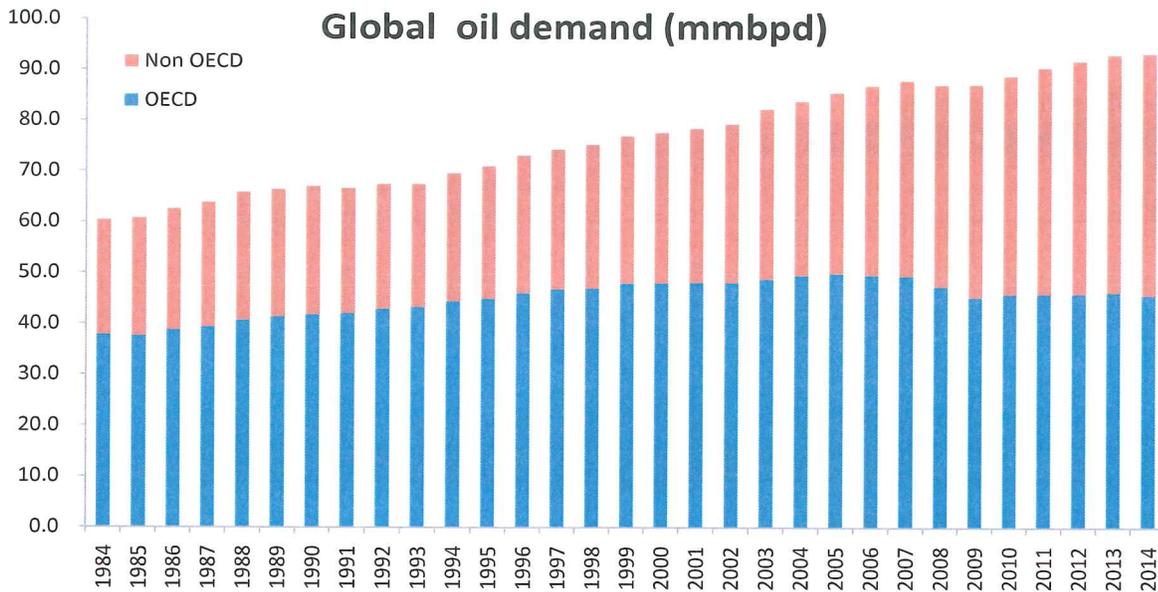
Scenario 3 - Downside

	2012	2013	2014	2015E	2016E	2017E
Average Brent (\$/bbl)	\$112	\$109	\$100	\$55	\$50	\$55
Demand (mmbpd)	1.8	1.3	0.7	1.4	1.0	1.0
US	1.1	1.1	1.6	0.9	0.3	0.0
Non-US	(0.2)	0.3	0.9	0.1	0.0	0.0
Non-OPEC	0.9	1.4	2.5	1.0	0.3	0.0
Non-Saudi	0.9	(0.7)	(0.3)	0.8	1.0	0.3
Saudi	0.5	(0.1)	0.1	0.7	0.0	0.0
OPEC	1.4	(0.8)	(0.2)	1.5	1.0	0.3
Supply (mmbpd)	2.3	0.5	2.3	2.5	1.3	0.3
Supply - Demand	0.5	(0.8)	1.6	1.1	0.3	(0.7)

Source: Causeway Research, International Energy Agency

OIL DEMAND FUNDAMENTALS

Global oil demand has grown at a steady compound annual growth rate (CAGR) of 1.4% and 1.1% in the past 30 and 10 years, respectively.

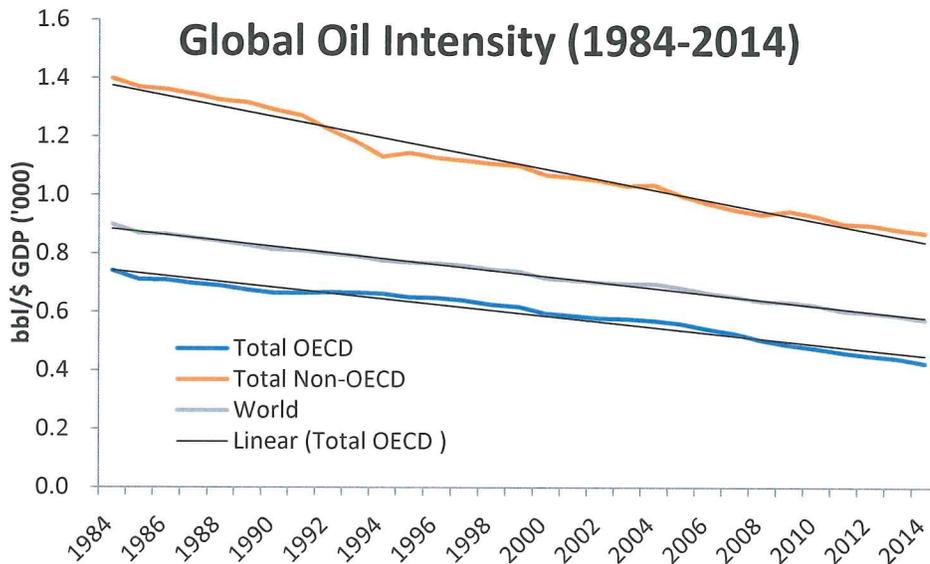


Source: International Energy Agency

Oil intensity has historically trended down at a very consistent pace

Global oil intensity¹

Oil intensity has declined moderately at a modest pace over time. Historically, oil intensity tends to be more stable in developed economies, whereas for emerging economies, depending on the stage of development, it tends to run at high levels and diminishes as the economy matures.



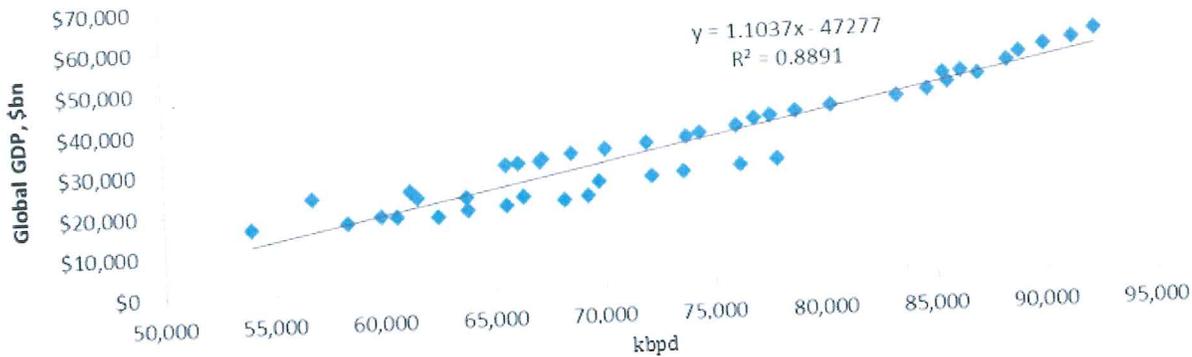
Source: Causeway Research, International Energy Agency, Goldman Sachs Research

¹ Oil demand (bbl) / Real GDP (\$)

Relationship between oil consumption and global gross domestic product (GDP)

Global oil demand is highly correlated to economic expansion. GDP growth and energy intensity of growth remain much higher in the emerging economies/markets (EM), which should continue as the middle class in those countries expands. Other factors besides GDP that drive oil demand, to a lesser extent, include the level of crude prices, the local price of gasoline and weather.

Global GDP vs. Oil Demand



Source: Causeway Research, International Energy Agency, Goldman Sachs Research

Oil demand growth varies across geographies.

Though world oil demand has grown steadily historically, there have been marked differences between oil demand growth trends of OECD and non-OECD markets. OECD growth of oil demand has been, at best, flat to a slight decline, exhibiting a 30-year CAGR of 0.6% and 10-year CAGR of -0.8%, and non-OECD demand growth has accelerated, with a 30-year CAGR of 2.5% and 10-year CAGR of 3.4%.

The key driver of oil demand growth has been transportation.

Transportation is the main source of long-term global demand growth.

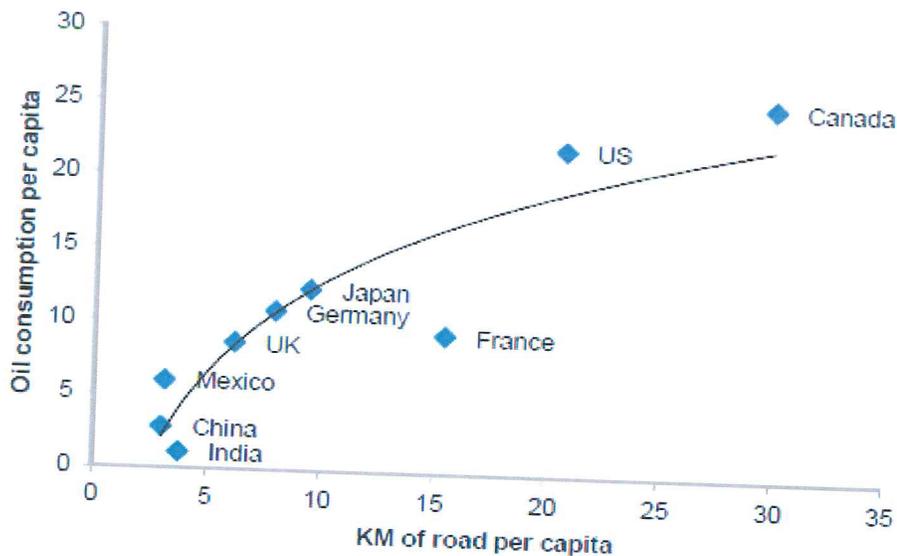
- From 1971-2012, transportation accounted for roughly 90% of demand growth, and represented 64% of total global oil demand in 2014.
- With the highest energy density of the major fossil fuels, oil products are well-suited for transport, where weight and volume are constraints.

Structural and behavioral differences between countries drive per capita consumption, perhaps more than income.

- Miles of road per capita is a very good indicator of per capita oil consumption, which does not favor North America conservation.
- Infrastructure investment and small changes in per capita consumption in Asia can have an outsized impact on global demand.

Per Capita Oil Consumption vs. Miles of Road Per Capita

(Y-axis: oil consumption per capita, x-axis: km of road per 1000 people)



Source: CIA World Factbook, IEA, Morgan Stanley Commodity Research

Transportation demand can be hard to ration without a step change in technology or substitution. Transportation remains vital for economic growth. Lower population densities and structural differences in North America make closing the efficiency gap with Europe and Japan highly unlikely.

KEY CONSIDERATIONS FOR OIL DEMAND

Key driver of growth: non-OECD, especially China

According to the IEA, non-OECD countries constituted 51% of oil demand in 2014, up from about 37% in 2000. China led global demand growth, with demand doubling from 4.6 mmbpd in 2000 to over 10 mmbpd in 2014. China represented 11% of global demand in 2014, and over the past ten years has accounted for 20% of global demand growth.

Emerging markets should continue to drive demand growth in the future:

- EM per capita consumption remains low, especially in China and India² and incomes are rising.
- GDP growth and energy intensity of growth (GDP multiplier) remain much higher in EM, which should continue as the middle class expands.
- Growth is coming off a large base, providing more per barrel growth even if growth rates slow in percentage terms.
- The mix of product demand growth may be shifting to more crude oil-intensive uses.

Sensitivity to Non-OECD and Chinese economic weakness

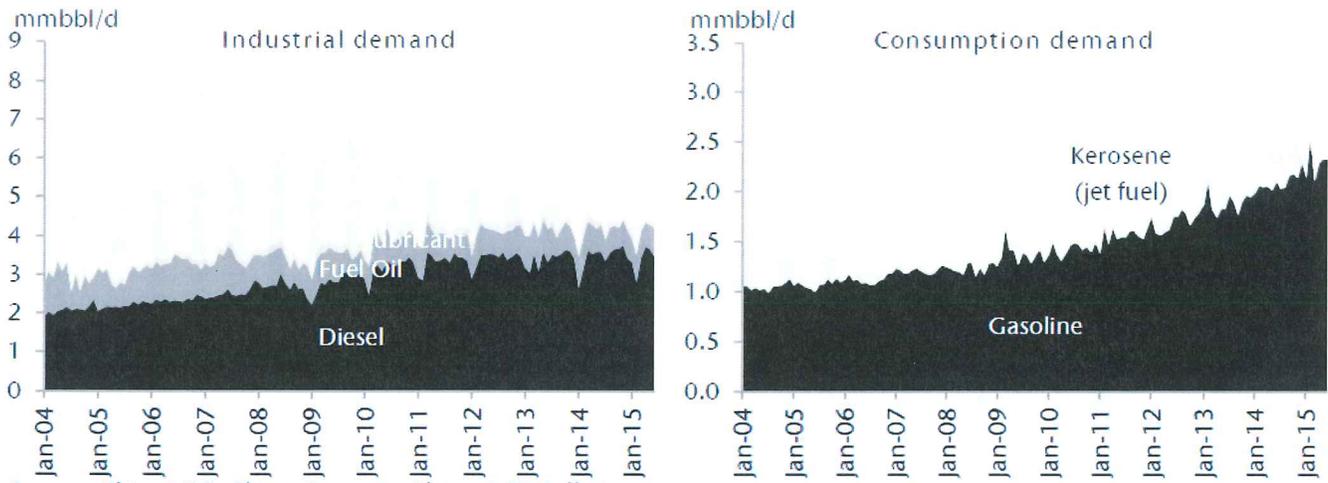
The IMF's expectation for real GDP growth in developing economies is expected to be in the range of 4.7%-5.3% from 2015 to 2020. For China, the range is 6-7% for the respective period. Again, applying the GDP multiplier of 0.5, a 1 percentage point drop in non-OECD economies as a whole would result in a decline of 245 kbpd. If Chinese GDP were to decline by 1 percentage point, oil demand in China would likely shrink by 50 kbpd.

However, we believe the latest data will show that non-OECD and Chinese end demand for crude oil remains robust and is above our estimated run rate, despite a consensus bleak view on the economy.

As China's economy rebalances toward services (from manufacturing and construction) and consumption (from investment), new patterns of resource consumption develop. Diesel demand increased 1.3% year-over-year in the first half of 2015, in line

² India oil demand was less than half of China at 37% in 2014.

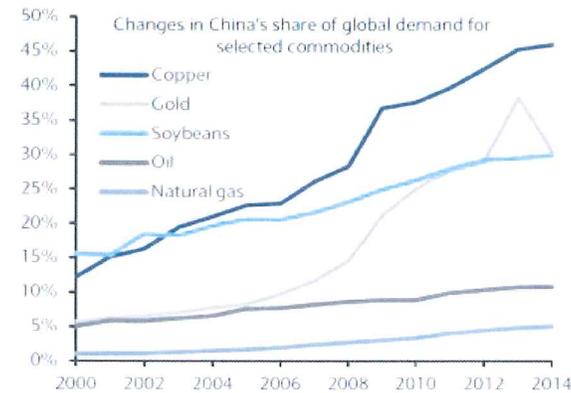
with electricity demand and decoupled from GDP growth. In 2013 and 2014, diesel consumption growth was -0.1% and 1.5%. Chinese gasoline and kerosene demand, on the other hand, increased 12.1% and 17.4% respectively. Chinese gasoline consumption has grown at an annual rate of approximately 10% since 2011.



Source: China NBS, China Customs, China OGP, Jefferies

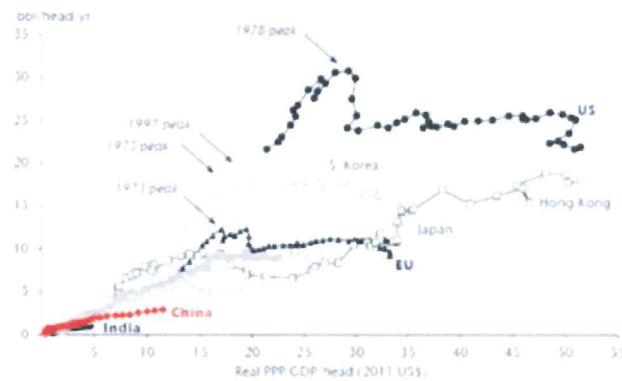
The following chart also demonstrates that relative to other commodities, oil has not enjoyed the same magnitude of Chinese growth, following a steadier path associated with changes in consumption, rather than investment. Following the maturation path of other countries, China has just started in terms of oil consumption intensity per unit of economic output.

China's share of global demand for many important commodities has soared in the past decade



Source: USDA, BP, Woodmac, WGC, CRU, Barclays Research

Oil consumption intensity vs. Per capita PPP GDP, 1965-2013

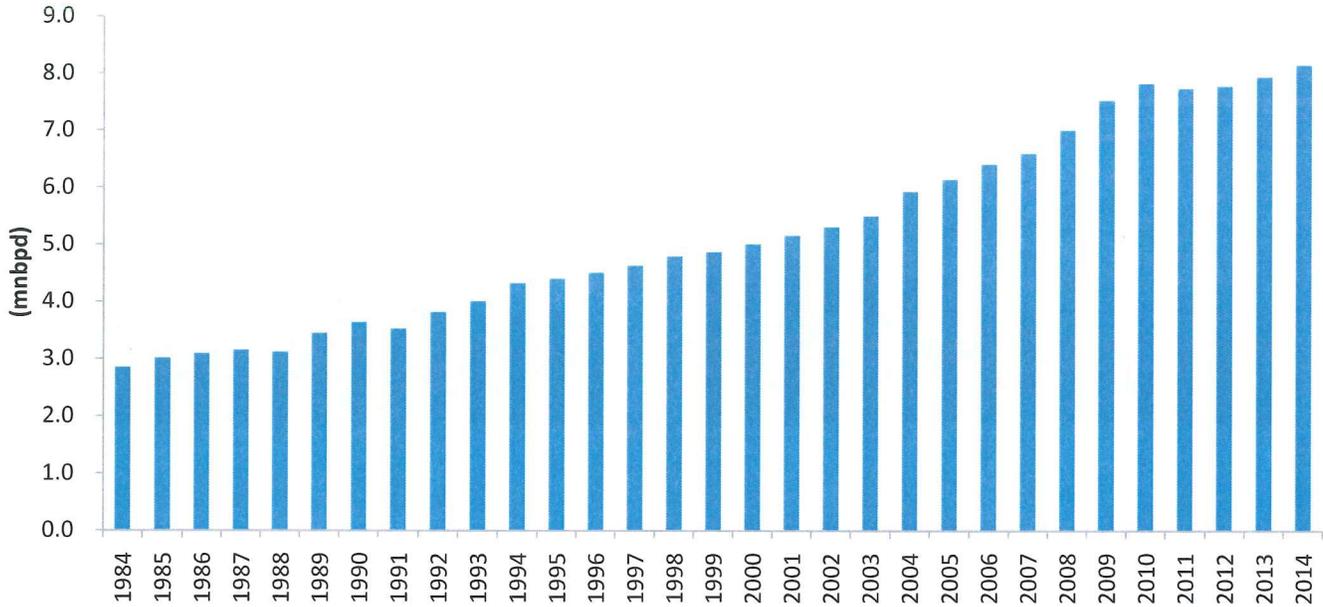


Source: World Bank, BP, Jefferies

Middle East oil demand growth

The Middle East comprised 9% of global oil demand in 2014, and has expanded at a 30-year CAGR of 3.6% and at a 10-year CAGR of 3.2%. As an exporting region, the Gulf States have domestic growth closely linked to commodity price levels, and domestic population growth, rather than price, drives oil demand. In a major oil exporting nation, demand elasticity to oil price is subject to distortion from massive subsidies resulting in inefficient use of oil.

Middle East Oil Demand



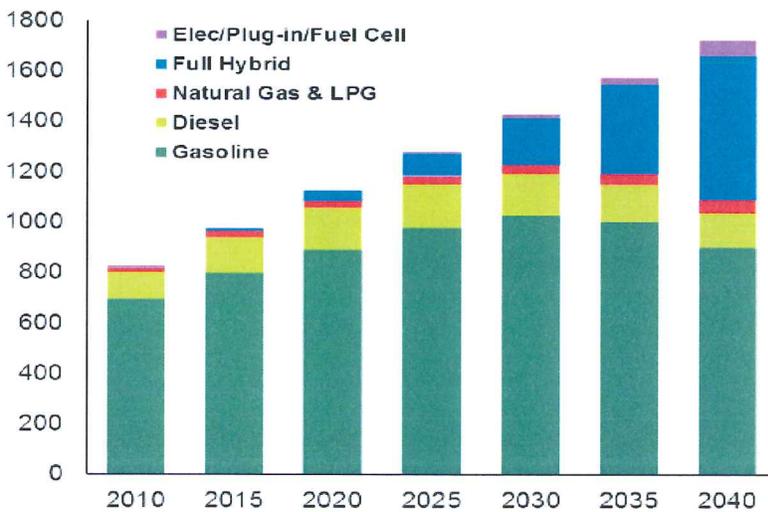
Source: International Energy Agency

Impact from increase in fuel efficiency

ExxonMobil's forecast this year of fleet mix in the longer term shows that combustion engine technology will ultimately cede share, but will not decrease in absolute terms until 2035.

Fleet by Type

Million



Source: ExxonMobil

In the US market, electric vehicles (EVs) in 2015 comprised 0.07% of the car fleet, representing 0.4% of new car sales. If EVs were to take up 10% market share of new car sales, this could lead to a 50 kbpd loss of oil demand the first year (loss of -0.6% of oil demand). Even with a 10% market share in new car sales, it would only represent 0.7% of the fleet in the first year. Hybrids represent 1.6% of the fleet and 2.4% of new car sales. The twelve month moving average of hybrids as a percentage of new car sales peaked 3.5% in the fall of 2013, and has fallen to 2.6% in June 2015. EV sales are rising, but remain immaterial in number to change the fleet composition.

Fuel Efficient Vehicle U.S. Sales Share

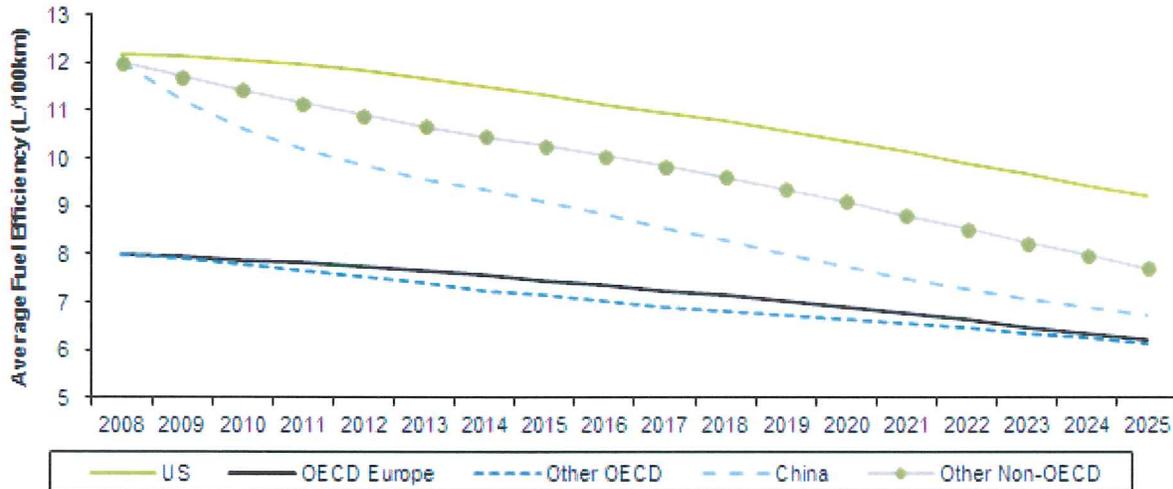


Source: WardsAuto

In order to assess the impact of more stringent Corporate Average Fuel Economy (CAFE) standards, we made the following assumptions:

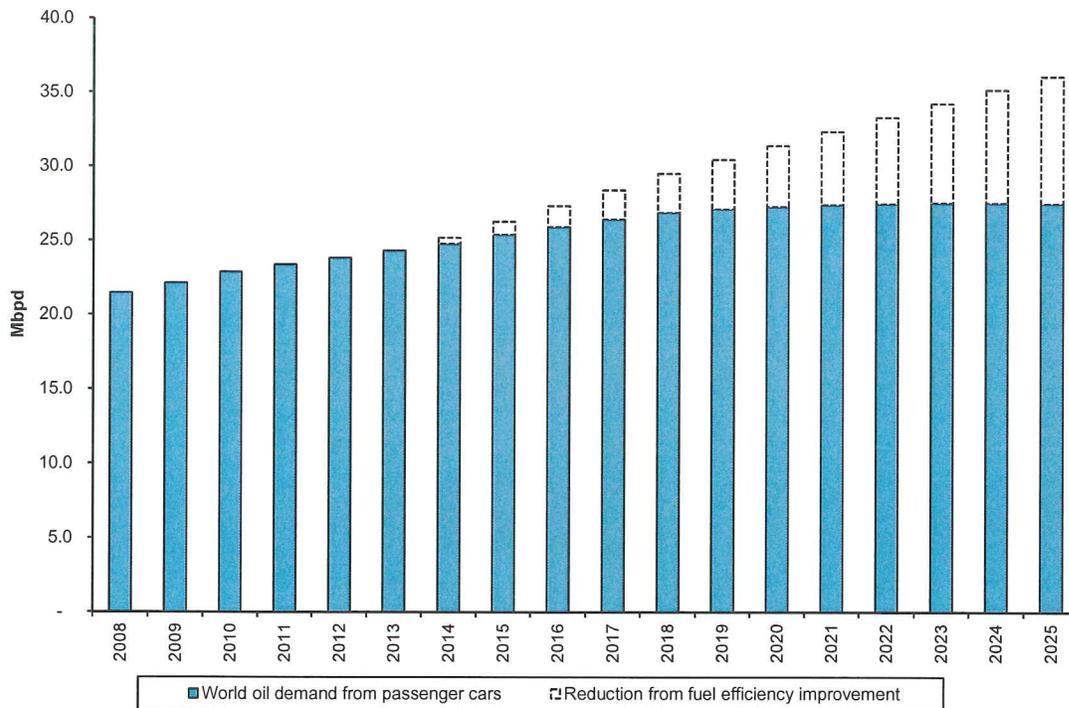
- Efficiency stays the same until the day the vehicles are scrapped. When new vehicles are added to the fleet, they are compliant with the year's CAFE standard (and with actual fuel efficiency of approximately 72% of CAFE standard). For the United States, proposed improvement in fuel efficiency is around 4.1% per annum from 2015 to 2025.
- Scrappage of 6% .

The trend of fuel efficiency over time is as follows:



Source: Bernstein Research

- Without fuel efficiency improvements, world oil demand from passenger cars would rise to 36.1 mmbpd by 2025



Source: Bernstein Research

Oil demand price elasticity

Oil price elasticity appears highest in the United States and in emerging Asia as consumption changes in response to price.

In the United States, a 10% change in gasoline prices over less than 12 months has resulted in a 0.5% change in gasoline demand. Over periods longer than a year, a 10% change in gasoline prices results in a 4% change in gasoline consumption. Given that a 10% change in crude prices results in a 5% change in the price of gasoline at the pump (adjusting for refining, distribution, sales, and taxes), this suggests a short-run elasticity of 0.25% (0.5% x 0.5) and a long-run elasticity of 2% (4% x 0.5) in gasoline consumption to a 10% change in crude prices. With gasoline accounting for about 28% of global demand, then the short- and long-run elasticity of global oil demand to a 10% change in crude prices should be c. 0.1% (0.25 x 0.28) and c. 0.5% (2% x 0.28), respectively. For example, a 50% fall in crude prices would be expected to boost global demand by 0.5% in the short run and 2.5% in the long run based on this data.

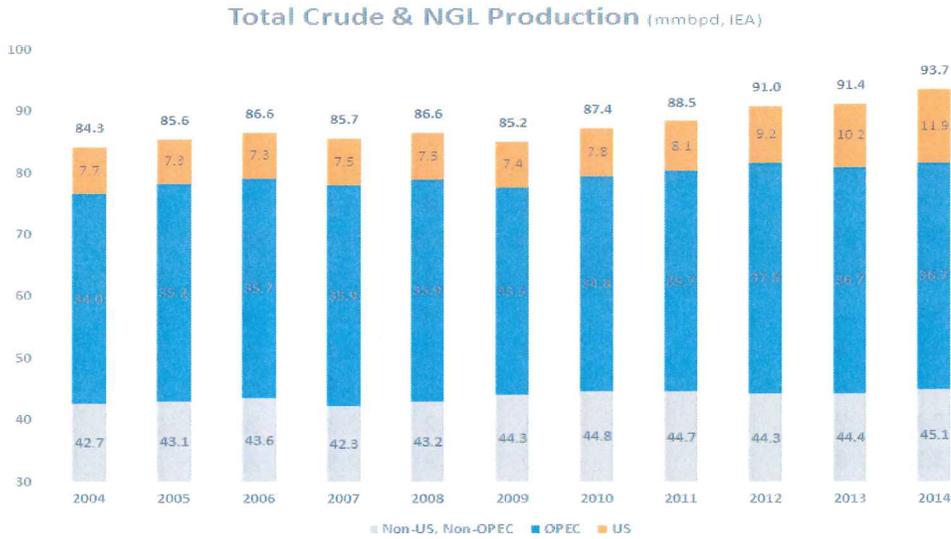
It is worth noting that in the first half of 2015, the strongest area of demand growth came from emerging Asia, specifically China and India, largely in response to low prices. This demand response may, in fact, exhibit just the characteristics that OPEC intended by keeping supply abundant.

INVENTORY LEVELS

OECD days of supply and inventories were a good price signal historically, especially when viewed over longer time periods. However, OECD stocks are now becoming less effective as the non-OECD countries take greater market share. This shifts inventories to regions with opaque data. Revisions are common and result in large miscellaneous-to-balance (i.e. “missing barrels”) terms in IEA balances. Oil supply outpaced demand by 3.3 mmbpd in the second quarter 2015, on data supplied by the International Energy Agency, the largest imbalance since the second quarter of 1998. However, OECD inventories built by less than half of that, leaving 167 million bbl of global crude oil barrels to be allocated to emerging countries, or “missing barrels.” Historically, most of the missing barrels have come from the IEA underestimating oil demand.

SUPPLY OUTLOOK

- We divide total global oil production into three broad categories: 1) US, 2) OPEC, and 3) Non-US, Non-OPEC. Since 2010, the United States has dominated global growth as production surged from under 8 mmbpd to nearly 12 mmbpd.
- Meanwhile, OPEC production has been largely stable in the 35-37 mmbpd range and Non-US, Non-OPEC production has held about flat at 45 mmbpd.



Source: International Energy Agency

Global Oil Production

mmbpd

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Saudi Arabia	9.2	8.9	8.5	8.9	7.9	8.1	9.0	9.5	9.4	9.5
Iraq	1.8	1.9	2.1	2.4	2.4	2.4	2.7	3.0	3.1	3.3
Iran	3.9	3.9	4.0	3.9	3.7	3.7	3.6	3.0	2.7	2.8
Angola	0.0	0.0	1.7	1.9	1.8	1.7	1.6	1.8	1.7	1.7
Libya	1.6	1.7	1.7	1.7	1.6	1.6	0.5	1.4	0.9	0.5
Other	13.4	13.3	13.4	12.5	11.3	12.0	12.5	12.7	12.7	12.5
OPEC Crude Oil	29.8	29.7	31.4	31.2	28.7	29.5	29.9	31.3	30.5	30.3
OPEC NGLs	4.2	4.6	4.5	4.7	4.8	5.4	5.8	6.2	6.3	6.4
Total OPEC	34.0	34.3	35.9	35.9	33.5	34.8	35.7	37.5	36.7	36.7
United States	7.3	7.3	7.5	7.5	7.4	7.8	8.1	9.2	10.2	11.9
Russia	9.6	9.8	10.1	10.0	10.2	10.5	10.6	10.7	10.8	10.9
Norway/UK	4.8	4.4	4.2	4.0	3.9	3.5	3.2	2.9	2.7	2.8
Canada	3.1	3.2	3.3	3.3	3.2	3.4	3.5	3.8	4.0	4.3
Brazil	2.0	2.1	2.2	2.4	2.0	2.1	2.2	2.2	2.1	2.4
Mexico	3.8	3.7	3.5	3.2	3.0	3.0	2.9	2.9	2.9	2.8
China	3.6	3.7	3.7	3.8	3.9	4.1	4.1	4.2	4.2	4.2
Other	16.2	16.7	15.3	16.6	18.1	18.3	18.2	17.6	17.7	17.8
Non-OPEC, Non-US	43.1	43.6	42.3	43.2	44.3	44.8	44.7	44.2	44.4	45.1
Total Global Production	84.4	85.3	85.7	86.6	85.2	87.4	88.5	90.8	91.4	93.7

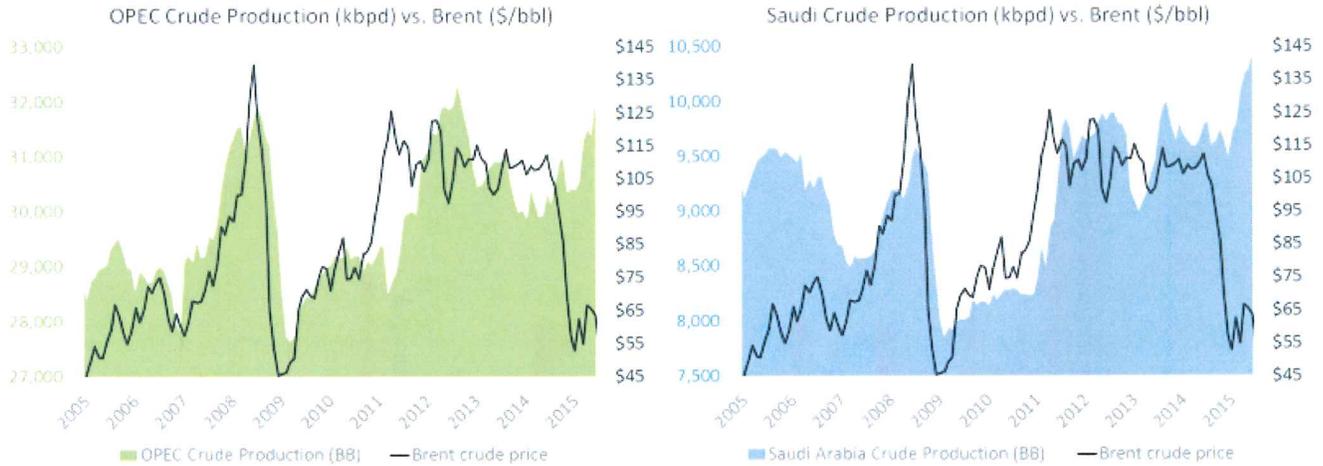
Annual Change

Saudi Arabia	0.4	(0.2)	(0.4)	0.4	(1.0)	0.2	0.9	0.5	(0.1)	0.1
Iraq	(0.2)	0.1	0.2	0.3	0.1	(0.1)	0.3	0.3	0.1	0.3
Iran	(0.1)	0.0	0.1	(0.1)	(0.2)	(0.0)	(0.1)	(0.6)	(0.3)	0.1
Angola	0.0	0.0	1.7	0.2	(0.1)	(0.0)	(0.1)	0.1	(0.1)	(0.1)
Libya	0.1	0.1	0.0	0.0	(0.2)	0.0	(1.1)	0.9	(0.5)	(0.4)
Other	0.5	(0.1)	0.2	(0.9)	(1.2)	0.7	0.5	0.1	0.0	(0.2)
OPEC Crude	0.8	(0.1)	1.7	(0.1)	(2.6)	0.8	0.4	1.4	(0.8)	(0.2)
OPEC NGLS	0.3	0.5	(0.1)	0.1	0.1	0.5	0.4	0.4	0.1	0.1
Total OPEC	1.0	0.3	1.5	0.0	(2.4)	1.3	0.9	1.8	(0.7)	(0.1)
US	(0.3)	0.0	0.1	0.0	(0.1)	0.3	0.4	1.1	1.1	1.6
Russia	0.3	0.2	0.2	(0.1)	0.2	0.2	0.2	0.1	0.1	0.1
Norway/UK	(0.4)	(0.4)	(0.2)	(0.2)	(0.1)	(0.3)	(0.4)	(0.3)	(0.1)	0.0
Canada	(0.0)	0.1	0.1	(0.1)	(0.0)	0.2	0.1	0.2	0.3	0.3
Brazil	0.2	0.1	0.1	0.2	(0.3)	0.1	0.0	(0.0)	(0.0)	0.2
Mexico	(0.1)	(0.1)	(0.2)	(0.3)	(0.2)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)
China	0.1	0.0	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.0
Other	0.6	0.9	(1.5)	1.4	1.7	0.7	0.4	(0.3)	0.2	0.3
Non-OPEC, non-US	0.7	1.0	(1.4)	1.0	1.3	1.1	0.3	(0.2)	0.3	0.9
Total Global Production	1.1	0.9	0.4	0.9	(1.4)	2.2	1.1	2.3	0.5	2.3

Source: International Energy Agency

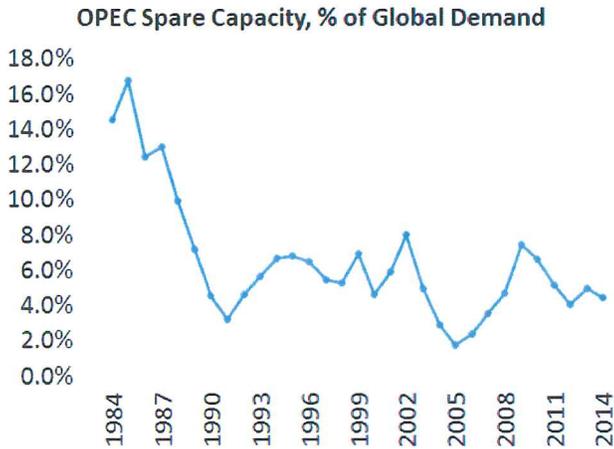
Supply: OPEC

OPEC is a 12-member organization whose members coordinate production to ensure that the oil market remains in balance within a particular price band. OPEC was originally created in 1960 by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela.



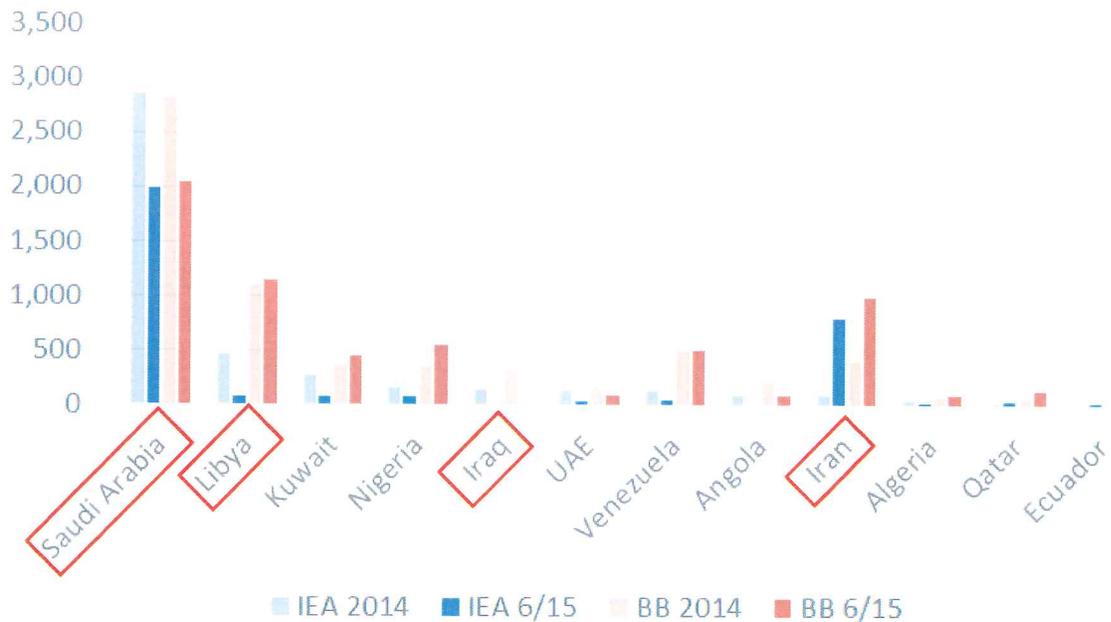
Source: Bloomberg

- To sustain high oil prices, OPEC has historically utilized a quota system to ensure that excess supply or *spare capacity* was withheld from the market. Over the past 20 years, OPEC has acted to reduce quotas after price declines in order to prop up prices, with varying degrees of success. The current production quota of 30 mmbpd has been in place since 2012.
- For the past decade, OPEC spare capacity has been closely watched due to the relationship between spare capacity (relative to global demand) and the global oil price; when spare capacity is low, the oil price has generally been higher (at or above marginal cost).

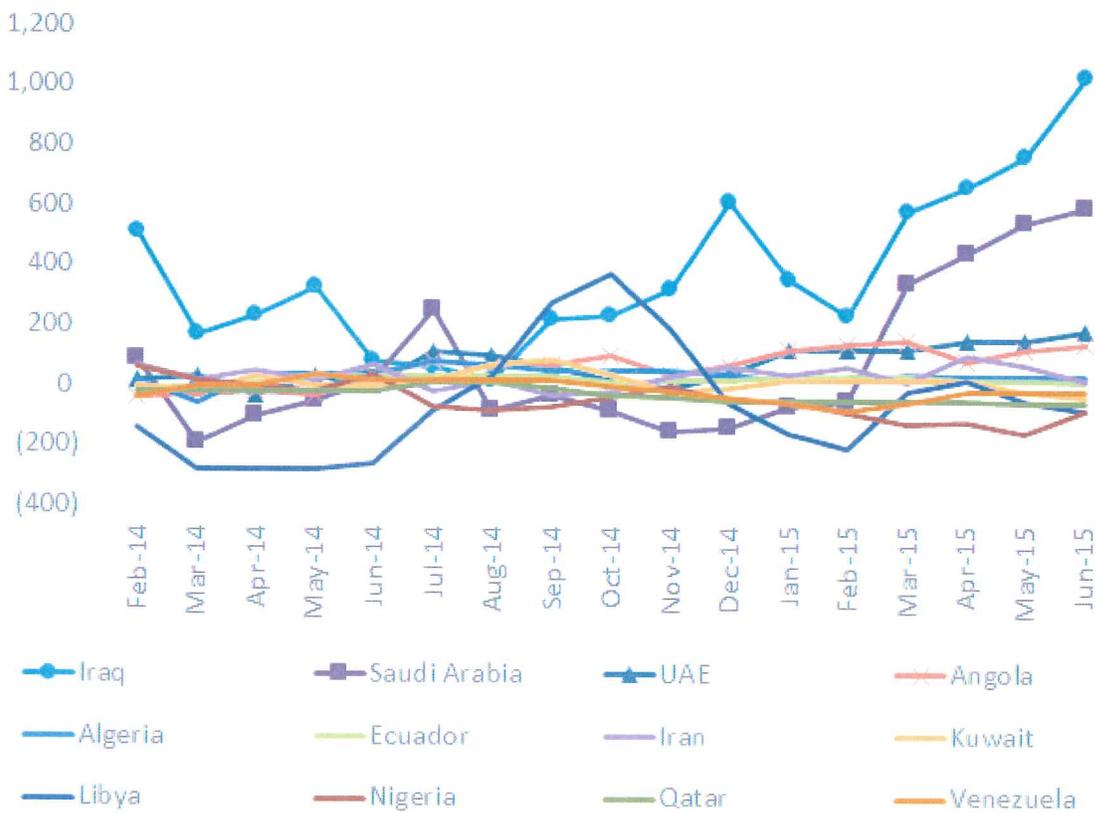


Source: Bernstein Research, International Energy Agency

OPEC Spare Capacity Estimates, IEA vs. Bloomberg (kbpd)

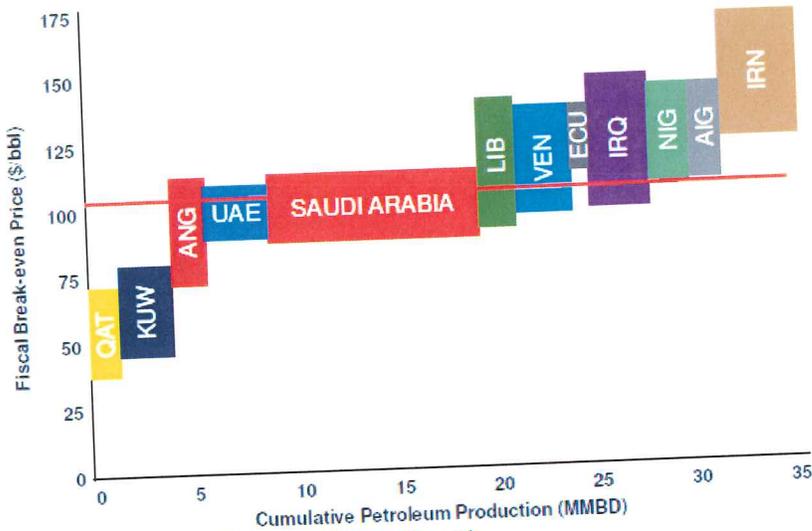


OPEC: Cumulative Production Change since Jan '14 (kbpd; IEA)



Source: International Energy Agency

- The economies of the OPEC member countries are highly dependent on oil export revenues. Nearly half of OPEC's production comes from countries which require an oil price over \$100 in order for their budgets to break even.
 - The notion that OPEC countries *have* to have higher oil prices is incorrect, as they can run debt-funded budget deficits and constrain spending, but it is clear that these countries are impacted greatly by oil prices and would *like* to have higher oil prices.



Source: IMF, ARICORP, Evercore ISI Energy Research

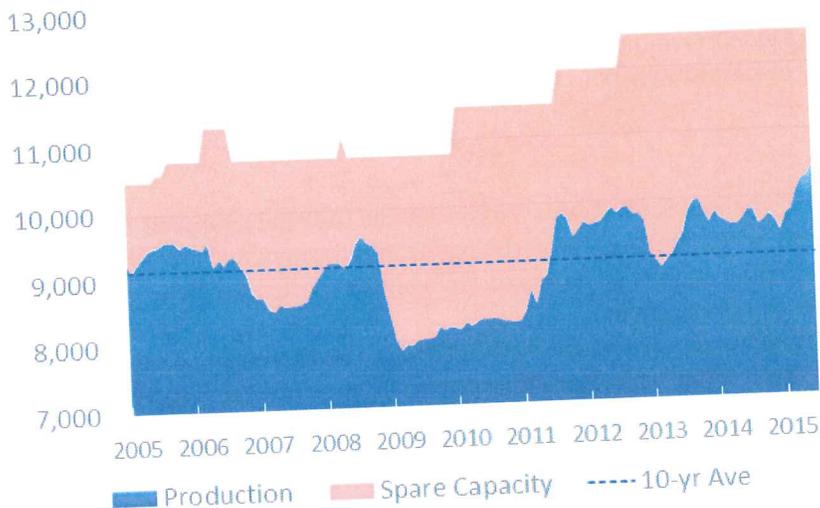
$$P = \alpha^{-1}(\text{EXP} - \text{NHFR} + yC) / (xQ + yE)$$

Oil export price required = price dislocation factor (govt expenditures - non-oil fiscal revenues + hydrocarbon taxation x oil industry costs) / (oil royalty rate x oil production + oil taxes x exports)

Saudi Arabia

- Saudi Arabia is the largest and most important member of OPEC, with over 10 mmbpd of crude production (about a third of the OPEC total); about 25% of production is exported. Importantly, Saudi Arabia also controls the majority of OPEC spare capacity (see previous chart).
- 6 mmbpd of Saudi's production comes from a single field, Ghawar, which is the largest oil field in the world.

Saudi Arabia Crude Production (kbpd)

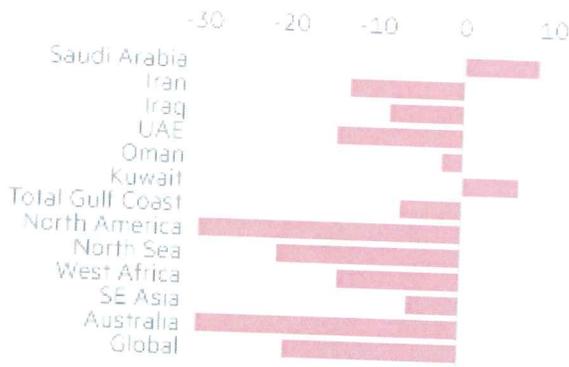


Source: Bloomberg

- Saudi Arabia is currently estimated to have about 2 mmbpd of spare capacity, which is not high historically (see below). We understand from industry experts that despite the 12 mmbpd headline capacity number, 11 mmbpd is very close to a functional ceiling and even current production levels of around 10.5 mmbpd could be very strained in terms of Saudi Arabia's ability to produce without damaging their fields. In the past, Saudi Arabia has declared a policy of having at least 1.5-2 mmbpd of spare capacity on hand in case of potential crises that reduce oil supplies.

Oil and gas investments in 2015

Estimated yearly change in exploration and production spending



Source: Rystad Energy

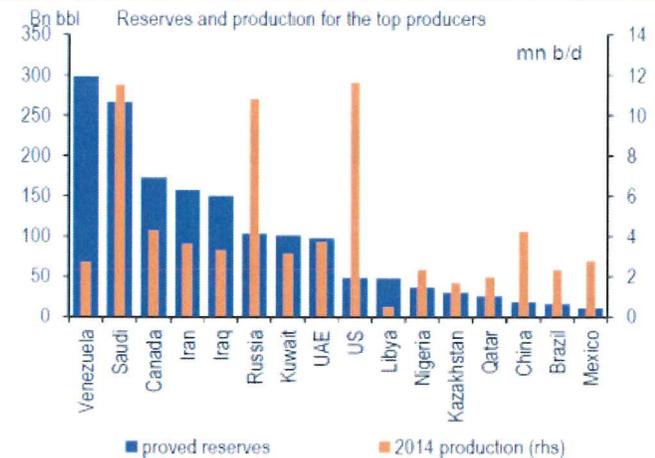
- The massive increase in Saudi Arabia's rig count in 2013, which was not accompanied by a corresponding increase in production, led to speculation that it was becoming increasingly difficult to maintain stable output from existing wells. In 2012, Saudi launched a \$35 bn 5-year exploration and production investment plan, but this was explicitly meant merely to sustain current capacity at 12.5 mmbpd.
- In the mid-2000s, Saudi Aramco considered a 15 mmbpd target to meet global demand, but these plans were later shelved and the government declared that it considered 12.5 mmbpd capacity sufficient through 2020. The most recent major project was the 900 kbpd offshore heavy crude field Manifa, but this project served to offset declines elsewhere as opposed to increasing total capacity. Manifa cost \$17 bn and the country had to wait six years from sanction to first oil.
- In the medium-term, Saudi capacity has the potential to move even higher with the addition of the 250 kbpd Shaybah expansion by April 2016, as well as new technology implementation which could boost production by over 100 kbpd by reactivating the Dammam field.
- Saudi Aramco highlights in its 2014 Annual Review that its exploration program discovered eight new fields in 2014, the most in its history, and these discoveries represent progress toward the long-term goal of growing the resource base. Saudi's reserve base has been flat at 260 bn barrels for the past five years.

Iran

- Iran used to be the fourth-largest oil producer in the world behind Saudi Arabia, Russia and the US. Production fell significantly in 2012 due to the impact of US-led sanctions, which shut out the participation of Independent Oil Companies (IOCs). The primary IOCs were Eni and Statoil, and Iran limited exports to 1 mmbpd. (In reality, exports have been as high as 1.2 mmbpd; top importers include China, South Korea, Japan and India.)
- With the increasing likelihood of Iran sanctions lifted this summer, we expect 500-700 kbpd to return to the market at some point between year-end 2015 and the first half of 2016. While Iran claims they can add as much as 1 mmbpd within a few months, experts generally agree that given the lack of investment over the past few years, a ramp up will be challenging and time-consuming. Considering pre-sanctions production of 3.6 mmbpd in 2011 and a natural decline in capacity that would come with lowered investments, many believe that Iran's true capacity today is less than the 3.3-3.5 mmbpd implied by the 500-700 kbpd estimate. Others expect that beyond the initial 700 kbpd increase, a further 300 kpd increase could be gradually reached by 2020 with some further investment by IOCs.

- There could be near-term upside risk to the 500-700 kbpd estimate, depending on how much of the Iranian oil in storage (rumored to be 30 mmbpd floating, 20 mmbpd onshore) comes to market. While storage wouldn't be emptied entirely, a worst-case scenario of 50 mmbpd of oil in storage released over six months would represent nearly 280 kbpd of incremental supply over that six-month period.
- In the longer-term, Iran may be capable of ramping production back up to close to 4 mmbpd by the end of the decade with incremental investment from IOCs. However, there would be a long lead time for new investments; it typically takes ten or more years from the start of a licensing round to first production.

With 158 billion of barrels of proved reserves, Iran has the world's 4th largest proved oil reserves



Source: IEA, Woodmac

Iraq

- Iraq is the second-largest OPEC producer and has matched Saudi Arabia's growth of 700 kbpd since the November OPEC meeting. For over a decade, Iraq has not been subject to a formal OPEC quota; this is not expected to change before 2017.
- Of Iraq's 4 mmbpd production, 3 mmbpd comes from the giant southern oil fields (key asset Rumaila field), 500 kbpd is from the north (Kirkuk) and 500 kbpd is from the autonomous region of Kurdistan. Kurdistan production capacity has the potential to increase by another 500 kbpd over the next decade, though conflict with Iraq will limit near-term export capacity.
- Iraq is expected to be a steady source of production growth within OPEC, adding 300-400 kbpd per year.

Libya

- Libya oil production was between 1.5-1.7 mmbpd for the 20-year period leading up to the 2011 civil war. In 2011, production slipped to nearly zero after the abandonment of production facilities and exodus of foreign workers.
- Despite recovery to 1.6 mmbpd in 2012, production has ranged between 200-800 kbpd for the past year and a half due to continued security issues, as the long-running conflict between the country's two rival governments has forced a halt to operations at strategic fields and terminals.
- Libyan production is expected to ramp up by 80-200 kbpd following the lifting of force majeure at the Ras Lanuf terminal in July. Longer-term, if/when the civil conflict is resolved, Libya will be a source of upside production risk as it returns to the historical 1.2 mmbpd level.

Other OPEC Members

- Angola (1.6 mmbpd) is set to grow by 50-75 kbpd per annum in 2018-2020 due to large startups like Block 32 Kaombo, but will decline modestly in 2015-2017 as startups are insufficient to offset the steep decline (production is 100% offshore, 75% deepwater or ultra-deepwater).
- Venezuela (2.4 mmbpd) and Nigeria (1.8 mmbpd) are member nations that constitute a significant portion of supply, yet represent potentially politically unstable regions that could suffer outages.

Supply: United States

Summary

As of the second quarter of 2015, the United States produced 9.7 mmbpd of crude oil (as reported by the IEA) and another 3.3 mmbpd of natural gas liquids (NGLs) for a total of 13.0 mmbpd (as reported by the IEA). As shown in the table below, approximately 5 mmbpd is from shale (tight/unconventional), of which over 90% is from the Big 3 shale areas: the Bakken, Eagle Ford and Permian.

U.S. Crude Oil Production (kb/d)

	2007	2008	2009	2010	2011	2012	2013	2014	1Q15	2Q15
Bakken	138	182	229	321	432	686	891	1,115	1,227	1,237
Eagle Ford	54	55	52	85	265	627	1,043	1,445	1,682	1,676
Permian: Vertical	849	850	842	870	925	992	1,024	1,068	1,039	999
Permian: Horizontal	0	22	37	64	116	199	325	571	992	949
Permian	849	875	880	923	1,018	1,191	1,350	1,640	1,968	2,031
Total Key Basin Production	1,042	1,112	1,161	1,329	1,715	2,504	3,283	4,200	4,877	4,944
Niobrara	125	133	133	144	165	201	265	377	458	447
Oklahoma	175	184	183	189	209	254	311	340	353	351
Other Unconventional Production	300	317	316	333	375	455	576	717	811	798
Alaska	722	683	646	600	562	526	515	496	503	492
California	599	586	567	551	532	539	545	560	567	567
Other U.S. Onshore	1,065	1,080	1,037	1,057	1,088	1,157	1,235	1,295	1,243	1,276
Offshore U.S.	1,350	1,222	1,622	1,613	1,371	1,315	1,306	1,447	1,476	1,503
Total U.S.	5,077	4,999	5,349	5,483	5,643	6,496	7,460	8,714	9,476	9,579
<i>o/w: shale (tight/unconventional)</i>	492	579	635	791	1,165	1,967	2,835	3,849	4,649	4,743
Y/Y Change		(78)	350	133	161	853	964	1,254	1,335	962

Source: Energy Information Administration

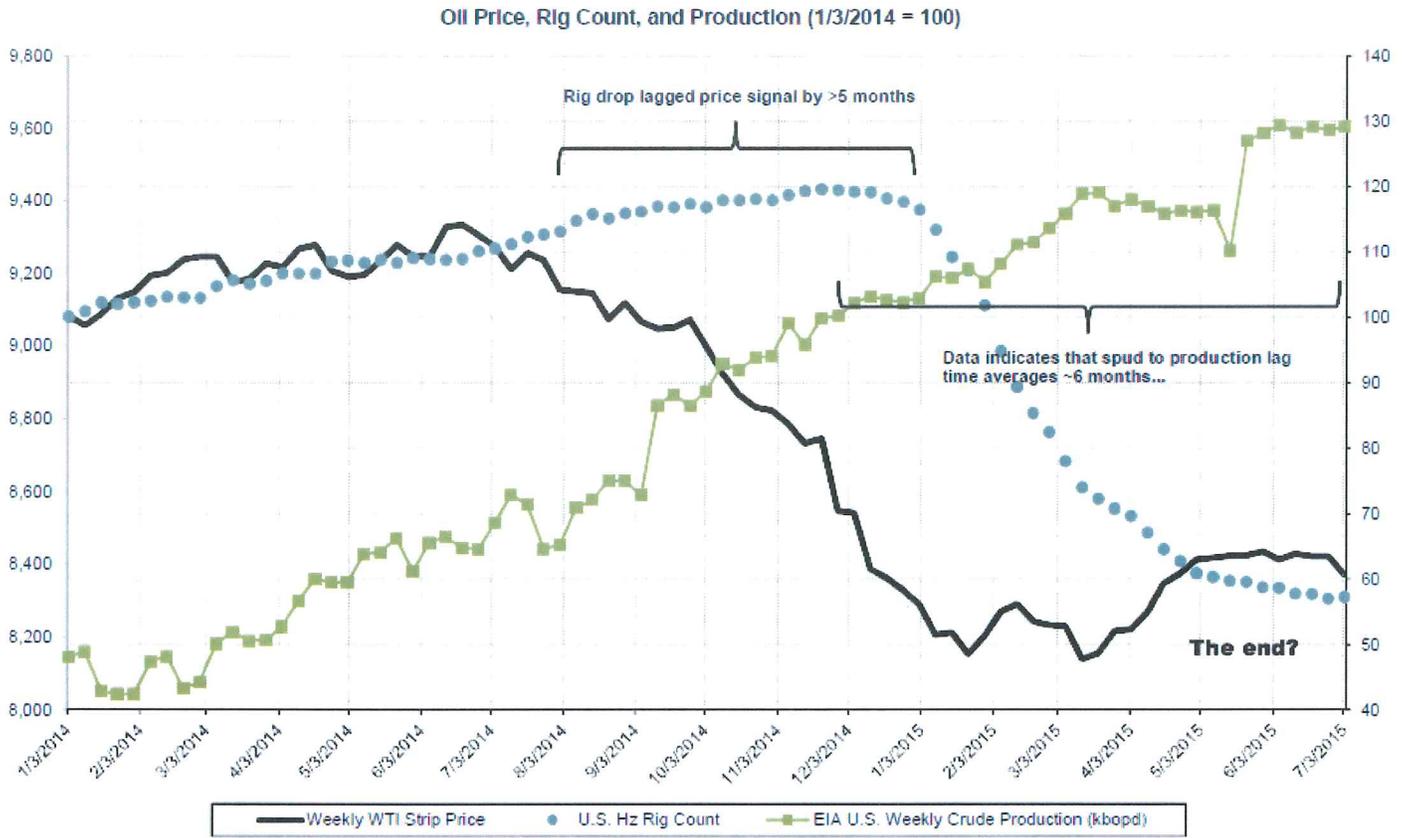
2015 YTD

In response to the drop in oil prices, the US rig count plummeted from over 1,900 in the fourth quarter of 2014 to under 900 as of July 2015. Of this amount, 650 are oil rigs; we further estimate that about 440 of these are horizontal rigs targeting shale oil production (the Baker Hughes data below classifies rigs as horizontal or oil separately, but does not specifically classify horizontal rigs targeting oil).

Using alternate data compiling the horizontal rig count for the four major shale oil basins, we see a similar decline of approximately 50% from the fourth quarter of 2014 to the second quarter of 2015, with every basin participating in the dramatic reduction.

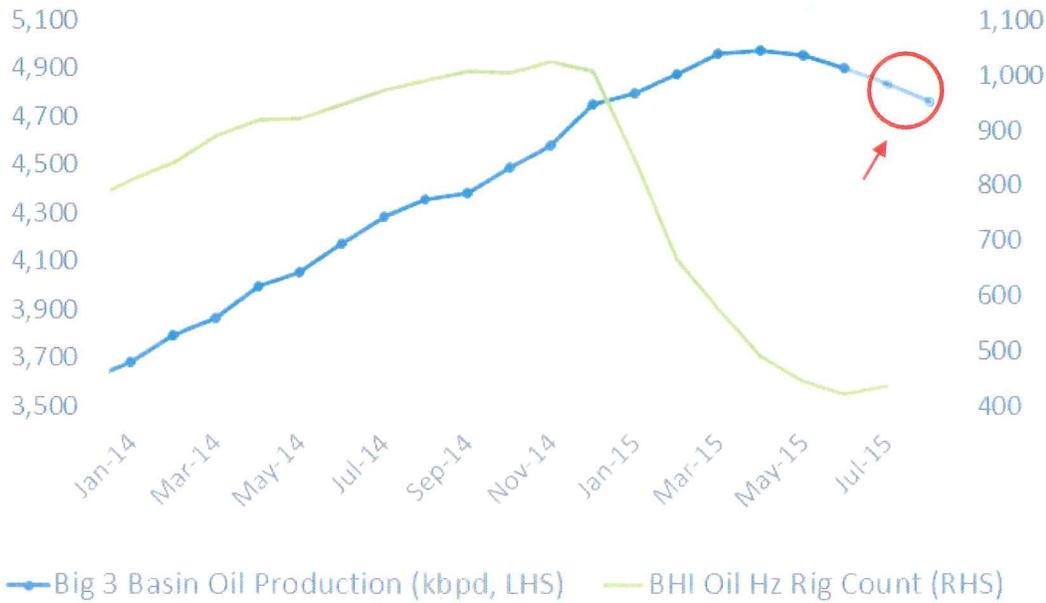
However, despite the significant decline in rig count, shale oil production has yet to decline, as shown below.

The supply response to price can take ~12 months



Source: EIA; Bloomberg; HPDI; Baker Hughes; Bernstein analysis and estimates. "Spud" is the start of drilling on a new well.

Oil Production vs. Rig Count



Source: Energy Information Administration, Baker Hughes

We believe production has been slow to roll over for two reasons: 1) the lag time between drilling and completion (about six months), and 2) increased productivity per well this year due to “high-grading,” or shifting more drilling to the “core” of areas.

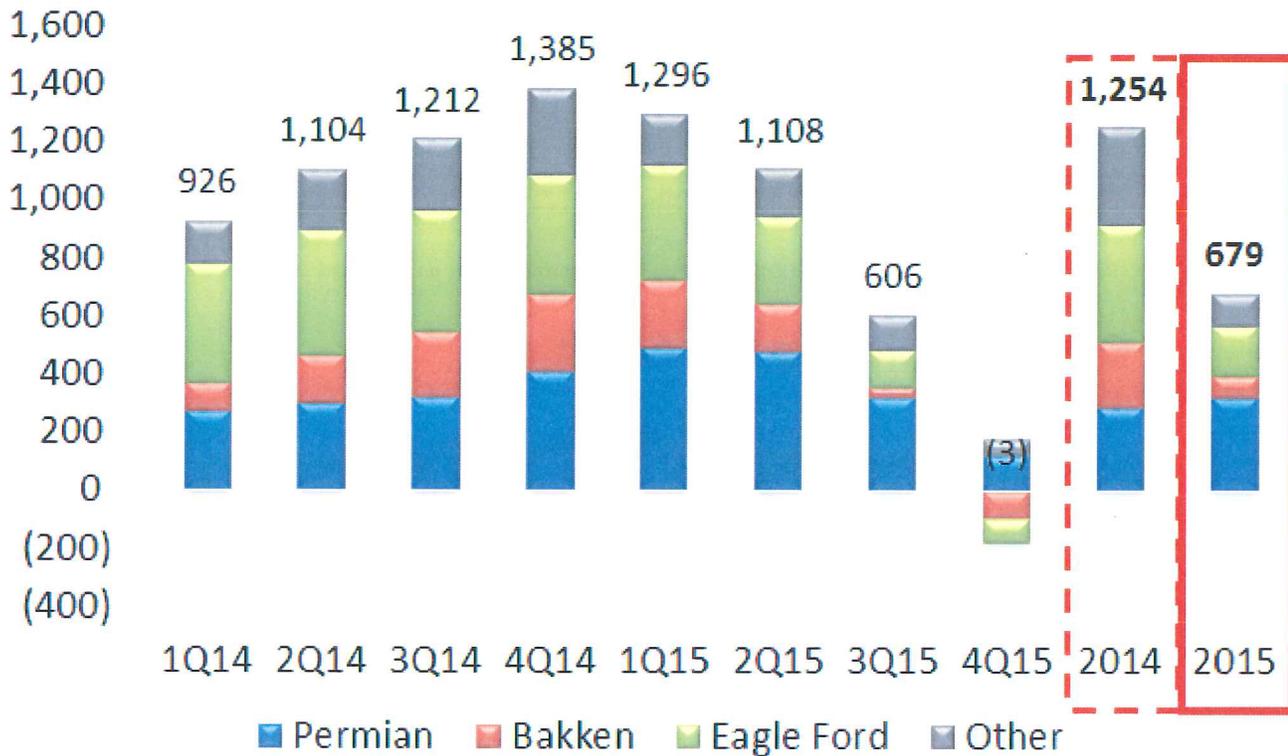
Lag time

The lag time between drilling a well and the well actually being placed on production is generally about six months, depending on the extent of pad drilling and availability of completion services. The lag time this year has extended to the wider end of that range, as operators have purposefully stretched out their inventory of drilled-and-uncompleted wells in order to defer production (and completion costs) for a time with expected higher oil prices.

The significant drop in the rig count for the major shale areas occurred in the first quarter of 2015; therefore, with a two-quarter lag, we expect the most significant impact on production to be in the third quarter of 2015.

For 2015, we expect the first half of 2015 to roll off of the US rig count to result in a contraction in year-on-year growth to around 600 kbpd in third quarter of 2015 and flat in fourth quarter of 2015, for an average full-year 2015 growth of about 700 kbpd.

U.S. Oil Production Y/Y Growth (kb/d)

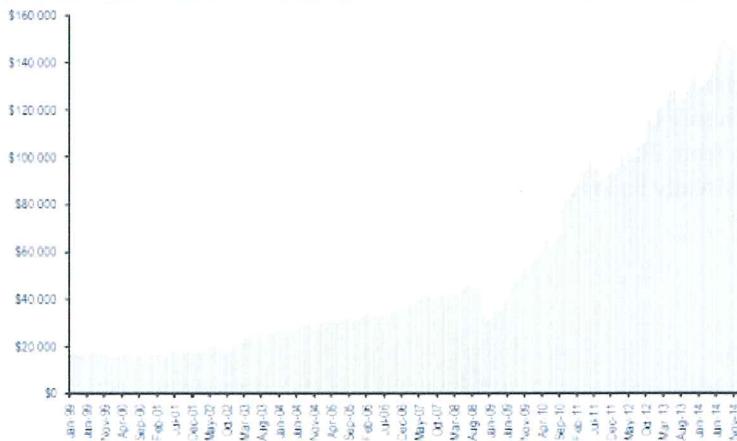


Source: Energy Information Administration

Operator Behavior

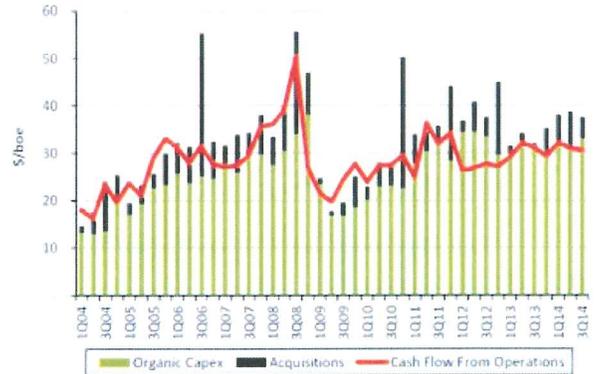
The US shale boom was arguably one made possible not only by high oil prices, but also accommodative bond markets.

J.P. Morgan High Yield Energy Index Market Value (\$ millions)



Source: J.P. Morgan High Yield Strategy

EGPs spend all their cash flow...and then some

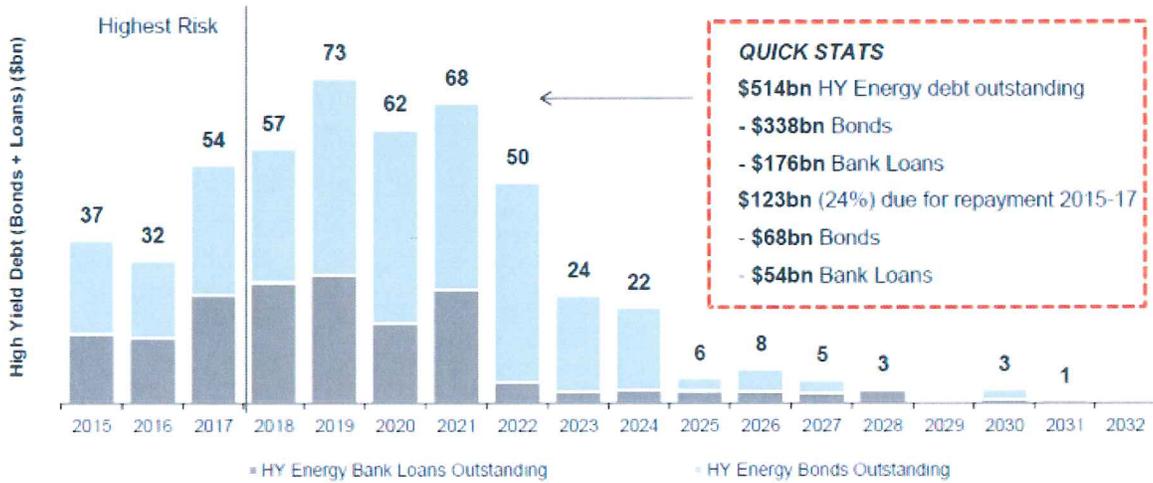


Source: Corporate reports and Bernstein analysis.

About a quarter of global high yield energy debt needs to be refinanced in the next three years – this should add to management’s urgency to maintain balance sheet strength.

There is \$123bn high yield debt due for repayment by 2017. 44% of this (\$54bn) is bank loans .

Global Energy Industry - High Yield Debt Repayment Schedule



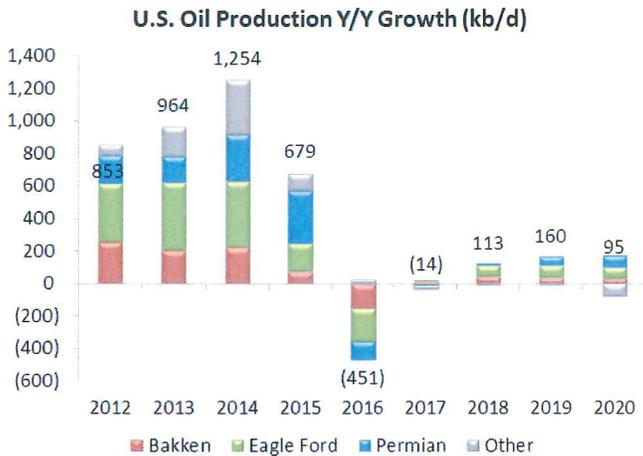
Source: Dealogic Analytics, Bernstein analysis

Over the past year, the equity markets have punished operators with higher than average debt leverage.

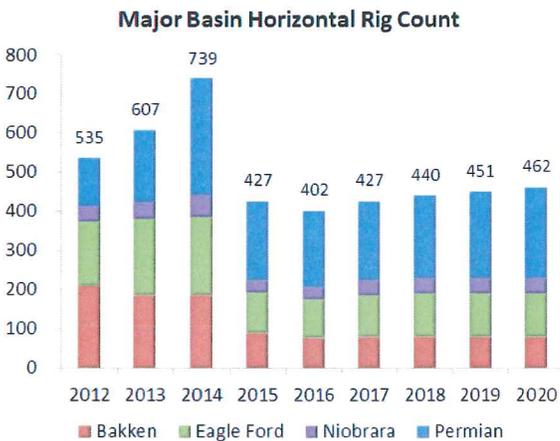
Current Forwards

At current forwards (WTI \$50 in 2016, \$55 in 2017), we estimate that US production will decline by 450 kbpd in 2016 and will be about flat in 2017.

- The key assumption is that the **rig count has to decline further to hold capital expenditures within cash flow**, as operators in this environment have become increasingly focused on spending within their means and holding financial leverage flat. We estimate that leverage (net debt/EBITDA) would still tick up from about 2.5x in 2015 to 2.7x in 2017.
- We assume continued productivity gains beyond the high-grading related gains seen in 2015, though such gains moderate in the Permian and Niobrara basins where high-grading was most prevalent.
- We also assume that well costs decrease by 33% from 2014 levels; this represents an additional 12% decrease from the roughly 24% savings that we estimate have already been realized this year.



Reflects Causeway estimates for 2015 onward
Source: Causeway Research, Energy Information Administration



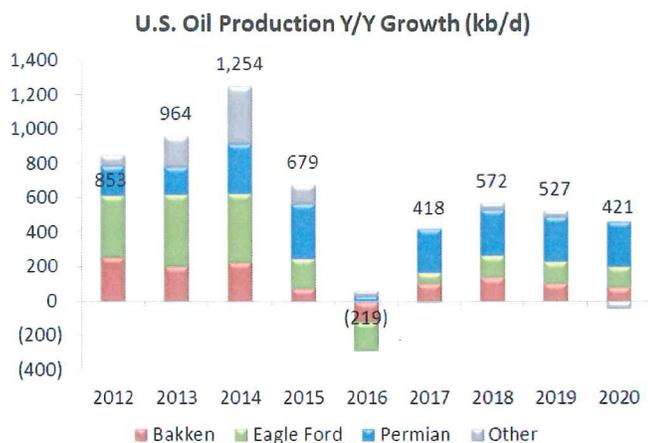
Reflects Causeway estimates for 2015 onward
Source: Causeway Research, Baker Hughes

Market Balance

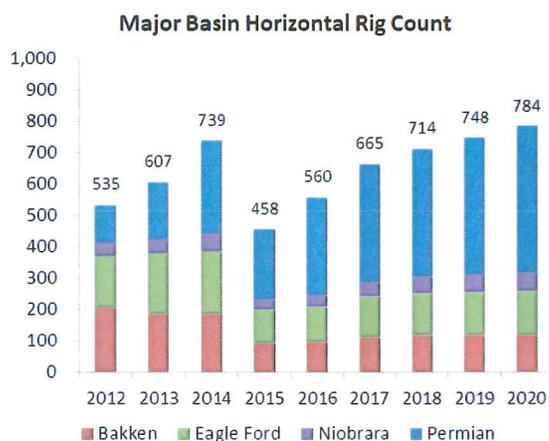
As mentioned previously, we project that the global supply/demand balance necessitates growth of about 500 kbpd from the United States by 2017 and beyond.

- To achieve this level of growth, the rig count has to increase by about 100 per year in 2016 and 2017.
- If WTI were to remain at current forwards (WTI \$53 in 2016, \$56 in 2017) while production still ramped up to this level, cash flow overspend would be over 135% (vs. 2014 at 125%) and leverage would increase from 2.5x to 2.7x.

- To fund this level of growth, WTI needs to rise to at least \$65 to limit cash flow overspend to below 120% over the 2015-2017 period.
- At flat WTI of \$45, overspend would balloon to nearly 150% by 2017 and leverage would increase to 3.4x, even after assuming additional well cost savings as in the scenario above.



Reflects Causeway estimates for 2015 onward
 Source: Causeway Research, Energy Information Administration



Reflects Causeway estimates for 2015 onward
 Source: Causeway Research, Baker Hughes

Supply: Non-US, Non-OPEC

The “Non-US, Non-OPEC” category comprises 45 mmbpd of crude and NGL production from 25 distinct IEA country classifications.

Growth for this group has been stagnant for the past five years, as growth from Canada and Brazil has been offset by declines from the North Sea, Mexico and Other.

mmbpd

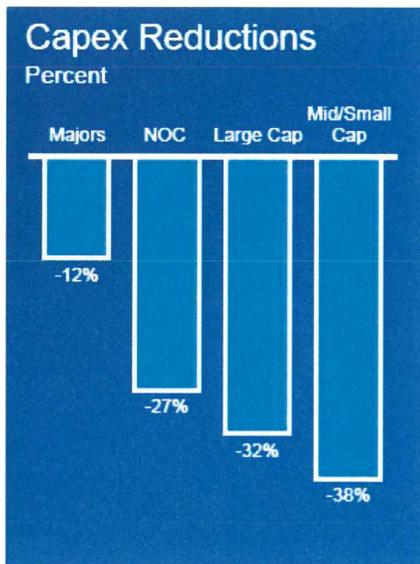
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	CAGR
Russia	9.6	9.8	10.1	10.0	10.2	10.5	10.6	10.7	10.8	10.9	1.4%
Norway/UK	4.8	4.4	4.2	4.0	3.9	3.5	3.2	2.9	2.7	2.8	(6.0%)
Canada	3.1	3.2	3.3	3.3	3.2	3.4	3.5	3.8	4.0	4.3	3.8%
Brazil	2.0	2.1	2.2	2.4	2.0	2.1	2.2	2.2	2.1	2.4	1.9%
Mexico	3.8	3.7	3.5	3.2	3.0	3.0	2.9	2.9	2.9	2.8	(3.2%)
China	3.6	3.7	3.7	3.8	3.9	4.1	4.1	4.2	4.2	4.2	1.7%
Other	16.2	16.7	15.3	16.6	18.1	18.3	18.2	17.6	17.7	17.8	1.1%
Non-OPEC, Non-US	43.1	43.6	42.3	43.2	44.3	44.8	44.7	44.2	44.4	45.1	0.5%

As of July, the IEA projects Non-US, Non-OPEC production growth of 100 kbpd in 2015 and -300 kbpd in 2016.

We see five regions growing production in 2015-2016: Brazil (100-150 kbpd p.a.), Canada (100-200 kbpd), Russia (0-100 kbpd), Malaysia (60-80 kbpd), and Norway (0-50 kbpd). In our forecasts (in-line with current IEA forecasts), a number of growth projects deliver front-loaded growth in 2015 for net growth of about 100 kbpd, but a gradual increase of the decline rate along with a decrease of the growth pipeline flips net growth to negative in 2016 and 2017.

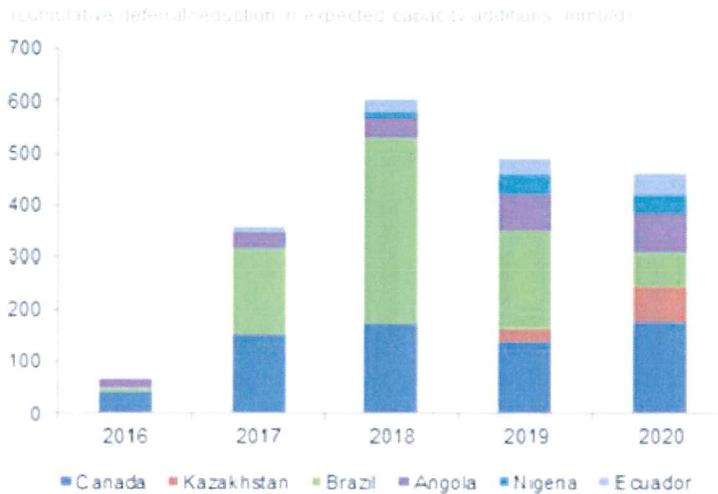
As a reference, IEA projections for non-OPEC supply has often proved optimistic (and this includes the United States, which would have surprised to the upside in recent years).

Major producers have already cut capex plans significantly, with further cuts likely to follow in the second half of 2015 if oil prices stay below \$60. We expect that capex cuts will have the biggest impact on 2017 production. The decrease in projected 2017 supply is consistent with the large number of project deferrals that have already been announced impacting growth projections in 2017 and beyond.



Source: Chevron Corporation

Projects Already Being Deferred or Cancelled Outside the US



Source: PricewaterhouseCoopers - IEA, Middle Eastern Commodity Research

Supply/Demand and Inventory Analysis

Marginal Cost

US Shale

In the *Supply: United States* section we estimated that WTI had to be at least \$65 in order to fund sufficient rig count increases to get back to approximately 500 kbpd of US shale-driven growth in 2017-2020. This was based on well cost savings of about 24% vs. 2014 levels. As shown below, 24% is higher than the savings that most operators are expecting for this year, so we believe we are being conservative from a marginal cost perspective (i.e. the actual marginal cost could be higher than \$60).

As an example, Continental Resources (CLR) disclosed that it would need to spend \$2.4 bn to keep production flat; however, implied annualized cash flow (EBITDAX as a proxy) at \$49 oil fell \$600 mm short. Extrapolating cash flow per barrel of \$33 on 144 kbpd of production, CLR would require oil prices of \$60 to cover its maintenance capex and maintain flat production.

Case Study: Continental Resources Marginal Cost

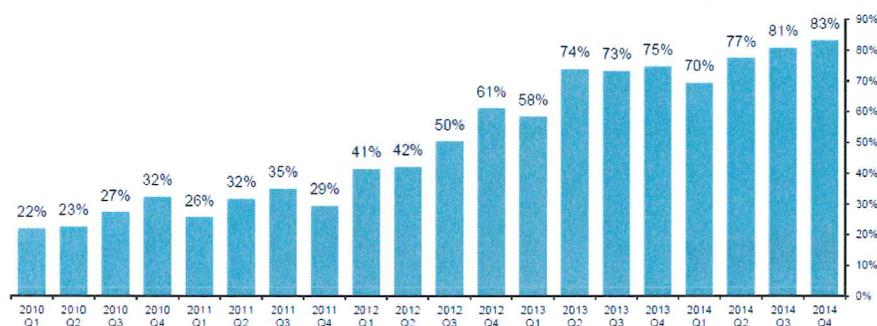
1Q15 production (kbpd)	144	
1Q15 average WTI price	\$48.6	
Annualized production	52,560	
1Q15 EBITDAX	439	
Annualized EBITDAX	1,756	
EBITDAX/bbl	\$33.4	
Maintenance capex	(2,370)	<i>Company guidance of capex req to maintain flat production</i>
Cash shortfall	(614)	
Shortfall/bbl	(\$11.7)	
Breakeven price	\$60	<i>Implied price required to maintain production</i>

Source: RHB

"Risk" of further efficiencies

In terms of further efficiencies, much of the benefit to be had in terms of cost savings and reduced drilling time per well associated with pad drilling has been realized, as the vast majority of horizontal wells are now on pads.

% of New Bakken H₂ Wells Drilled on Pads



Source: HPDI, Bernstein estimates

"Risk" of further well cost savings

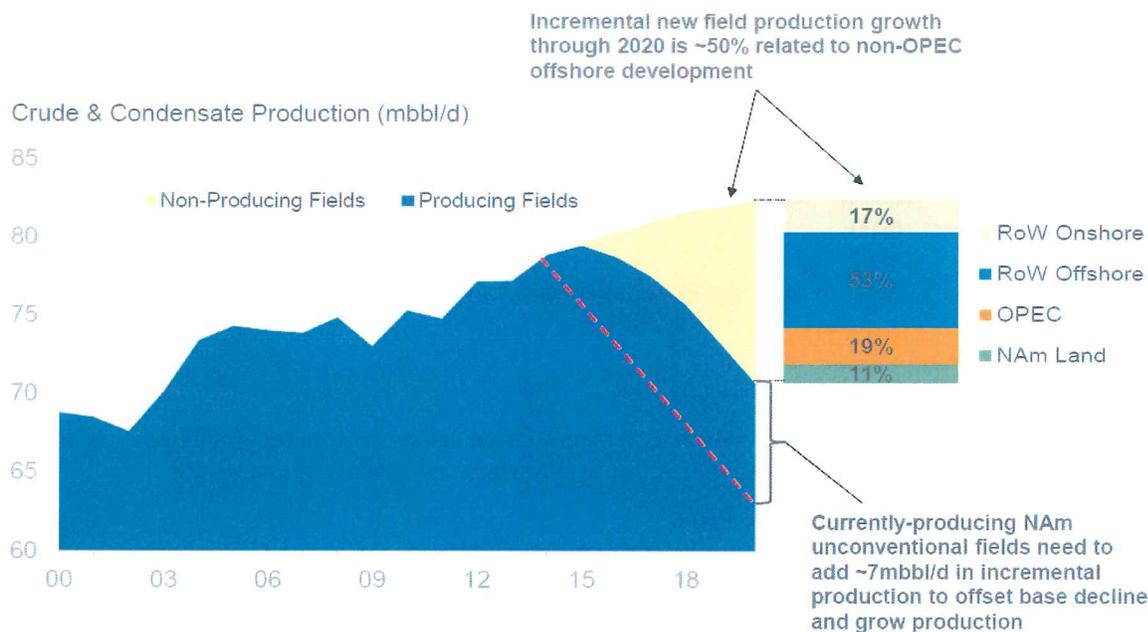
In terms of further cost savings should oil prices remain at depressed levels, we believe there is limited room for further cost savings.

- 60% of well costs are related to completion costs (fracking), and we understand from operators and service providers that those costs are already at or below cash breakeven levels for those service providers (the market is oversupplied so service companies are taking work just to increase utilization).
- While half of completion costs are labor, even if labor were to fall by 20%, this would only decrease completion costs by 10%, and therefore well costs by 6%.
- Regarding other potential cost reductions, day rates are about still about \$5,000 per day above cash costs of \$13,000; but even if these were driven down 28% to cash costs, they only represent 15% of the total so this would only reduce well costs by 4%.
- The incremental "worst case" completion labor cost reductions corresponds to our "bear" case scenario under which well costs decrease by 33% vs. 2014 levels. Even with these incremental savings, we projected that the rig count would have to be cut further from current levels in order to sustain capex within cash flow at current forward prices.

Non-OPEC, Non-US

In our central scenario of 1 mmbpd demand, 500 kbpd is met by US shale and the other 500 kbpd is met by OPEC, with Non-OPEC, Non-US held flat. However, if the oil price is insufficient to incentivize Non-OPEC, Non-US production, that 45 mmbpd category will decline (estimated decline rate of about 5% or 200 kbpd). Therefore, the marginal cost of this Non-OPEC, Non-US category becomes important.

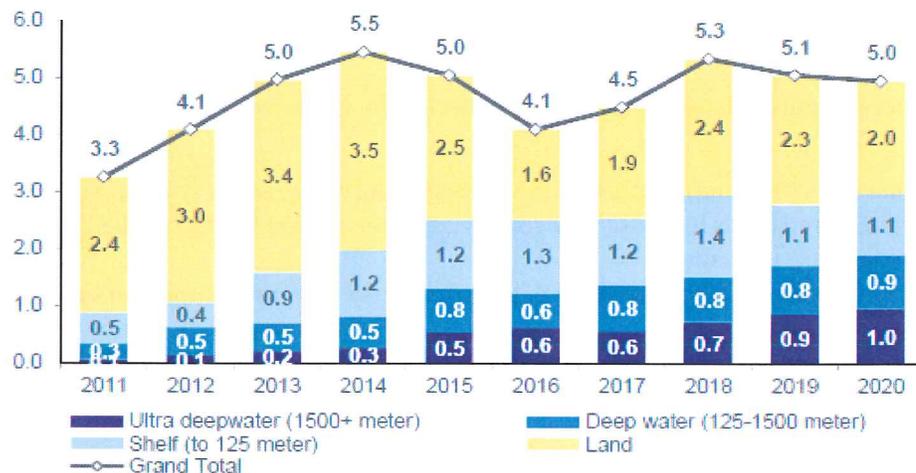
Incremental production through 2020 requires offshore development



Source: Rystad Energy, Morgan Stanley Research estimates

Capacity Additions Increasingly Offshore and Complex

(Gross supply additions by type, mmbbl/d)



Source: Rystad Energy estimates, Wood Mackenzie, IEA, HDPI, JODI, Morgan Stanley Commodity

Employee Benefit Adviser

Thursday, August 20, 2015

NIRS bites back on pensions report

The National Institute on Retirement Security took issue with a recent Manhattan Institute report on pensions, saying it is irrelevant and highly flawed.

[*Defined-Contribution Pensions are Cost-Effective*](#), authored by Josh McGee, a senior fellow at the Manhattan Institute, looked at defined benefit plans in comparison with defined contribution plans and concluded that DB plans are not structurally more cost-effective than DC plans; DC plans achieve similar investment returns; DC plans can and do offer annuities; pension debt is a significant cost driver for DB plans; and DC plans are a good option for providing retirement security.

Also see: [Are DB plans really more cost-effective than DC plans?](#)

In a rebuttal this week, NIRS said that the Manhattan report “claims to assess public sector retirement plans but uses private sector pension data that is not comparable, which invalidates the findings.”

Diane Oakley, NIRS executive director, said “it is perplexing why the study uses the wrong data in the analysis. This major miscalculation renders McGee’s study misleading and useless. This is just one of the many problems with his study.”

She added that “the study isn’t even an apples to oranges comparison – it’s apples to nothing. Also troubling is that the study’s title is not supported by any numbers in the report to demonstrate the cost-efficiency of a defined contribution plan.”

NIRS put out a report, [Still a Better Bang for the Buck: Update on the Economic Efficiencies of Pension Plans](#), which argued that DB plans are still a better value for employers and employees because at the end of the day, the employee receives a guaranteed retirement income.

The Manhattan Institute study claimed that DB plans were not structurally more cost-effective than DC plans, but NIRS’ report showed that DB plans can deliver a target retirement benefit at half the cost of a DC account.

“A DB plan, modeled with the typical fees and asset allocation of a large public plan, has a 48% cost advantage compared to a typical individually directed DC plan,” NIRS

said in its study. “The DB pension costs 29% less than an ‘ideal’ DC plan that features the same low fees and no individual investor deficiencies.”

NIRS also took issue with the Manhattan Institute’s claim that DC plans get similar investment returns as DB plans.

“The analysis fails to use public pension data and it conveniently ignores asset allocation shifts in private sector pensions due to ‘frozen’ pensions,” NIRS said.

The Manhattan report said that DC plans can offer annuities so they are more like DB plans. NIRS said that very few companies offer annuities within their DC plans and “even fewer retirees choose annuities because they are costly.”

Also see: [Annuities meaningless if savings ‘practically zero’](#)

The Manhattan report said that DC plans are a good retirement security option. NIRS agreed that DC plans can be well designed “but the one public DC plan that might come close to the cost efficiencies of public pensions relies on the state DB plan to provide lifetime income. Luckily, this state reopened the DB plan to new employees and most of them actively make elections to join the DB pension.”