

All persons wishing to address the Board must complete a speaker's card, stating their name and the agenda item (including "Open Forum") they wish to address. The Board may take action on items not on the agenda only if findings pursuant to the Sunshine Ordinance and Brown Act are made that the matter is urgent or an emergency.

Oakland Police and Fire Retirement Board meetings are held in wheelchair accessible facilities. Contact Retirement Systems, 150 Frank Ogawa Plaza, Suite 3332 or call (510) 238-7295 for additional information.



**Retirement Systems
150 Frank H. Ogawa Plaza
Oakland, California 94612**

AGENDA

AUDIT COMMITTEE MEMBERS

John C. Speakman
Chairman

Vacant
Member

Robert J. Muszar
Member

**In the event a quorum of the Board participates in the Committee meeting, the meeting is noticed as a Special Meeting of the Board; however, no final Board action can be taken. In the event that the Audit Committee does not reach quorum, this meeting is noticed as an informational meeting between staff and the Chair of the Audit Committee.*

**REGULAR MEETING of the AUDIT / OPERATIONS COMMITTEE
of the OAKLAND POLICE AND FIRE RETIREMENT SYSTEM ("PFRS")**

**Wednesday, September 26, 2018 – 9:00 am
One Frank H. Ogawa Plaza, Hearing Room 3
Oakland, California 94612**

- - - ORDER OF BUSINESS - - -

- 1. Subject: PFRS Audit Committee Meeting Minutes**
From: Staff of the PFRS Board

Recommendation: APPROVE August 29, 2018 Audit Committee meeting minutes.
- 2. Subject: Administrative Expenses Report**
From: Staff of the PFRS Board

Recommendation: ACCEPT an informational report regarding PFRS Administrative Expenses from July 1, 2018 through July 31, 2018.
- 3. Subject: Resolution No. 7023 – Travel authorization for PFRS Board Member R. Steven Wilkinson to travel to and attend the 2018 GCM Grosvenor Small + Emerging Managers Conference ("2018 GCM SEM Conference") from October 9, 2018 through October 10, 2018 in Chicago, IL with an estimated budget of One Thousand Nine Hundred Dollars (\$1,900.00)**
From: Staff of the PFRS Board

Recommendation: RECOMMEND BOARD APPROVAL RESOLUTION NO. 7023 – Travel authorization for PFRS Board Member R. Steven Wilkinson to travel to and attend the 2018 GCM Grosvenor Small + Emerging Managers Conference ("2018 GCM SEM Conference") from October 9, 2018 through

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
REGULAR AUDIT COMMITTEE MEETING
SEPTEMBER 26, 2018**

ORDER OF BUSINESS, continued

October 10, 2018 in Chicago, IL with an estimated budget of One Thousand Nine Hundred Dollars (\$1,900.00).

4. **Subject:** **Resolution No. 7024 – Travel authorization for PFRS Legal Counsel Pelayo Llamas for travel to and attendance at the 2018 CALAPRS Attorneys' Roundtable Conference (“2018 CALAPRS Conference”) on September 21, 2018 in Glendale, CA with an estimated budget of Seven Hundred dollars (\$700.00)**

From: Staff of the PFRS Board

Recommendation: **RECOMMEND BOARD APPROVAL RESOLUTION NO. 7024 – Travel authorization for PFRS Legal Counsel Pelayo Llamas for travel to and attendance at the 2018 CALAPRS Attorneys' Roundtable Conference (“2018 CALAPRS Conference”) on September 21, 2018 in Glendale, CA with an estimated budget of Seven Hundred dollars (\$700.00).**

5. **Subject:** **PFRS Policy Governing the Overpayment or Underpayment of Member Benefits**

From: Staff of the PFRS Board

Recommendation: **DISCUSSION** regarding PFRS Policy Governing the Overpayment or Underpayment of Member Benefits.

6. **REVIEW OF PENDING AUDIT AGENDA ITEMS**

7. **Future Scheduling**

8. **Open Forum**

9. **Adjournment of Meeting**

AN AUDIT/OPERATIONS COMMITTEE MEETING of the Oakland Police and Fire Retirement System (“PFRS”) was held on Wednesday, August 29, 2018 in Hearing Room 3, One Frank Ogawa Plaza, Oakland, California.

Committee Members Present: • John C. Speakman, Chairman
• Robert J. Muszar, Member
• Christine Daniel, Member

Additional Attendees: • Katano Kasaine, Plan Administrator
• Teir Jenkins & David Low, Staff Member
• Pelayo Llamas, PFRS Legal Counsel

The meeting was called to order at 9:05 am.

1. **PFRS Audit Committee Meeting Minutes** – Member Muszar made a motion to approve the June 27, 2018 Audit Committee meeting minutes, second by Member Daniel. Motion passed.

[SPEAKMAN – Y / DANIEL – Y / MUSZAR – Y]
(AYES: 3 / NOES: 0 / ABSTAIN: 0)

2. **Scope of Services and Initiation of the Financial Audit of the PFRS system for the year ended June 30, 2018** – Annie Louie from Macias Gini and O’Connell, LLP, reported details of the upcoming financial audit of the PFRS Fund. Following some committee and staff discussion, member Muszar made a motion to recommend Board approval of the Scope of Services and initiation of the Financial Audit of the PFRS Fund for the year ended June 30, 2018, second by member Daniel. Motion passed.

[SPEAKMAN – Y / DANIEL – Y / MUSZAR – Y]
(AYES: 3 / NOES: 0 / ABSTAIN: 0)

3. **Administrative Expenses Report** – Investment Officer Teir Jenkins presented the administrative expenses report from July 1, 2017 through June 30, 2018. Following some committee and staff discussion, member Muszar made a motion to accept the administrative expenses report from July 1, 2017 through June 30, 2018, second by member Daniel. Motion passed.

[SPEAKMAN – Y / DANIEL – Y / MUSZAR – Y]
(AYES: 3 / NOES: 0 / ABSTAIN: 0)

4. **Resolution No. 7020 – Resolution to approve a two-year extension of the professional service agreement between the City of Oakland Police and Fire Retirement System Board and Cheiron, Inc.** – Staff reported that the service agreement between the PFRS Board and Cheiron Inc had expired and recommended a two-year extension of the service agreement through June 30, 2020. Following Committee and Staff discussion, Member Daniel made a motion to recommend Board approval of Resolution No. 7020 – A resolution to approve a two-year extension of the professional service agreement between the City of Oakland Police and Fire Retirement System Board and Cheiron, Inc. through June 30, 2020 at fees not to exceed \$45,500 for FY2018-2019 and \$46,500 for FY2019-2020, second by member Muszar. Motion passed.

[SPEAKMAN – Y / DANIEL – Y / MUSZAR – Y]
(AYES: 3 / NOES: 0 / ABSTAIN: 0)

5. **PFRS Policy Governing the Overpayment or Underpayment of Member Benefits** – Member Muszar noted that the documents included as attachment 1 and 2 were identical. He said attachment 2 should have been his submitted recommendations regarding the PFRS Policy Governing the Overpayment or Underpayment of Member Benefits. Member Muszar recommended that this matter be held over until the September 2018 Audit Committee meeting for discussion. Following additional committee discussion, member Muszar made a motion to postpone discussion on this matter until the September 2018 Audit Committee meeting, second by member Daniel. Motion passed.

[SPEAKMAN – Y / DANIEL – Y / MUSZAR – Y]
(AYES: 3 / NOES: 0 / ABSTAIN: 0)

6. **Discussion of the 2006 Management Audit of the PFRS System** – The Audit Committee and staff continued discussion regarding consideration of conducting a management audit of the PFRS system from the previous Audit Committee meeting. The Committee and staff discussed whether to include or exclude the examination of the investment-related aspects of the management audit in the new audit. **MOTION:** Member Muszar made a motion to recommend Board approval for a draft Request for Proposal (RFP) to request service for a management audit limited to verification of operational issues addressed in the previous management audit; there was no second to this motion and it failed.

MOTION: Following some discussion between the committee and staff, member Muszar made a motion to recommend that the Board act to authorize the audit committee to develop a management audit limited in scope to examining the operational issues covered in the previous management audit, second by member Daniel. Motion passed.

[SPEAKMAN – Y / DANIEL – Y / MUSZAR – Y]
(AYES: 3 / NOES: 0 / ABSTAIN: 0)

7. **Pending Audit Agenda List** – Staff and Audit Committee discussed the pending items list.
8. **Future Scheduling** – The next Audit Committee meetings was scheduled for September 26, 2018. Member Muszar made a motion directing staff to add an additional agenda item to a future audit agenda item addressing the development of hearing procedures, second by member Daniel. Motion passed.

[SPEAKMAN – Y / DANIEL – Y / MUSZAR – Y]
(AYES: 3 / NOES: 0 / ABSTAIN: 0)

Member Muszar wanted to add an agenda item to the audit committee agenda to have a dialogue regarding sensitive personal information at public meetings. Following some Committee discussion, Member Daniel suggested to PFRS legal counsel provide information on this matter when presenting information about hearing procedures at the upcoming meeting.

9. **Open Forum** – No Report.

10. **Meeting Adjournment** – Meeting adjourned at 9:48 am.

JOHN C. SPEAKMAN, COMMITTEE CHAIRMAN

DATE

DRAFT

Table 1

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM

Administrative Budget Spent to Date (Preliminary)

As of July 31, 2018

	Approved Budget		July 2018		FYTD		Remaining		Percent Remaining	
Internal Administrative Costs										
PFRS Staff Salaries	\$	1,084,000	\$	71,339	\$	71,339	\$	1,012,661		93.4%
Board Travel Expenditures		52,500		3,000		3,000		49,500		94.3%
Staff Training		20,000		-		-		20,000		100.0%
Staff Training - Tuition Reimbursement		7,500		-		-		7,500		100.0%
Annual Report & Duplicating Services		4,000		-		-		4,000		100.0%
Board Hospitality		3,600		-		-		3,600		100.0%
Payroll Processing Fees		35,000		-		-		35,000		100.0%
Miscellaneous Expenditures		46,700		-		-		46,700		100.0%
Internal Service Fees (ISF)		65,400		-		-		65,400		100.0%
Contract Services Contingency		50,000		-		-		50,000		100.0%
Office Construction Costs*		75,227		5,848		5,848		69,379		92.2%
Internal Administrative Costs Subtotal :	\$	1,443,927	\$	80,187	\$	80,187	\$	1,363,740		94.4%
Actuary and Accounting Services										
Audit	\$	45,000	\$	-	\$	-	\$	45,000		100.0%
Actuary		45,000		-		-		45,000		100.0%
Actuary and Accounting Subtotal:	\$	90,000	\$	-	\$	-	\$	90,000		100.0%
Legal Services										
City Attorney Salaries	\$	188,000	\$	14,714	\$	14,714	\$	173,286		92.2%
Legal Contingency		150,000		-		-		150,000		100.0%
Legal Services Subtotal:	\$	338,000	\$	14,714	\$	14,714	\$	323,286		95.6%
Investment Services										
Money Manager Fees	\$	1,301,900	\$	-	\$	-	\$	1,301,900		100.0%
Custodial Fee		124,000		-		-		124,000		100.0%
Investment Consultant (PCA)		100,000		-		-		100,000		100.0%
Investment Subtotal:	\$	1,525,900	\$	-	\$	-	\$	1,525,900		100.0%
Total Operating Budget	\$	3,397,827	\$	94,901	\$	94,901	\$	3,302,926		97.21%

*Carry Forward from FY 2017-2018

Table 2

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM

Cash in Treasury (Fund 7100) - Preliminary

As of July 31, 2018

	July 2018
Beginning Cash as of 6/30/2018	\$ 7,650,803
Additions:	
City Pension Contribution - July	\$ 3,735,083
Investment Draw (Incoming Wire) - 7/1/2018	1,000,000
Misc. Receipts	2,347
Total Additions:	\$ 4,737,431
Deductions:	
Pension Payment (June Pension Paid on 7/1/2018)	(4,544,261)
Expenditures Paid	(281,043)
Total Deductions	\$ (4,825,304)
 Ending Cash Balance as of 7/31/2018*	 \$ 7,562,929

* On 8/01/2018, a pension payment of appx \$4,636,000 will be made leaving a cash balance of \$2,926,900

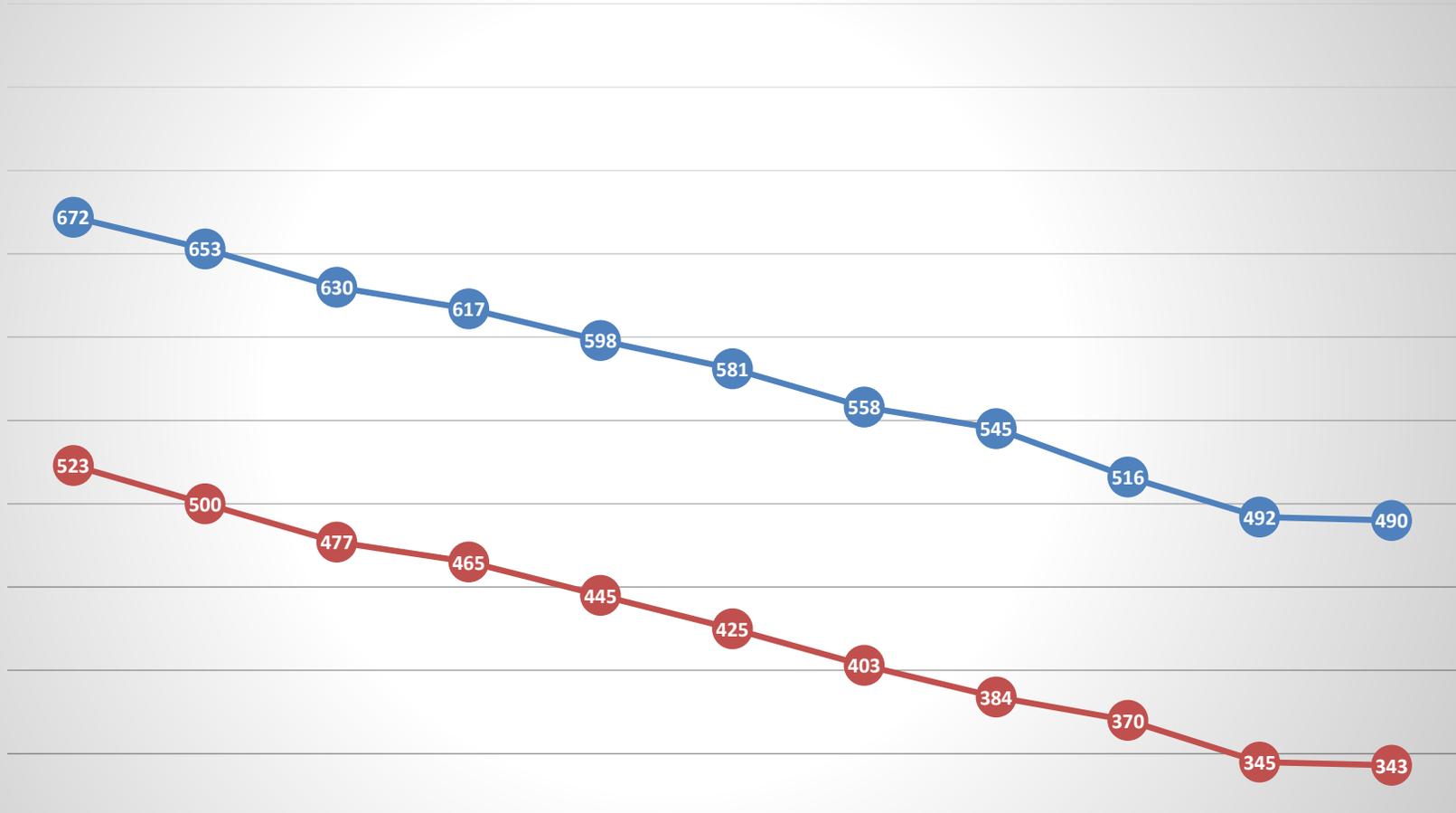
Table 3
CITY OF OAKLAND POLICE AND FIRE RETIREMENT SYSTEM

Census
As of July 31, 2018

COMPOSITION	POLICE	FIRE	TOTAL
Retired Member:			
Retiree	358	210	568
Beneficiary	132	133	265
Total Retired Members	490	343	833
Total Membership:	490	343	833

COMPOSITION	POLICE	FIRE	TOTAL
Retired Member:			
Service Retirement	325	182	507
Disability Retirement	151	147	298
Death Allowance	14	14	28
Total Retired Members:	490	343	833
Total Membership as of July 31, 2018:	490	343	833
Total Membership as of June 30, 2018:	492	345	837
Annual Difference:	-2	-2	-4

Oakland Police and Fire Retirement System Pension Plan Membership Count As of July 31, 2018 (FY 2009 - FY 2019)



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019 FYTD
● Police	672	653	630	617	598	581	558	545	516	492	490
● Fire	523	500	477	465	445	425	403	384	370	345	343
● Total	1195	1153	1107	1082	1043	1006	961	929	886	837	833



MEMORANDUM

TO: Oakland Police & Fire
Retirement Board

FROM: Katano Kasaine

SUBJECT: Authorization and
Reimbursement of Board/Staff
Travel/Education Expenses

DATE: September 17, 2018

R. Steven Wilkinson, Board member of the Oakland Police and Fire Retirement System board, requests authorization for reimbursement of travel and/or board education related funds for the event detailed below. Staff has verified that budgeted funds are available for this Board member to be reimbursed.

Staff recommends the reimbursement of travel/education funds for the event below be approved by board motion.

Travel / Education Event: 2018 GCM Grosvenor Small + Emerging Managers Conference

Event Location: Fairmont Chicago Millennium Park, Chicago, IL

Event Date: October 9 - 10, 2018

Estimated Event Expense*: \$ 1,900.00 (estimated)

Notes: _____

* If enrollment, registration or admission expenses are required, the fund will process a check in advance and pay vendor directly; all other board-approved reimbursements will be made upon delivery of receipts to staff by the traveling party. Cancellation of event attendance requires return of all reimbursed funds paid to attendee to the fund.

Respectfully submitted,

Katano Kasaine, Plan Administrator
Oakland Police and Fire Retirement System

For questions please contact David Low, Administrative Assistant, at 510-238-7295.

Attachments (if any):

Resolution #7023

2018 GCM Grosvenor Small + Emerging Managers Conference Agenda

OAKLAND POLICE AND FIRE RETIREMENT BOARD
CITY OF OAKLAND, CALIFORNIA

RESOLUTION No. 7023



ON MOTION OF MEMBER _____ SECONDED BY MEMBER _____

TRAVEL AUTHORIZATION FOR PFRS BOARD MEMBER R. STEVEN WILKINSON TO TRAVEL TO AND ATTEND THE 2018 GCM GROSVENOR SMALL + EMERGING MANAGERS CONFERENCE ("2018 GCM SEM CONFERENCE") FROM OCTOBER 9, 2018 THROUGH OCTOBER 10, 2018 IN CHICAGO, IL WITH AN ESTIMATED BUDGET OF ONE THOUSAND NINE HUNDRED DOLLARS (\$1,900.00)

WHEREAS, PFRS Board Member R. Steven Wilkinson wishes to attend the 2018 GCM SEM Conference in Chicago, IL from October 9, 2018 through October 10, 2018; and

WHEREAS, PFRS Board Member Wilkinson is expected to seek reimbursement of expenses from the Board; and

WHEREAS, in compliance with the Education and Travel Policy, which requires that PFRS Board/Staff Members seek PFRS Board approval prior to travel; and

WHEREAS, in compliance with the Education and Travel Policy, the Board/Staff Member has presented costs for travel, lodging and/or registration fees for the 2018 GCM SEM Conference in the amount of approximately \$1,900.00; and

WHEREAS, PFRS Board Member Wilkinson seeks Board approval of the aforementioned estimated costs to attend the 2018 GCM SEM Conference from October 9, 2018 through October 10, 2018; now, therefore, be it

RESOLVED: PFRS Board Member R. Steven Wilkinson's travel request and estimated budget of \$1,900.00 to attend the 2018 GCM SEM Conference is hereby approved.

IN BOARD MEETING, CITY HALL, OAKLAND, CA _____ **SEPTEMBER 26, 2018**

PASSED BY THE FOLLOWING VOTE:

AYES: GODFREY, MELIA, MUSZAR, SPEAKMAN, AND PRESIDENT JOHNSON

NOES:

ABSTAIN: WILKINSON

ABSENT: (ONE BOARD VACANCY)

ATTEST: _____
PRESIDENT

ATTEST: _____
SECRETARY

Schedule

ALL TOPICS

HEDGE FUNDS

INFRA & REAL ASSETS

PRIVATE EQUITY

REAL ESTATE

OCTOBER 09

12:00PM - 1:30PM

Women's Networking Luncheon

Gold Room

GCM Grosvenor welcomes women from across the industry to connect with one another at the SEM Conference's third annual Women's Networking event.

2:00PM - 2:45PM

General Sessions

Attendees may select one multi-asset class panel to attend.

Alternatives: The Next Generation

The alternatives landscape has dramatically changed in the last decade. Managers are working harder to find the "white space" in the market, while investors must be open to unique and interesting takes on traditional strategies. Panelists discuss the merit of innovative ideas like multi-asset class investing, illiquid credit and structured equity, and explore how capital allocators can get comfortable with the next generation of alternatives.

Going with the (Deal) Flow

In the past year, deal volume has increased while global deal count has declined, meaning larger check sizes on average. With an abundance of capital, longer holding periods, and the significant purchasing power of strategic and private equity buyers, competition for quality assets has been particularly fierce at the larger end of the market. A panel of experts explore how LPs and allocators are managing the shift and how GPs can stand out in this environment.

3:30PM - 4:45PM

LP Only Session: The Emerging Manager Market

update, part of the presentation will give an update to his 2017 address. Peter will discuss topics such as how many emerging funds exist, what strategies they pursue, where they come from, and how they are (or are not) raising capital. This update will provide a quantitative backdrop to the second half of the session: building a robust emerging manager program. The session will conclude with a presentation on the current evolution of the Teacher Retirement System of Texas emerging manager program.

5:00PM - 6:15 PM

SEM Conference Dinner – Invitation Only

Terzo Piano Restaurant – Art Institute of Chicago’s Modern Wing

6:30PM - 9:30PM

General Reception

Art Institute of Chicago’s Modern Wing

Join fellow attendees for networking, cocktails, and small bites among modern art in one of Chicago’s most unique and inviting venues. Together, we celebrate 12 years of connecting managers and investors in the joint pursuit of a more inclusive investment industry.

OCTOBER 10

7:30AM - 8:00AM

Networking Breakfast

Imperial Ballroom

8:00AM - 8:45AM

State of the SEM Union, Presented by GCM Grosvenor

Imperial Ballroom

9:00AM - 10:00AM

Hedge Funds: Panel I

Gold Room

Trade Wars: Who Has the Advantage?

When it comes to trade idea generation, sourcing and execution, is there an advantage to being a small or a large manager? To address that question, four managers pitch their best trade idea, highlighting why they believe their size gives them an edge. The audience will listen to the pitches along with featured capital allocators, who will respond and provide feedback.

9:00AM - 10:00AM

Infrastructure & Real Assets: Panel I

walk away with a fresh perspective on capital raising and the current opportunity set.

9:00AM - 10:00AM

Private Equity: Panel I

International Ballroom

Reinventing the Deal: Innovative Ways to Improve the Fundraising Experience

This interactive panel explores creative and underutilized strategies that GPs can use to make fundraising more efficient for all stakeholders. Discussions will also focus on ways LPs can make the fundraising process easier for GPs. The goal of the panel is for both parties to uncover tangible and feasible solutions to an often inefficient process.

9:00AM - 10:00AM

Real Estate: Panel I

Rouge Room

State of Affairs: The Real Estate Emerging Manager Market

As is the annual tradition, we kick things off with a data-filled, in-depth presentation on trends and activity in the real estate emerging manager market. Hosted by Peter Braffman, a member of GCM Grosvenor's Private Markets Investment Committee and Head of Real Estate Investments, the session highlights the strategies, manager types and asset classes that are (and that are not) raising capital, the level of institutional appetite, and the latest in fund terms. New to this session will be a mapping of, and a deeper dive into, the growing number of funds targeting core strategies.

9:00AM - 10:00AM

LP Discovery Meetings

LPs will have the opportunity to select one to two managers, based on a manager-provided profile, with whom to meet in 20- to 30-minute sessions. The appointment portal will open a few weeks prior to the conference.

10:00AM - 10:30AM

Break

10:30AM - 11:30AM

Hedge Funds: Panel II

Gold Room

One-on-One on the Richter Scale

GCM Grosvenor's Investment Committee Chair, David Richter, hosts his annual one-on-one discussion with a prominent hedge fund manager. This session will feature an industry leader discussing their current investment views as well as their growth from a fledgling industry entrant to a well-known manager.

10:30AM - 11:30AM

Infrastructure & Real Assets: Panel II

now it is created in the current ecosystem.

10:30AM - 11:30AM

Private Equity: Panel II

International Ballroom

From Small and Emerging to Oversubscribed: One GP's Success Story

A successful manager reflects on the experience of launching their firm and the challenges of building a business while investing, highlighting what went according to plan and what surprises cropped up along the way. The guest GP also discusses their investment strategy and how they plan to leverage their current platform for maximum impact and long-lasting legacy.

10:30AM - 11:30AM

Real Estate: Panel II

Rouge Room

Spinning Out: Leaving the Mega Fund Behind and Loving It

One of the largest areas of growth in the emerging manager market comes from individuals and teams that spin out of large and established funds to build their own platform. This panel showcases some of the market's latest entrants, all of whom had storied careers at some of the best firms in the industry. Together, we explore some of their motivations for leaving, lessons learned from managing institutional capital, and challenges faced in starting a new firm, including capital raising strategies and platform growth.

10:30AM - 11:30AM

LP Discovery Meetings

LPs will have the opportunity to select one to two managers, based on a manager-provided profile, with whom to meet in 20- to 30-minute sessions. The appointment portal will open a few weeks prior to the conference.

11:30AM - 11:45AM

Break

11:45AM - 12:30PM

Hedge Funds: Panel III

Gold Room

Walk the Line: Aligning Interests When Negotiating Terms

In negotiations, there is often a winner and a loser. Term negotiations between hedge fund managers and their investors, however, can be more nuanced in seeking to benefit both parties. This panel welcomes emerging and established hedge fund managers, as well as hedge fund allocators, to discuss how they navigate potentially thorny issues to produce ideal outcomes.

11:45AM - 12:30PM

Infrastructure & Real Assets: Panel III

acceptable terms for temporary capital and, ultimately, (iv) the use of a seed portfolio of assets to advance a successful fundraising effort.

11:45AM - 12:30PM

Private Equity: Panel III

International Ballroom

Opportunities that Span Borders: International Small and Emerging Managers

Panelists discuss the potential of creating sourcing channels that connect domestic LPs with overseas managers, and vice-versa, bringing together US-based emerging GPs with non-US LPs. They will explore this critical next step in the small and emerging manager market, and consider ways to unite these two emerging manager ecosystems.

11:45AM - 12:30PM

Real Estate: Panel III

Rouge Room

The Long and Winding Road: Where LPs are Taking their Emerging Manager Programs

As the Real Estate Emerging Manager market enters its second decade, we have an opportunity as an industry to take stock of what has been accomplished to date, as well as consider where we go from here. This panel features some of the largest and most significant LPs in the space. Together, we examine the structures and nuances of their emerging manager programs, as well as how they are evolving as the programs mature. Topics include their focus on fund investing, the opportunities for separate accounts, new innovations in the space, and thought leadership around graduation.

11:45AM - 12:45PM

LP Discovery Meetings

LPs will have the opportunity to select one to two managers, based on a manager-provided profile, with whom to meet in 20- to 30-minute sessions. The appointment portal will open a few weeks prior to the conference.

12:30PM - 12:45PM

Break

12:45PM - 2:15PM

Lunch & Keynote Speaker

Imperial Ballroom

Keynote Speaker to be announced.

2:15PM - 2:30PM

Break

and GPs with additive tools they can immediately implement at their organization. Attendees may select one Beyond Investments panel to attend.

ODD Deep Dive Workshop

The GCM Grosvenor team walk GPs and LPs through an operational due diligence case study. The team will call out frequent red flags and road blocks, and highlight solutions they put in place when reviewing an emerging fund.

The Perfect Pitch (Book)

In a crowded market, it's important to ensure that your pitch book has clear messaging and its text, charts and graphics are easy to understand and add value. In this session, industry experts provide tangible techniques for developing marketing materials to help your pitch stand out from the others.

Holistic Diversity and Inclusion

This session focuses on how to incorporate diversity and inclusion into multiple levels of a business. From vendor management to event sponsorships, attendees will learn about tangible tracking tools, metrics, and various methods of implementation to keep them on track in committing to an equitable business model.

I Want A Diverse Team!

As we as an industry work towards creating a robust pipeline for diverse funds, we must mirror those efforts in recruiting and hiring. In this session, industry veterans discuss best practices for GPs and LPs to source, employ and retain women and diverse talent in a competitive environment.

3:00PM - 4:00PM**Closing Networking Reception**

International Ballroom Foyer

GCM GROSVENOR

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MEMORANDUM

TO: Oakland Police & Fire
Retirement Board

FROM: Katano Kasaine

SUBJECT: Authorization and
Reimbursement of Board/Staff
Travel/Education Expenses

DATE: September 17, 2018

Pelayo Llamas, staff member of the Oakland Police and Fire Retirement System board, requests authorization for reimbursement of travel and/or board education related funds for the event detailed below. Staff has verified that budgeted funds are available for this staff member to be reimbursed.

Staff recommends the reimbursement of travel/education funds for the event below be approved by board motion.

Travel / Education Event: 2018 CALAPRS Attorneys' Roundtable

Event Location: Hilton Los Angeles North, Glendale, CA

Event Date: September 21, 2018

Estimated Event Expense*: \$700.00 (est.)

Notes: Advanced Travel Authorization rec'd from Board President Johnson

* If enrollment, registration or admission expenses are required, the fund will process a check in advance and pay vendor directly; all other board-approved reimbursements will be made upon delivery of receipts to staff by the traveling party. Cancellation of event attendance requires return of all reimbursed funds paid to attendee to the fund.

Respectfully submitted,

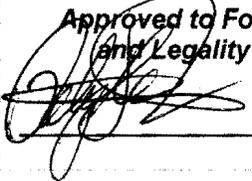
Katano Kasaine, Plan Administrator
Oakland Police and Fire Retirement System

For questions please contact David Low, Administrative Assistant, at 510-238-7295.

Attachments (if any):
Resolution #7024

OAKLAND POLICE AND FIRE RETIREMENT BOARD
CITY OF OAKLAND, CALIFORNIA

RESOLUTION No. 7024

Approved to Form
(and Legality)


ON MOTION OF MEMBER _____ SECONDED BY MEMBER _____

TRAVEL AUTHORIZATION FOR PFRS LEGAL COUNSEL PELAYO LLAMAS FOR TRAVEL TO AND ATTENDANCE AT THE 2018 CALAPRS ATTORNEYS' ROUNDTABLE CONFERENCE ("2018 CALAPRS CONFERENCE") ON SEPTEMBER 21, 2018 IN GLENDALE, CA WITH AN ESTIMATED BUDGET OF SEVEN HUNDRED DOLLARS (\$700.00)

WHEREAS, PFRS Legal Counsel Pelayo Llamas wished to attend the 2018 CALAPRS Attorneys' Roundtable Conference in Glendale, CA on September 21, 2018; and

WHEREAS, PFRS Legal Counsel Llamas is expected to seek reimbursement of expenses from the Board; and

WHEREAS, in compliance with the Education and Travel Policy, which requires that PFRS Board/Staff Members seek PFRS Board approval prior to travel; and

WHEREAS, President Johnson has previously authorized PFRS Legal Counsel Llamas' attendance at this event in advance of approval of this resolution approval by the PFRS Board; and

WHEREAS, in compliance with the Board Education and Travel Policy, the Board/Staff Member has presented costs for travel, lodging and/or registration fees for the 2018 CALAPRS Attorneys' Roundtable Conference in the amount of approximately \$700.00; and

WHEREAS, PFRS Legal Counsel Llamas seeks Board approval of the aforementioned estimated costs to attend the 2018 CALAPRS Attorneys' Roundtable Conference on September 21, 2018; now, therefore, be it

RESOLVED: PFRS Legal Counsel Pelayo Llamas's travel request and estimated budget of \$700.00 to attend the 2018 CALAPRS Attorneys' Roundtable Conference is hereby approved.

IN BOARD MEETING, CITY HALL, OAKLAND, CA _____ **SEPTEMBER 26, 2018**

PASSED BY THE FOLLOWING VOTE:

AYES: GODFREY, MELIA, MUSZAR, SPEAKMAN, WILKINSON,
AND PRESIDENT JOHNSON

NOES:

ABSTAIN:

ABSENT: (ONE BOARD VACANCY)

ATTEST: _____
PRESIDENT

ATTEST: _____
SECRETARY



(/)

California Association of Public Retirement Systems

MENU

Attorneys Round Table

Register Tell a Friend (/members/send.asp?event=1087930)



9/21/2018

Register

When: Friday, September 21, 2018
8:30 am - 3:30 pm

Online registration is available until: 9/21/2018

Where: Hilton Los Angeles North/Glendale
100 W Glenoaks Blvd
Glendale, California 91202
United States

Contact: CALAPRS
register@calaprs.org (mailto:register@calaprs.org)
415-764-4860

« Go to Upcoming Event List (/events/event_list.asp?group=186618)

Roundtable attendees will be eligible for up to 5.0 MCLE Credit Hours.

Agenda

The agenda for this program will be posted in the Attorneys Round Table group page (<https://calaprs.site-ym.com/members/group.aspx?id=186618>) as soon as it becomes available. If you have suggestions for discussion topics, please contact info@calaprs.org.

Reserve your hotel room by August 20

CALAPRS has secured a discounted room block at the Hilton Los Angeles North/Glendale at the rate of \$149/night + tax. Make your reservation by calling 1-800-445-8667 and referencing "CALAPRS" or make your reservation online [HERE \(http://www.hilton.com/en/hi/groups/personalized/B/BURHGHF-CALA3-20180919/index.jhtml\)](http://www.hilton.com/en/hi/groups/personalized/B/BURHGHF-CALA3-20180919/index.jhtml) before August 20.

Contact Us:

575 Market Street, Suite 2125, San Francisco, CA 94105

Phone: 415-764-4860 or Toll-Free: 1-800-RETIRE-0

Fax: 415-764-4915

Email: info@calaprs.org (mailto:info@calaprs.org)

Membership Management Software Powered by [YourMembership \(http://www.yourmembership.com/\)](http://www.yourmembership.com/) :: [Legal \(/ams/legal-privacy.htm\)](/ams/legal-privacy.htm)



AGENDA REPORT

TO: Oakland Police and Fire
Retirement Board

FROM: Katano Kasaine

SUBJECT: Draft policy governing the overpayment
and underpayment of PFRS member
benefits

DATE: September 17, 2018

SUMMARY

Oakland Police and Fire Retirement System ("PFRS") staff request that the PFRS Board of Administration ("PFRS Board") review and provide comments to a draft policy governing the overpayment and underpayment of member retirement allowances (the "Policy").

BACKGROUND

To develop this Policy, staff researched and reviewed the bylaws, rules and regulations, and operational policies of several public pension systems including: the San Diego City Employees' Retirement System, San Joaquin County Employees' Retirement Association, San Mateo County Employees' Retirement Association, San Jose Federated Employees' Retirement System, City of Fresno Retirement System, Fresno County Employees' Retirement Association, Sacramento Regional Transit District, and Contra Costa County Employees' Retirement Association. Staff used this research, to draft a Policy to specifically address the needs and concerns of PFRS. The Policy will guide staff in the effective and efficient resolution of overpayment and underpayment of retirement allowances to members.

At the April 25, 2018 Audit Committee meeting, staff submitted for Audit Committee review the Agenda Report addressing the Draft Policy Governing Overpayment and Underpayment of Member Retirement Allowances. Following Audit Committee discussion, a motion made by Member Muszar (1) to hold this matter over until the June 2018 Audit Committee meeting for further discussion and (2) to have Committee Members submit to staff written comments by June 15, 2018 in order for them to be published with the June 2018 agenda, passed.

On April 30, staff delivered by email the DRAFT Policy Governing Overpayment and Underpayment of Member Retirement Allowances to each Board member requesting comments be returned to staff by June 13, 2018.

At the June 27, 2018 Audit Committee meeting, the Audit Committee decided that continued work on this matter would be carried over to the August 2018 Audit Committee meeting for continued discussion and editing.

PFRS Board Meeting
September 26, 2018

Board of Administration, Oakland Police and Fire Retirement System

Subject: Draft policy governing the overpayment and underpayment of PFRS member benefits

Date: September 17, 2018

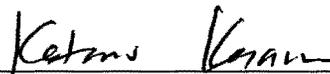
Page 2

At the August 29, 2018 Audit Committee meeting, the Audit Committee decided that continued work on this matter would be carried over to the September 2018 Audit Committee meeting for continued discussion and editing.

RECOMMENDATION

Staff recommends the PFRS Board review and provide comments to the draft Policy included as Attachment 1.

Respectfully submitted,



Katano Kasaine, Plan Administrator
Oakland Police and Fire Retirement System

Attachments (2):

1. *Draft policy governing the overpayment and underpayment of PFRS member benefits by staff.*
2. *Draft policy governing the overpayment and underpayment of PFRS member benefits – Edit version by Member Muszar*

ATTACHMENT 1

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT
OF MEMBER RETIREMENT ALLOWANCES**

I. PURPOSE

The purpose of this Policy Governing the Overpayment or Underpayment of Member Retirement Allowances ("Policy") is to set forth procedures for handling the overpayment and underpayment of Retirement Allowance payments to members and beneficiaries ("Members") of the Oakland Police and Fire Retirement System ("PFRS").

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The PFRS Board may implement a different correction process that it determines is appropriate. In the event of any inconsistency between applicable law and this Policy, the law shall take precedence.

Deleted: This Policy is designed for use when a benefit overpayment/underpayment affecting an individual or small groups of Members.

Deleted: under special large scale adjustments; such as court orders, charter interpretation, changes to a Memoranda of Understanding ("MOU")

II. INTRODUCTION

The Oakland Police and Fire Retirement Board ("PFRS Board") has a fiduciary obligation to the retirement fund to conserve fund assets and protect the integrity of the fund for the benefit of all PFRS Members.

Deleted: members and beneficiaries ("Members") of the Oakland Police and Fire Retirement System

Members have a right to accurate and timely pension payments. Except as determined by a court of law or the PFRS Board pursuant to the Policy, no Member may receive or retain retirement allowance payments over the amounts to which the Member is entitled, and no Member may be deprived of retirement allowance payments to which the Member is entitled.

Deleted: This duty includes maintaining the tax-qualified status of the Plan. Therefore, the PFRS Board, acting through its delegated administrative staff ("Staff"), has a duty to investigate any retirement allowance overpayments or underpayments promptly and diligently, and to recover overpayments and pay out underpayments of retirement plan benefits, unless circumstances exist that make it unreasonable to do so.

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Deleted: to receive. Subject to all applicable laws, it shall be PFRS' policy to remit to a Member the amount of any underpayment of benefits, and to make every reasonable effort to recover from a Member the amount of any overpayment of benefits consistent with the Policy and the procedures established herein by the PFRS Board.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT
OF MEMBER RETIREMENT ALLOWANCES**

III. POLICY

It is the policy of the PFRS Board, acting through its delegated administrative staff (“Staff”), to investigate any alleged retirement allowance overpayments or underpayments promptly and diligently, and make every reasonable effort to recover overpayments and pay out underpayments of Retirement Allowances, unless the PFRS Board determines, pursuant to the terms of this Policy, that circumstances dictate otherwise.

After the discovery of an overpayment or underpayment of benefits, and after the required written notification to the affected Member, PFRS will adjust future benefit payments to the Member to reflect the correct total amount to which the Member is entitled (as indicated below). PFRS will also pay or assess the Member as appropriate for the underpayment or overpayment in a lump sum, installments, adjustments to future monthly benefit payments, or a combination of these methods to which the Members are entitled in accordance with this policy and applicable law.

Overpayment of Retirement Allowance to PFRS’ Members and Beneficiaries

1. PFRS Staff will correct the Member’s recurring monthly overpayment to the correct amount going forward at the earliest practical time after discovering any overpayments.
2. PFRS will take all reasonable steps to recover the full amount of all overpayments subject to the provisions of the Policy and applicable law.
3. PFRS will recover overpayments by (a) a lump sum payment from the Member, (b) periodic installment payments from the Member, or (c) offsetting the amount to be recovered against monthly benefit payments over a period of time not to exceed three years; unless the PFRS Board, in its discretion and because of legal or practical considerations, determines that another process is warranted.
4. The PFRS Board believes that considerations of cost effectiveness make it prudent and reasonable to pursue recovery of overpayments only where the cumulative total amount overpaid to the Member is \$20 or more. Accordingly, the Retirement Plan Administrator (the “Plan Administrator”) is authorized to not seek recovery of any overpayments where the total amount overpaid to the Member is less than \$20.
5. The Plan Administrator shall have authority to negotiate the terms of recovering overpayments through installments, lump sums, or as offsets against monthly benefit payments for amounts below five thousand dollars (\$5,000.00). The PFRS Board must approve installment overpayment recovery agreements when the total amount of overpayment is five thousand dollars (\$5,000.00) or more. Among other things, the likelihood of collection, the cost of collection, the amount of possible recovery and documented financial hardship of the Member or Member’s estate will be considered by the Plan Administrator and/or the PFRS Board when agreeing to

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT
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installment recovery terms. Any forgiveness of debt above One Hundred Dollars (\$100.00) must be approved by the PFRS Board.

6. PFRS may pursue all legal remedies to collect overpayments, including making a claims against an estate or trust.
7. Upon the death of the Member before full repayment of an overpayment has been made, PFRS shall pursue a claim or claims against the Member's estate, survivors, heirs and/or beneficiaries to recover the unpaid amounts.
8. If a Member dies while making repayments to PFRS, the entire balance of the amount owed shall become due upon the Member's death and deducted from the final remittance check. Any remaining unpaid balance shall be pursued in accordance with this Policy. Overpayments due shall not be deducted from a Member's \$1,000 death benefit payment unless there is no designated qualified beneficiary. If the deceased Member has a surviving spouse who is entitled to a reduced continuation of the Member's monthly benefit, the Plan Administrator has the authority to collect a reduced monthly amount from the surviving spouse without changing the total amount owed by the deceased Member.
9. Before collecting an overpayment from the monthly retirement allowance of a Member without consent, PFRS will give at least 30-day's notice.
10. The PFRS Board adopts the following procedures for accomplishing the recovery of overpaid benefits:
 - A. **Notification of Overpayment.** Upon discovery of an overpayment, PFRS shall send a **Notice of Overpayment of Member Retirement Allowance** by certified mail, return receipt requested, or by express delivery service, to the Member advising the Member as follows:
 - i. The notice will identify the facts and circumstances of the overpayment and details showing the total amount of the overpayment.
 - ii. The notice will request payment to PFRS of the amount overpaid, subject to the provisions of the Policy.
 - iii. The notice will provide three options of repayment, one of which may be selected by the Member:
 - (1) Option 1 — lump sum payment to PFRS for the full amount overpaid. Lump sum payment must be made within 30 days of the notice.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT
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- (2) Option 2 — reduction from monthly benefit payments in the amount equal to ten percent (10%) of the total overpayment, until paid back in full.
- (3) Option 3 — repayment in equal installments over the same length of time that the overpayments occurred or three years, whichever is longer. Unless a financial hardship is approved by the PFRS Board, the installment period shall not exceed 3 years.
- iv. The notice and agreement to repay excess benefits will provide that Option 2 (10%) will go into effect by default if the Member fails to choose an alternative option within 30 days following the date of the notice.
- v. The notice shall state that dispute of overpayment must be submitted in writing to the Retirement office within 30 days following the date the notice was sent. This dispute should include supporting documentation, if applicable.

Underpayment of Retirement Allowance to Members and Beneficiaries

- 1. When PFRS has underpaid Retirement Allowances, the Member shall be entitled to a prospective adjustment to his or her Retirement Allowance necessary to correct the underpayment, as well as a lump sum payment for all past underpayments. The corrective payment shall be made as soon as is reasonably practicable following PFRS's discovery of the underpayment.
- 2. If a Member who was underpaid Retirement Allowances has died prior to payment of the lump sum amount due, the following procedures will be followed:
 - A. **Deceased Member with a Qualifying Widow/Widower for Survivor's Continuance**
 - i. If a deceased Member has a qualifying widow/ widower, the payment will be made directly to that person.
 - B. **Deceased Member without a Qualifying Widow/Widower for Survivor's Continuance**
 - i. If there is an open probate (i.e., no order for final distribution has been made), payment will be made to the estate through the personal representative or other legal process provided for in the Member's state of residence.
 - ii. If final distribution of the estate has been made, PFRS will review the order for final distribution to determine how assets that were unknown at

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT
OF MEMBER RETIREMENT ALLOWANCES**

the time of final distribution are to be distributed under the order. Payment will then be made in compliance with the order for final distribution, if possible.

- iii. If the Member's estate passed into an intervivos trust, the underpayment may be made to the Trustee after satisfactory inspection of trust documents.
 - iv. If probate was not established, distribution will be made in accordance with any applicable and valid Affidavit for Payment of Personal Property pursuant to California Probate Code Section 13101 or other legal process provided for in the Member's state of residence.
 - v. PFRS staff shall make reasonable efforts to locate the beneficiary entitled to payment by sending a letter by certified mail, return receipt requested, to the last known address of each such beneficiary, or by other means of similar intended effect.
 - vi. If, after taking the above steps, PFRS staff has not been able locate a beneficiary entitled to payment, PFRS shall hold the funds on behalf of that beneficiary for five years. If the funds are not claimed within five years, the funds may be transferred into the PFRS reserve fund. If a beneficiary later appears to claim the funds, the PFRS Board will consider such claims on a case-by-case basis.
3. Underpayments of \$20 or less will only be paid at the request of the Member.

IV. Periodic Review

- 1. Review of this Policy will be conducted by the Audit and Operations Committee not less than every three years.

The Policy governing the overpayment or underpayment of Member benefits of the Oakland Police and Fire Retirement System is hereby approved by vote of the Retirement Board, effective

<DATE>

WALTER L. JOHNSON, SR.
PRESIDENT
OAKLAND POLICE & FIRE RETIREMENT SYSTEM BOARD

KATANO KASAINÉ
SECRETARY
OAKLAND POLICE & FIRE RETIREMENT SYSTEM BOARD

ATTACHMENT 2

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT OF MEMBER RETIREMENT ALLOWANCES

I. PURPOSE

The purpose of this Policy Governing the Overpayment or Underpayment of Member ~~Benefits Retirement Allowances~~ ("Policy") is to set forth procedures for handling the overpayment and ~~under payment~~ underpayment of Retirement Allowance payments to members and beneficiaries ("~~Members~~") of the Oakland Police and Fire Retirement System ("PFRS").

This Policy is designed for use when a ~~benefit Retirement Allowance~~ overpayment/underpayment ~~affecting affects~~ an individual or a small groups of Members. The PFRS Board may implement a different correction process that it determines is appropriate ~~under special whenever~~ large scale adjustments; ~~such as court orders, charter interpretation, changes to a Memoranda of Understanding ("MOU") are necessitated by this Policy. For the purposes of this Policy, a large scale adjustment is an adjustment affecting twenty (20) or more Members.~~

In the event of any inconsistency between applicable law, ~~including any applicable statutes of limitations~~, and this Policy, the law shall take precedence.

II. INTRODUCTION

The Oakland Police and Fire Retirement Board ("PFRS Board") has a fiduciary obligation to the retirement fund to conserve fund assets and protect the integrity of the fund for the benefit of all ~~PFRS members and beneficiaries ("Members") of the Oakland Police and Fire Retirement System. This duty includes maintaining the tax qualified status of the Plan. Therefore, the PFRS Board, acting through its delegated administrative staff ("Staff"), has a duty to investigate any retirement allowance overpayments or underpayments promptly and diligently, and to recover overpayments and pay out underpayments of retirement plan benefits, unless circumstances exist that make it unreasonable to do so.~~

Members have a right to accurate and timely pension payments. Except as determined by a court of law or the PFRS Board pursuant to the Policy, no Member may receive or retain ~~benefit Retirement Allowance~~ payments over the amounts to which the Member is entitled, and no Member may be deprived of ~~benefit Retirement Allowance~~ payments to which the Member is entitled ~~to receive. Subject to all applicable laws, it shall be PFRS' policy to remit to a Member the amount of any underpayment of benefits, and to make every reasonable effort to recover from a Member the amount of any overpayment of benefits consistent with the Policy and the procedures established herein by the PFRS Board.~~

Commented [b1]: Changed to be consistent with the title of the Policy.

Commented [b2]: Simply making the abbreviated reference the first time the reference is made.

Commented [b3]: Hopefully changed throuout the doucument for consistency.

Commented [b4]: Thought it might be a good idea to define "large scale".

Commented [b5]: I believe in most cases that would be 3 years, which I believe is reasonably consistent with past practices.

Commented [b6]: Perhaps we should consider placing the Introduction before Purpose.

Commented [b7]: Reference to tax status seemed out of place and unnecessary.

Commented [b8]: Relocated and joined with other language to draft a revised stand-alone Policy statement.

Commented [b9]: Addressed in revised Policy Statement.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT
OF MEMBER RETIREMENT ALLOWANCES**

III. POLICY

~~Therefore, It is the policy of the PFRS Board, acting through its delegated administrative staff ("Staff"), has a duty to investigate any alleged retirement allowance overpayments or underpayments promptly and diligently, and, consistent with any applicable statutes of limitations, to make every reasonable effort to recover overpayments and pay out underpayments of Retirement plan benefits Allowances, unless the PFRS Board determines, pursuant to the terms of this Policy, that circumstances exist that make it unreasonable to do so dictate otherwise.~~

IV. PROCEDURES

A. Notice

Upon discovery of an overpayment or underpayment, PFRS shall send a **Notice of Overpayment (or Underpayment) of Member Retirement Allowance** ("Notice" or "Notification") by certified mail, return receipt requested, or by express delivery service, to each affected Member. The Notice shall provide the information specified in either Section A1 or Section A2 below, as appropriate.

1. Notice of Underpayment of Member Retirement Allowance

The **Notice of Underpayment of Member Retirement Allowance** will advise the Member as follows:

- a. The facts and circumstances of the underpayment including details showing the total amount of the underpayment and how those amounts were determined.
- b. If applicable, a detailed description of any prospective corrections to be made and the effective date of such corrections.
- c. The amount, method of payment and timing of any back-payment due to the Member.
- d. The Member's right to appeal and the procedures for filing an appeal provided that the Member shall be given a minimum of thirty (30) days to file. The Notice will inform the Member that an appeal will not stay prospective corrections and that it may delay the payment of back-pay awards.

2. Notice of Overpayment of Member Retirement Allowance

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Commented [b11]: Most of what was in the Policy Section actually amounted to procedures.

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**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT
OF MEMBER RETIREMENT ALLOWANCES**

The Notice of Overpayment of Member Retirement Allowance will advise the Member as follows:

- a. The facts and circumstances of the overpayment including details showing the total amount of the overpayment and how those amounts were determined.
- b. If applicable, a detailed description any prospective corrections to be made and the effective date of such corrections.
- c. That the full amount of the overpayment must be repaid to PFRS through selection of one of the following options:
 - (1) Option 1 — lump sum payment to PFRS for the full amount overpaid. Lump sum payment must be made within 30 days of the Notice.
 - (2) Option 2 — reduction from monthly benefit payments in the amount equal to ten percent (10%) of the total overpayment, not to exceed ten percent (10%) of the Member’s monthly Retirement Allowance, until paid back in full.
 - (3) Option 3 — repayment in equal installments over the same length of time that the overpayments occurred or three years, whichever is longer.
- d. That Option 2 (10%) will go into effect by default if the Member fails to choose an alternative option within 30 days following the date of the Notice.
- e. The procedures by which the Member may claim and apply for a financial hardship and/or negotiate an alternative repayment plan pursuant to the terms of the Policy.
- f. The Member’s right to appeal and the procedures for filing an appeal provided that the Member shall be given a minimum of thirty (30) days to file. The Notice will inform the Member that an appeal will not stay prospective corrections and that collection of amounts owed will be stayed for a maximum of ninety (90) days pending the processing of the appeal.

B. Prospective Corrections

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Commented [b15]: The Policy authorizes the Plan Administrator to negotiate. Members should be noticed that this is available to them.

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**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT
OF MEMBER RETIREMENT ALLOWANCES**

After the discovery and verification of an overpayment or underpayment of benefits Retirement Allowances, and after the required written notification Notification to the affected Member(s), PFRS will adjust future benefit payments to the Member to reflect the correct total amount to which the Member is entitled (as indicated below). Prospective corrections will be implemented at the earliest possible time but no earlier than fifteen (15) days following the date of Notice. PFRS will also pay or assess the Member as appropriate for the underpayment or overpayment in a lump sum, installments, adjustments to future monthly benefit payments, or a combination of these methods to which the Members are entitled in accordance with this policy and applicable law.

Commented [b16]: This provides time to make whatever banking adjustments that might be required if the Retirement Allowance is reduced prospectively.

C. Collection of Overpayments of Retirement Allowance to PFRS' Members and Beneficiaries

- 1- PFRS Staff will correct the Member's recurring monthly overpayment to the correct amount going forward at the earliest practical time after discovering any overpayments.
- 2-3. Except as provided below, PFRS will take all reasonable steps to recover the full amount of all overpayments subject to the provisions of the Policy and applicable law.
- 3-4. Unless the PFRS Board, in its discretion and because of legal or practical considerations, determines otherwise PFRS will recover overpayments by one of the following methods: (a) a lump sum payment from the Member; (b) periodic installment payments from the Member deduction from the monthly Retirement Allowance in the amount equal to ten percent (10%) of the total overpayment, not to exceed ten percent (10%) of the Member's monthly Retirement Allowance, until paid back in full; or (c) offsetting the amount to be recovered against monthly benefit payments over a period of time not to exceed three years; unless the PFRS Board, in its discretion and because of legal or practical considerations, determines that another process is warranted.
- 4-5. The PFRS Board believes has determined that considerations of cost effectiveness make it prudent and reasonable to pursue recovery of overpayments only where the cumulative total amount overpaid to the Member is \$20 fifty dollars (\$50.00) or more. Accordingly, the Retirement Plan Administrator (the "Plan Administrator") is authorized to not seek recovery of any write-off overpayments where the total amount overpaid to the Member is less than \$20 fifty dollars (\$50).
- 5-6. In addition to the options identified in Section IV A. 2. and IV B 2 of this Policy, the Plan Administrator shall have authority to negotiate, renegotiate and approve the alternative terms of recovering for the recovery of overpayments through installments, lump sums, or as offsets against monthly benefit payments for amounts when the amount of the overpayment is below five thousand dollars (\$5,000.00). The Subject to PFRS Board approval, the Plan Administrator may negotiate alternative terms for the recovery of overpayments must approve

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Commented [b17]: The original language was not very distinguishable from Option C. This spells it out.

Commented [b18]: I think \$20 was too low. I would be comfortable going to \$100.

Commented [b19]: This probably needs to be developed a little further but I am attempting to give the Plan Administrator the authority to renegotiate terms of payment when a justifiable change in circumstances occurs. For example, a financial hardship could occur after a payment plan is in place.

Also, maybe we should state somewhere that a Member can always pay off what is owed at any time.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
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~~installment overpayment recovery agreements~~ when the total amount of overpayment is five thousand dollars (\$5,000.00) or more. Among other things, the likelihood of collection, the cost of collection, the amount of possible recovery and documented financial hardship of the Member or Member's estate will be considered by the Plan Administrator and/or the PFRS Board when agreeing to ~~alternative installment~~ recovery terms. ~~The Plan Administrator shall have the authority to forgive up to one hundred dollars (\$100.00) of any amount owed.~~ Any forgiveness of ~~debt amounts owed~~ above ~~One-one Hundred Dollars-dollars~~ (\$100.00) must be approved by the PFRS Board.

~~6-7.~~ PFRS may pursue all legal remedies to collect overpayments, including making a claims against ~~an the Member's~~ estate or trust.

~~7.~~ Upon the death of the Member before full repayment of an overpayment has been made, PFRS shall pursue a claim or claims against the Member's estate, survivors, heirs and/or beneficiaries to recover the unpaid ~~amounts~~.

~~8.~~ If a Member dies while making repayments to PFRS, ~~and there is no surviving spouse who is eligible for a continuing Retirement Allowance,~~ the entire balance of the amount owed shall become due upon the Member's death and ~~will be~~ deducted from the final remittance check ~~if the check has not already been issued and deposited into the deceased Member's account.~~ Any remaining unpaid balance shall be pursued in accordance with this Policy ~~as a claim against the deceased Member's estate.~~ Overpayments due shall ~~not~~ be deducted from a Member's \$1,000 death benefit payment ~~unless there is no designated qualified beneficiary.~~

~~8-9.~~ If the deceased Member has a surviving spouse who is entitled to a ~~reduced-full~~ continuation of the Member's monthly ~~benefit~~ Retirement Allowance, ~~the balance owed at the time of the Member's death will be collected from future Retirement Allowance payments at the same rate and on the same schedule as was in place at the time of the Member's death.~~ When the surviving spouse is entitled to a reduced Retirement Allowance, the Plan Administrator has the authority to collect a reduced monthly amount from the surviving spouse without changing the total amount owed by the deceased Member; ~~provided that the amount collected shall be reduced by at least the same percentage that the monthly Retirement Allowance was reduced.~~

~~9.~~ Before collecting an overpayment from the monthly retirement allowance of a Member without consent, PFRS will give at least 30 day's ~~notice.~~

~~10.~~ The PFRS Board adopts the following procedures for accomplishing the recovery of overpaid benefits:

~~A.~~ **Notification of Overpayment.** Upon discovery of an overpayment, PFRS shall send ~~a Notice of Overpayment of Member Retirement Allowance~~ by certified mail, return receipt requested, or by ~~express delivery service,~~ to the Member advising the Member as follows:

Commented [b20]: This seemed somewhat redundant with the following sections. I am not comfortable with inclusion of the word "survivors".

Commented [b21]: I am opposed to the practice of backing money out of accounts once it has been deposited.

Commented [b22]: Notice requirements moved into another section.

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**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT
OF MEMBER RETIREMENT ALLOWANCES**

- a. ~~The notice will identify the facts and circumstances of the overpayment and details showing the total amount of the overpayment.~~
- b. ~~The notice will request payment to PFRS of the amount overpaid, subject to the provisions of the Policy.~~
- c. ~~The notice will provide three options of repayment, one of which may be selected by the Member:~~
 - (1) ~~Option 1 — lump sum payment to PFRS for the full amount overpaid. Lump sum payment must be made within 30 days of the notice.~~
 - (2) ~~Option 2 — reduction from monthly benefit payments in the amount equal to ten percent (10%) of the total overpayment, until paid back in full.~~
 - (3) ~~Option 3 — repayment in equal installments over the same length of time that the overpayments occurred or three years, whichever is longer. Unless a financial hardship is approved by the PFRS Board, the installment period shall not exceed 3 years.~~
- d. ~~The notice and agreement to repay excess benefits will provide that Option 2 (10%) will go into effect by default if the Member fails to choose an alternative option within 30 days following the date of the notice.~~
- e. ~~The notice shall state that dispute of overpayment must be submitted in writing to the Retirement office within 30 days following the date the notice was sent. This dispute should include supporting documentation, if applicable.~~

D. Payment of Underpayment of Retirement Allowance to Members and Beneficiaries

~~1.~~ When PFRS has underpaid Retirement Allowances, the Member shall be entitled to a prospective adjustment to his or her Retirement Allowance necessary to correct the underpayment, as well as a lump sum payment for all past underpayments. The corrective payment shall be made as soon as is reasonably practicable following PFRS's discovery of the underpayment and Notice to the Member(s).

~~2.~~1. If a Member who was underpaid Retirement Allowances has died prior to payment of the lump sum amount due, the following procedures will be followed:

A. Deceased Member with a Qualifying ~~Widow/Widower~~Spouse for Survivor's Continuance

~~i.~~ If a deceased Member has a qualifying widow/ widowerspouse, the Notice required by Section IV A of this Policy will be provided to the qualifying spouse. Future Retirement Allowance payments will be appropriately adjusted

Commented [b23]: This is the only place in the Policy where an "agreement to repay" is mentioned. I agree, that having an agreement to repay is a good idea but it needs to be fleshed out a little. For example, Option 2 is the default option. How would we handle it when Option 2 went into play by default?

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**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT
OF MEMBER RETIREMENT ALLOWANCES**

and the lump-sum -payment of past underpayments will be made directly to ~~that person~~ the qualified spouse.

B--A. Deceased Member without a Qualifying ~~Widow/Widower~~Spouse for Survivor's Continuance

- i. If the deceased Member does not have a qualifying spouse and there is an open probate (i.e., no order for final distribution has been made), payment will be made to the estate through the personal representative or other legal process provided for in the Member's state of residence. The Notice required by Section IV A of this Policy will be forwarded to the executor of the estate or probate referee, whichever is appropriate.
- ii. If final distribution of the estate has been made, PFRS will review the order for final distribution to determine how assets that were unknown at the time of final distribution are to be distributed under the order. Notice and Payment-payment will then be made in compliance with the order for final distribution, if possible.
- iii. If the Member's estate passed into an intervivos- inter-vivos trust (living trust), Notice and the underpayment may be made to the Trustee after satisfactory inspection of trust documents.
- iv. If probate was not established, Notice and distribution will be made in accordance with any applicable and valid Affidavit for Payment of Personal Property pursuant to California Probate Code Section 13101 or other legal process provided for in the Member's state of residence.
- v. PFRS staff shall make reasonable efforts to locate the beneficiary entitled to payment by sending a letter by certified mail, return receipt requested, to the last known address of each such beneficiary, or by other means of similar intended effect.
- vi. If, after taking the above steps, PFRS staff has not been able locate a beneficiary entitled to payment, PFRS shall hold the funds on behalf of that beneficiary for five years. If the funds are not claimed within five years, the funds may be transferred into the PFRS reserve fund. If a beneficiary later appears to claim the funds, the PFRS Board will consider such claims on a case-by-case basis.

2. Total Underpayments-underpayments of \$20 fifty dollars (\$50.00) or less will only be paid at the request of the Member.

V. Processing of Appeals

Commented [b24]: What if there is no estate, as can be the case for property held jointly with right of survivorship? Should we have a paragraph to address circumstances where there is no estate?.

Commented [b25]: Does this cover my question at b23?

Commented [b26]: This almost reads like an escrow account of some sort. Is that really necessary? Is there an easier way to account for the funds?

Commented [b27]: I would be comfortable going as high a \$100.

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**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
POLICY GOVERNING THE OVERPAYMENT OR UNDERPAYMENT
OF MEMBER RETIREMENT ALLOWANCES**

~~3-~~ Appeals filed pursuant to this Policy which cannot be resolved informally, will be processed in accordance with Section 2603 of the City Charter and any procedures adopted by the PFRS Board for the conduct of such hearings.

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Commented [b28]: I think 2603 applies here as the action would amount to an individual "claim".

IV. Periodic Review

1. Review of this Policy will be conducted by the Audit and Operations Committee not less than every three years.

The Policy ~~governing~~ Governing the ~~overpayment~~ Overpayment or ~~Underpayment~~ of Member ~~benefits~~ Retirement Allowances of the Oakland Police and Fire Retirement System is hereby approved by vote of the Retirement Board, effective <DATE>.

Commented [b29]: General Comments: I would like to see us adopt a standardized formatting and numbering system for Board Policies. If not already there, I believe that Board Policies should be posted to the PFRS web page.

I would like to thank Staff for the work they put into this – it represents a very solid effort with a complicated and sensitive topic.

I also would like to thank Staff and the members of the Audit Committee for providing this opportunity for written comment.

bob.muszar

WALTER L. JOHNSON, SR.
PRESIDENT
OAKLAND POLICE & FIRE RETIREMENT SYSTEM BOARD

KATANO KASAINÉ
SECRETARY
OAKLAND POLICE & FIRE RETIREMENT SYSTEM BOARD



AGENDA REPORT

TO: Oakland Police and Fire
Retirement Board

FROM: Katano Kasaine

SUBJECT: Audit Committee Agenda Pending List

DATE: September 17, 2018

	SUBJECT	PROPOSED SCHEDULED MEETINGS	STATUS
1	City of Oakland Travel Insurance for PFRS Board Member Travel on Board Business	10/31/18	Pending Cost Analysis from City Broker
2	Plan Administrator Status Report regarding status of request to City Administrator to set up Working Group to Address Actuarial Funding date of July 1, 2026.	VERBAL	Meetings being scheduled in October 2018
3	Discussion about Hearing Procedures and procedures to address sensitive personal information at public meetings.	10/31/18	Report to be developed by PFRS Legal Counsel

Respectfully submitted,

Katano Kasaine, Plan Administrator
Oakland Police and Fire Retirement System

All persons wishing to address the Board must complete a speaker's card, stating their name and the agenda item (including "Open Forum") they wish to address. The Board may take action on items not on the agenda only if findings pursuant to the Sunshine Ordinance and Brown Act are made that the matter is urgent or an emergency.

Oakland Police and Fire Retirement Board meetings are held in wheelchair accessible facilities. Contact Retirement Systems, 150 Frank Ogawa Plaza, Suite 3332 or call (510) 238-7295 for additional information.



Retirement Systems
150 Frank H. Ogawa Plaza
Oakland, California 94612

AGENDA

INVESTMENT COMMITTEE MEMBERS

Jaime T. Godfrey
Chairman

R. Steve Wilkinson
Member

Martin J. Melia
Member

**In the event a quorum of the Board participates in the Committee meeting, the meeting is noticed as a Special Meeting of the Board; however, no final Board action can be taken. In the event that the Investment Committee does not reach quorum, this meeting is noticed as an informational meeting between staff and the Chair of the Investment Committee.*

REGULAR MEETING of the INVESTMENT AND FINANCIAL MATTERS COMMITTEE of the OAKLAND POLICE AND FIRE RETIREMENT SYSTEM ("PFRS")

Wednesday, September 26, 2018 – 10:00 am
One Frank H. Ogawa Plaza, Hearing Room 3
Oakland, California 94612

- - - ORDER OF BUSINESS - - -

- 1. Subject: PFRS Investment Committee Meeting Minutes**
From: Staff of the PFRS Board

Recommendation: APPROVE August 29, 2018 Investment Committee meeting minutes.
- 2. Subject: Investment Manager Interviews – Candidates for Defensive Equity Asset Class Investment Manager**
From: Pension Consulting Alliance and Staff of the PFRS Board

Recommendation: ACCEPT Informational Reports from PCA and Candidates for Investment Managers (1) AQR Capital Management, (2) Intech Investment Management, and (3) SPI Strategies LLC regarding hiring as PFRS Defensive Equity Asset Class Investment Manager.
- 3. Subject: Investment Market Overview**
From: Pension Consulting Alliance

Recommendation: ACCEPT an informational report on the global investment markets through September 2018.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
REGULAR INVESTMENT COMMITTEE MEETING
SEPTEMBER 26, 2018**

ORDER OF BUSINESS, continued

4. **Subject:** **\$14.2 million 4th Quarter 2018 Member Benefits Drawdown**
From: Staff of the PFRS Board & Pension Consulting Alliance

Recommendation: **RECOMMEND BOARD APPROVAL** of the PCA recommendation of a \$14.2 million drawdown, which includes an \$11.2 million contribution from the City of Oakland and a \$3.0 million contribution from the PFRS Investment Fund, to be used to pay for member retirement benefits from October 2018 through December 2018.

5. **Subject:** **Updated List of Thermal Coal Companies Prohibited from the PFRS Investment Portfolio**
From: Staff of the PFRS Board and PCA

Recommendation: **RECOMMEND BOARD APPROVAL** of an updated list from PCA of thermal coal companies prohibited from the PFRS Investment portfolio.

6. **Schedule of Pending Investment Committee Meeting Agenda Items**
7. **Future Scheduling**
8. **Open Forum**
9. **Adjournment of Meeting**

AN INVESTMENT AND FINANCIAL MATTERS COMMITTEE MEETING of the Oakland Police and Fire Retirement System (“PFRS”) was held August 29, 2018 in Hearing Room 3, One Frank Ogawa Plaza, Oakland, California.

Committee Members Present: • Jaime T. Godfrey, Chairman
• R. Steven Wilkinson, Member

Committee Members Absent: • Martin J. Melia, Member

Additional Attendees: • Katano Kasaine, Plan Administrator
• Pelayo Llamas, Deputy City Attorney / PFRS Legal Counsel
• David Low & Teir Jenkins, Staff Members
• David Sancewich, Kristen Chase & Sean Copus, Pension Consulting Alliance (PCA)

The meeting was called to order at 10:35 am.

1. **Approval of Investment Committee meeting minutes** – Chairman Godfrey said that the June 27, 2018 investment committee minutes included an error where Member Wilkinson both made a motion and seconded it. Member Wilkinson made a motion to approve the June 27, 2018 Investment Committee meeting minutes with the correction to the error, second by Chairman Godfrey. Motion passed.

[GODFREY – Y / MELIA – ABSENT / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0)

2. **Investment Manager Overview – Earnest Partners** – Patmon Malcom and Dan Miree of Earnest Partners presented an investment and operational overview of their company. Following Committee discussion, Member Wilkinson made a motion accept the Informational Report from Earnest Partners, second by Chairman Godfrey. Motion passed.

[GODFREY – Y / MELIA – ABSENT / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0)

3. **PCA Overview of Investment Manager – Earnest Partners** – Sean Copus from Pension Consulting Alliance (PCA) presented a follow-up review of the management and investment performance of Earnest Partners. Following committee discussion, Chairman Godfrey made a motion accept the informational report from PCA regarding Earnest Partners, second by member Wilkinson. Motion passed.

[GODFREY – Y / MELIA – ABSENT / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0)

4. **Investment Market Overview** – Mr. Copus reported on the global economic factors affecting the PFRS Fund. Chairman Godfrey made a motion accept the Informational Report from PCA, second by Member Wilkinson. Motion passed.

[GODFREY – Y / MELIA – ABSENT / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0)

5. **Investment Fund Performance Report for the Quarter Ending June 30, 2018** – Sean Copus presented the PFRS Investment Fund Performance Report for the quarter ending June 30, 2018. Following some Committee and staff discussion,

Chairman Godfrey made a motion to recommend Board approval of the Investment Fund Performance Report for the quarter ending June 30, 2018, second by member Wilkinson. Motion passed.

[GODFREY – Y / MELIA – ABSENT / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0)

6. **Investment Manager Search – Defensive Equity Asset Class Investment Manager** – Kristen Chase from PCA reported on the details of the conclusion of the PCA Request for Proposal process regarding the Defensive Equity Asset Class investment manager search and recommended invitations for interviews by the Investment Committee be made to AQR Capital Management, Intech Investment Management, and SPI Strategies LLC. Ms. Chase reported how PCA determined their recommendation of these managers for the Defensive Equity Asset Class. David Sancewich from PCA explained the reason for shifting assets to the new Defensive Equity asset class as a de-risking move for the PFRS fund as the Plan approaches the 2026 full funding deadline date. Following staff and committee discussion, member Wilkinson made a motion to recommend Board approval of PCAs recommendation to invite AQR Capital Management, Intech Investment Management, and SPI Strategies LLC to interview with the Investment Committee at their September 2018 Committee meeting to be the new Defensive Equity Asset Class Investment Manager, second by Chairman Godfrey. Motion passed.

[GODFREY – Y / MELIA – ABSENT / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0)

7. **Hansberger Growth Investors Organizational Update** – Sean Copus from PCA reported the request by Hansberger Growth Investors regarding the signing of Hansberger Growth Investor’s Consent to Assignment of Advisory Agreement regarding its organizational update. Following discussion, Chairman Godfrey made a motion to recommend board approval to sign Hansberger Growth Investor’s Consent to Assignment of Advisory Agreement, second by member Wilkinson. Motion passed.

[GODFREY – Y / MELIA – ABSENT / WILKINSON – Y]
(AYES: 2 / NOES: 0 / ABSTAIN: 0)

8. **Investment Committee Pending Agenda Items** – The Investment Committee and staff reviewed the schedule of pending investment committee meeting agenda items.

9. **Future Scheduling** – The next Investment Committee meeting was scheduled for September 26, 2018.

10. **Open Forum** – Mike Mullane from NWQ spoke briefly about the performance of the PFRS Investment funds with NWQ.

11. **Adjournment of Meeting** – The meeting adjourned at 11:39 am.



POLICE & FIRE RETIREMENT SYSTEM

Manager Search Interview Materials:
U.S. Defensive Equity

September 2018

Interview Materials

Interview Schedule

Wednesday, September 26, 2018

Finalist Candidate	Time
AQR Capital Management	10:05 am – 10:30 am
Intech Investment Management LLC	10:35 am – 11:00 am
SPI Strategies LLC	11:05 am – 11:30 am

Interview Materials

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Section

Executive Summary A

Manager Overview B

Performance Summary C

Firm Write-up and Data Profiles D

Performance Analysis Report Cards E

Appendix

Glossary of Terms

U.S. Defensive Equity Manager Search

Executive Summary

In the second quarter of 2018, the OPFRS Board decided to release a Request for Proposal (RFP) for the Defensive Equity mandate. An RFP was released which stated that the mandate was expected to be up to \$15-20 million. PCA received responses from thirty firms of various sizes. PCA evaluated the RFPs and analyzed performance, risk data, and other qualitative factors from each of the responding firms. Based on qualitative and quantitative analysis, PCA narrowed the field to three candidates to present to the OPFRS Investment Committee.

At the August 29th, 2018 OPFRS board meeting, PCA discussed, and the board approved, a recommendation to interview three finalists, AQR Capital Management, Intech Investment Management, and SPI Strategies.

This document serves as a means to further implement the Board's decision, and to provide an overview of the candidates and their portfolios including: ownership, investment strategy, personnel, client base, and performance (Sections B to E).

U.S. Defensive Equity Manager Search

The three defensive equity finalist candidates, and their abbreviations used throughout this report, are presented below in alphabetical order:

<u>Manager: Strategy</u>	<u>Abbreviation</u>
<i>AQR Capital Management: U.S. Defensive Equity</i>	<i>AQR</i>
<i>Intech Investment Management LLC: U.S. Adaptive Volatility</i>	<i>Intech</i>
<i>SPI Strategies LLC: ELROI Long Alpha Plus Portfolio</i>	<i>SPI</i>

All three managers/products (i) are defensive strategies, and (ii) possess the abilities to provide OPFRS with the appropriate services.

AQR Capital Management (U.S. Defensive Equity Strategy): AQR is a registered investment advisor offering a diversified product line that ranges from traditional benchmark long-only equity funds to absolute-return alternative approaches tailored to clients' risk profiles. The U.S. Defensive Equity strategy was originally launched in 2011 and has been managed by the Global Stock Selection investment team since its inception. AQR Capital Management LLC's 35 principals hold majority interest in the firm (greater than 70%). Located in Greenwich, CT, the firm currently manages \$225.9 billion in assets with \$3.6 billion in the U.S. Defensive Equity strategy.

AQR's U.S. Defensive Equity strategy seeks to offer equity-like returns with lower risk vs. the cap-weighted market, in a diversified manner. The investment philosophy behind the strategy is based on the idea that an equity portfolio constructed to capture the low-risk anomaly across multiple dimensions can provide equity-like returns with significantly less risk and reduced drawdowns. AQR believes there are rewards for taking some level of risk, but the reward diminishes for more substantial levels. AQR imposes diversification criteria in their Defense Style portfolios to avoid concentration risk. AQR's investment process is entirely bottom-up and does not incorporate top-down macroeconomic views or tilts. The portfolio construction process combines statistical volatility estimates (from Barra U.S. Equity Risk Model) and fundamental views through quality tilts.

Intech (U.S. Adaptive Volatility): Intech is a registered investment advisor and specialized equity manager that applies advanced mathematics and systematic portfolio rebalancing to harness stock price volatility in an effort to generate excess return and control risk. Founded in 1987 at Princeton by Dr. E. Robert Fernholz, Intech delivers global equity and absolute return solutions. The U.S. Adaptive Volatility strategy was launched in 2013 and has been managed by the same team since inception. Intech is majority owned by Janus Henderson Group (a publicly traded company). Intech employees and former employees own 3% of the company as well as rights to approximately 9% of profits. Located in West

U.S. Defensive Equity Manager Search

Palm Beach, Florida, the firm manages \$50.2 billion in assets with \$1.5 billion in the U.S. Adaptive Volatility strategy.

The U.S. Adaptive Volatility strategy uses a mathematical method to provide above benchmark returns while minimizing absolute risk. Intech implements a volatility-capture approach, which identifies target weights in stocks and then regularly rebalances in an attempt to lock in an excess return. Intech utilizes a portfolio-centric process that is neither bottom-up nor top-down. Historical price data is analyzed and stocks with high relative volatility and low correlation are favored in order to maximize trading profits at the time of rebalancing, which occurs on a weekly basis. In periods of volatile markets, the portfolio will focus on volatility reduction offering a smoother ride and an increased downside protection and in periods of lower volatility, the portfolio will focus on alpha generation.

SPI Strategies (ELROI Long Alpha Plus Portfolio): SPI Strategies is 50% owned by Blaylock Van, LLC, a broker-dealer and the remaining 50% is split between Carton Martin, Chairman (30%) and Steven Singleton, Chief Investment Officer (20%). Headquartered in Oakland, California, the firm manages \$124 million with \$120 million in the Long Alpha Plus Portfolio. SPI Strategies is an emerging, minority-owned money manager that is based in Oakland, California.

SPI's Long Alpha Plus Portfolio strategy looks to achieve long term capital appreciation through consistent annual absolute returns that "go along and extend" traditional benchmarks in up markets and continue appreciation in down markets by implementing a long/short portfolio structure. The strategy runs a sector diversified concentrated long portfolio that captures alpha by focusing on stocks with a favorable combination of identifiable economic moats; expected earnings catalysts, reasonable debt, behavioral attractiveness and positive sentiment. Additionally, the strategy runs a short portfolio that exploits the "flight" behavior associated with fear. The short portfolio is composed of diversified, volatile liquid stocks.

Scope of Review

PCA received responses from thirty managers. PCA evaluated the RFPs and analyzed performance, risk data, and other qualitative factors from each of the responding firms. Based on qualitative and quantitative analysis, PCA narrowed the field to three candidates. AQR had the highest rank, followed by Intech, and SPI. All three recommended finalists were identified as possessing the abilities to provide OPFRS with the appropriate services.

The major areas of focus for each firm answering the RFP were:

- **Organization:** Focuses on the capacity of the firm to provide the required services. Also includes consideration of issues that may impact a firm's operational stability,

U.S. Defensive Equity Manager Search

such as litigation brought against firm. Extra consideration was given to Emerging Manager firms and MDWBE firms.

- **Investment Professionals:** Explores the experience, capacity, and depth of firm’s professionals, particularly with respect to the mandate under consideration.
- **Investment Strategy:** Review of investment philosophy, approach, strategy, and risk management to ensure they are consistent with the considered mandate.
- **Client Base/Services:** Seeks to identify whether the manager has experience servicing mandates similar in size and type to the one considered by OPFRS.
- **Quantitative Analysis of Historical Performance and Characteristics:** An analysis of actual representative portfolio performance and characteristics to determine whether actual management of the portfolio has been consistent with results expected under the considered mandate.
- **Fees:** The costs of implementing the mandate deserve separate consideration and can vary substantially across a subset of candidates. Fees were computed based on an assumed mandate size of \$20 million.

Manager Overview

As of June 30, 2018

INVESTMENT FIRM

Firm	Location	Product Founded	Firm Assets (\$mil)	Employee Owned (%)	# of Employees	Parent Company
AQR	Greenwich, CT	Feb 2011	\$225,846	70%	914	AQR Capital Mgmt Holdings LLC
Intech	West Palm Beach, FL	May 2013	\$50,239	3%	80	Janus Henderson Group
SPI	Oakland, CA	April 2016	\$124	50%	7	Blaylock Van, LLC

U.S. Defensive Equity Manager Search

Manager Overview

Assets by Client Type (\$millions) as of 6/30/18

	AQR		Intech		SPI	
	Firm	Product	Firm	Product	Firm	Product
Total Assets	\$225,846	\$3,645	\$50,239	\$1,492	\$124	\$120
Total Institutional	\$219,269	\$3,645	\$50,239	\$1,492	\$124	\$120
Corporate	\$44,799	\$254	\$3,480	\$0	\$0	\$0
Superannuation	\$0	\$0	\$0	\$0	\$0	\$0
Public Fund	\$52,475	\$776	\$14,310	\$0	\$124	\$120
Union/Multi-Employer	\$5,242	\$0	\$5,334	\$83	\$0	\$0
Foundation & End	\$6,548	\$0	\$178	\$0	\$0	\$0
Health Care	\$2,321	\$0	\$0	\$0	\$0	\$0
Insurance	\$0	\$0	\$0	\$0	\$0	\$0
High Net Worth	\$3,638	\$0	\$0	\$0	\$0	\$0
Wrap Accounts	\$274	\$0	\$0	\$0	\$0	\$0
Sub-Advisor	\$23,953	\$996	\$19,989	\$0	\$0	\$0
Sovereign Wealth Funds	\$30,549	\$0	\$0	\$0	\$0	\$0
Other	\$56,047	\$1,618	\$6,948	\$1,480(MF)	\$0	\$0

Assets Under Management (\$millions) as of 12/31

	Firm AUM / Product AUM					
	AQR		Intech		SPI	
2018*	\$225,846	\$3,645	\$50,239	\$1,492	\$124	\$120
2017	\$244,043	\$3,298	\$49,944	\$1,382	\$114	\$114
2016	\$175,211	\$1,539	\$46,709	\$606	\$28	\$28
2015	\$142,267	\$800.2	\$47,612	\$380	N/A	N/A
2014	\$122,594	\$411.3	\$50,963	\$459	N/A	N/A

*As of 6/30/18

U.S. Defensive Equity Manager Search

Manager Overview

Annual Fee Schedules for Example Mandate Structure Options (\$20M Estimate)

Manager	Proposed Vehicle	Proposed Fee Schedule (\$20M Estimate)	Est. Annual Fee	Minimum Asset Level
AQR	Commingled Fund	All Assets = 0.2%	\$40,000	\$5 Million
Intech	Separate Account	All Assets = 0.45%	\$90,000	\$50 Million*
SPI	Separate Account	All Assets = 0.7%	\$140,000	N/A

*Intech has stated they will make an exception for the System

U.S. Defensive Equity Manager Search

Candidate Performance Summary

Annualized Performance, Gross of Fees As of 6/30/18

	QTR	1-Year	2-Year	3-Year	5-Year
AQR	2.9	15.0	14.8	14.0	15.0
Intech	1.3	12.8	11.3	10.8	13.4
SPI	0.1	13.9	15.5	N/A	N/A
<i>Russell 1000 Index</i>	3.6	14.5	16.3	11.6	13.4
<i>Lipper Large Cap Core Universe</i>	2.6	12.6	14.9	10.0	11.8

- AQR outperformed the Russell 1000 index and the Large Cap Core Median over the 1-, 3- and 5-year periods.
- Intech underperformed the Russell 1000 over the most recent quarter, 1-, 2- and 3-year periods and matched the benchmark over the 5-year. Intech outperformed the Large Cap Core Median over the 1-, 3- and 5-year periods.
- SPI underperformed the index over the quarter, 1- and 2-year periods and outperformed the Large Cap Core Median over the 1- and 2-year periods.

Notes:

Sources: eVestment Alliance and RFP (manager information), MPI (index and universe information)

Performance related statistics calculated using MPI software that geometrically linked and compounded returns

See Appendix for glossary of terms

U.S. Defensive Equity Manager Search

Candidate Performance Summary

Calendar Year Performance, Gross of Fees Periods ending June 30

	2012	2013	2014	2015	2016	2017
AQR	13.3	30.9	16.7	6.5	12.3	22.7
Intech	N/A	N/A	15.8	3.9	6.3	21.4
SPI	N/A	N/A	N/A	N/A	N/A	15.5
<i>Russell 1000 Index</i>	16.4	33.1	13.2	0.9	12.1	21.7
<i>Lipper Large Cap Core Universe</i>	15.4	31.8	11.3	-0.7	10.1	20.6

- AQR outperformed in the Russell 1000 Index and the Large Cap Median in four out of the six time periods.
- Intech outperformed the Index in two of the four measured time periods.
- SPI underperformed the Index over the one period measured.

Notes:

Sources: eVestment Alliance and RFP (manager information), Investment Metrics (index and universe information)

Performance related statistics calculated using Investment Metrics software that geometrically linked and compounded returns

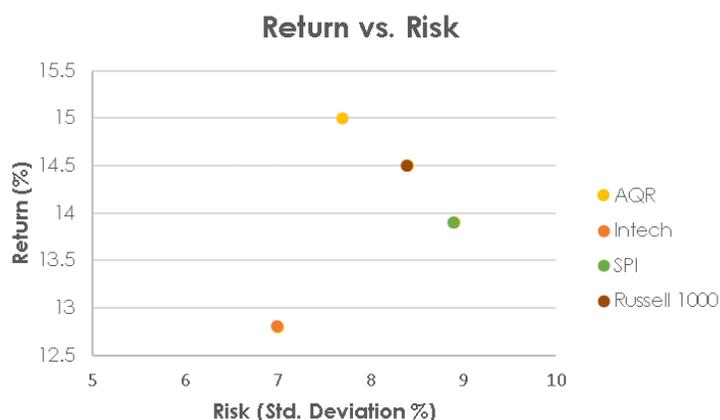
See Appendix for glossary of terms

U.S. Defensive Equity Manager Search

Candidate Performance Summary

Annualized Returns, Gross of Fees Last 1-Year Ending 6/30/18

	Annualized Return, %	Annualized StdDev, %	Sharpe Ratio
AQR	15.0	7.7	1.7
Intech	12.8	7.0	1.6
SPI	13.9	8.9	1.4
<i>Russell 1000 Index</i>	14.5	8.4	1.5
<i>Lipper LCC Universe</i>	12.6	8.7	1.3



Risk Analysis Last 1-Year Ending 6/30/18

	Annualized Return, %		Annualized %		MPT Statistics						
	Total	Excess	StdDev	Tracking Error	Alpha (%)	Beta	R ² (%)	Sharpe Ratio	Info. Ratio	Down Mkt Capture (%)	Up Mkt Capture (%)
AQR	15.0	0.5	7.7	2.6	2.0	0.9	90.4	1.7	0.2	68.8	91.6
Intech	12.8	(1.7)	7.0	4.8	2.3	0.7	67.6	1.6	-0.4	39.7	71.6
SPI	13.9	(0.6)	8.9	7.8	4.1	0.6	35.4	1.4	-0.1	-2.3	63.4
<i>Russell 1000 Index</i>	14.5	--	8.4	0.0	0.0	1.0	100	1.5	--	100	100
<i>Lipper LCC Universe</i>	12.6	(1.9)	8.7	2.4	(1.6)	1.0	92.9	1.3	-0.9	105.5	93.1

Notes:

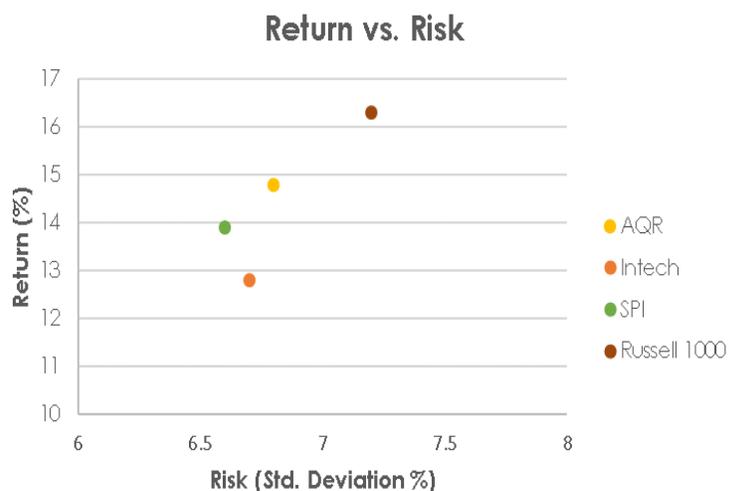
Sources: eVestment Alliance and RFP (manager information), Investment Metrics (index and universe information)
 Performance related statistics calculated using MPI software that geometrically linked and compounded returns
 See Appendix for glossary of term

U.S. Defensive Equity Manager Search

Candidate Performance Summary

Annualized Returns, Gross of Fees Last 2-Years Ending 6/30/18

	Annualized Return, %	Annualized StdDev, %	Sharpe Ratio
AQR	14.8	6.8	1.9
Intech	12.8	6.7	1.5
SPI	13.9	6.6	2.1
<i>Russell 1000 Index</i>	16.3	7.2	2.0
<i>Lipper LCC Universe</i>	15.0	7.5	1.8



Risk Analysis Last 2-Years Ending 6/30/18

	Annualized Return, %		Annualized %		MPT Statistics						
	Total	Excess	StdDev	Tracking Error	Alpha (%)	Beta	R ² (%)	Sharpe Ratio	Info. Ratio	Down Mkt Capture (%)	Up Mkt Capture (%)
AQR	14.8	(1.5)	6.8	3.2	0.9	0.9	81.0	1.9	-0.5	68.2	85.7
Intech	12.8	(3.5)	6.7	5.3	0.5	0.7	51.3	1.5	-0.9	49.4	64.4
SPI	13.9	(2.4)	6.6	6.8	6.9	0.5	27.0	2.1	-0.1	-22.2	68.9
<i>Russell 1000 Index</i>	16.3	--	7.2	--	--	1.00	--	2.0	--	100	100
<i>Lipper LCC Universe</i>	15.0	(1.3)	7.5	2.5	-0.9	1.0	89.6	1.8	-0.5	102.5	94.6

Notes:

Sources: eVestment Alliance and RFP (manager information), MPI (index and universe information)

Performance related statistics calculated using MPI software that geometrically linked and compounded returns

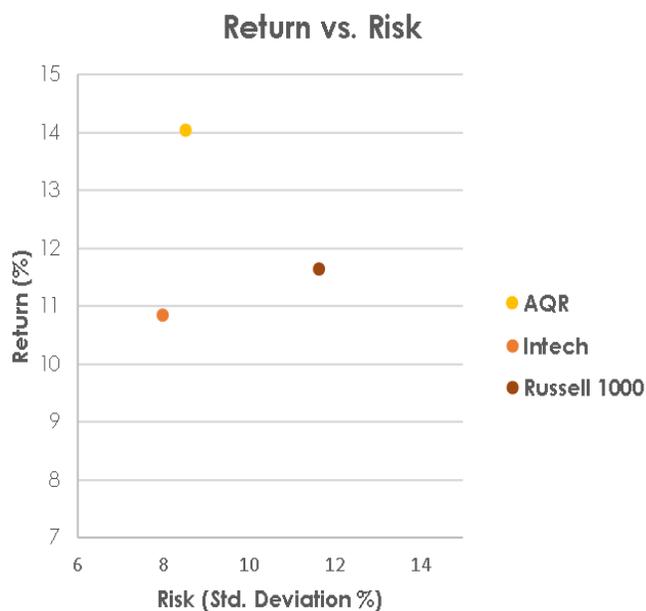
See Appendix for glossary of terms

U.S. Defensive Equity Manager Search

Candidate Performance Summary

Annualized Returns, Gross of Fees Last 3-Years Ending 6/30/18

	Annualized Return, %	Annualized StdDev, %	Sharpe Ratio
AQR	14.0	8.5	1.5
Intech	10.8	8.0	1.3
SPI	N/A	N/A	N/A
<i>Russell 1000 Index</i>	11.6	10.2	1.1
<i>Lipper LCC Universe</i>	10.0	10.4	0.9



Risk Analysis Last 3-Years Ending 6/30/18

	Annualized Return, %		Annualized %		MPT Statistics						
	Total	Excess	StdDev	Tracking Error	Alpha (%)	Beta	R ² (%)	Sharpe Ratio	Info. Ratio	Down Mkt Capture (%)	Up Mkt Capture (%)
AQR	14.0	2.4	8.5	4.2	4.6	0.8	83.6	1.5	0.6	55.7	91.1
Intech	10.8	(0.8)	8.0	6.4	3.3	0.6	61.0	1.3	-0.1	46.3	71.1
SPI	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<i>Russell 1000 Index</i>	11.6	--	10.2	--	--	1.00	--	1.1	--	100	100
<i>Lipper LCC Universe</i>	10.0	(1.6)	10.4	2.7	-1.3	1.0	93.7	0.9	-0.6	103.3	93.1

Notes:

Sources: eVestment Alliance and RFP (manager information), MPI (index and universe information)

Performance related statistics calculated using MPI software that geometrically linked and compounded returns

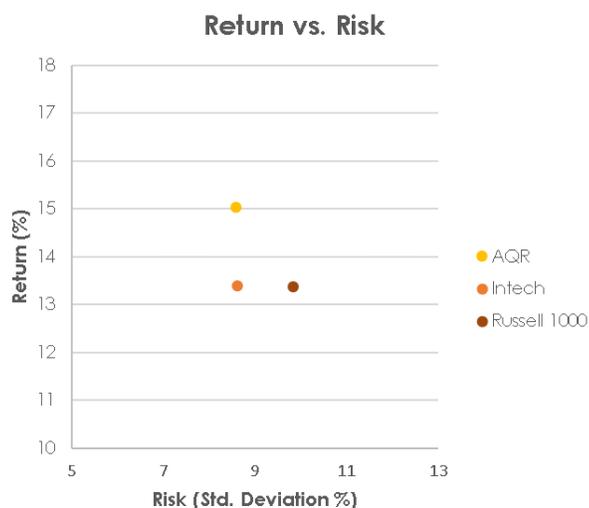
See Appendix for glossary of terms

U.S. Defensive Equity Manager Search

Candidate Performance Summary

Annualized Returns, Gross of Fees Last 5-Years Ending 6/30/18

	Annualized Return, %	Annualized StdDev, %	Sharpe Ratio
AQR	15.0	8.6	1.6
Intech	13.4	8.6	1.5
SPI	N/A	N/A	N/A
<i>Russell 1000 Index</i>	13.4	9.8	1.3
<i>Lipper LCC Universe</i>	11.8	10.1	1.1



Risk Analysis Last 5-Years Ending 6/30/18

	Annualized Return, %		Annualized %		MPT Statistics						
	Total	Excess	StdDev	Tracking Error	Alpha (%)	Beta	R ² (%)	Sharpe Ratio	Info. Ratio	Down Mkt Capture (%)	Up Mkt Capture (%)
AQR	15.0	1.6	8.6	3.8	3.8	0.8	85.6	1.6	0.4	63.1	91.6
Intech	13.4	0.0	8.6	6.0	3.7	0.7	63.6	1.5	0.0	52.5	79.6
SPI	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<i>Russell 1000 Index</i>	13.4	--	9.8	--	--	--	--	1.0	--	100	100
<i>Lipper LCC Universe</i>	11.8	(1.6)	10.1	2.6	-1.3	1.0	93.7	1.1	-0.7	104.2	94.8

Notes:

Sources: eVestment Alliance and RFP (manager information), MPI (index and universe information)

Performance related statistics calculated using MPI software that geometrically linked and compounded returns

See Appendix for glossary of terms

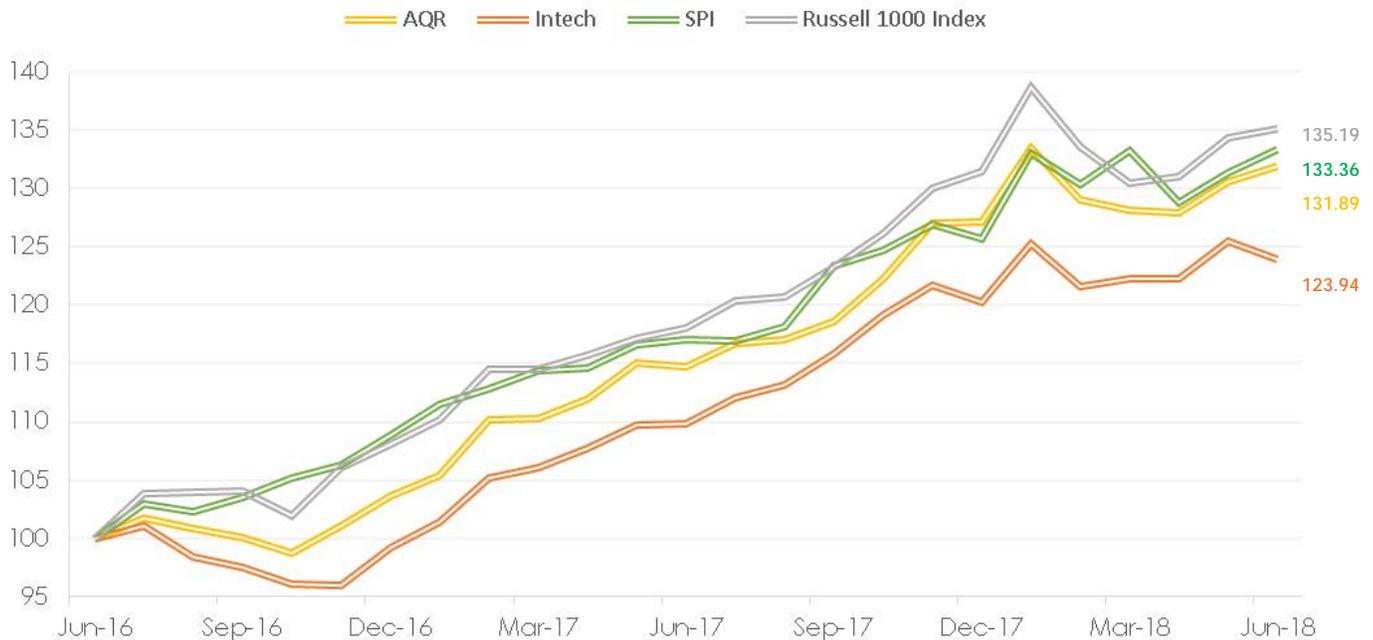
U.S. Defensive Equity Manager Search

Candidate Performance Summary

Correlation to Benchmark 12-Month Period Ending 6/30/18

	AQR	Intech	SPI	Lipper LCC
Russell 1000 Index	0.95	0.82	0.59	0.96

GROWTH OF \$1 2YRS ENDING 6/30/18



U.S. Defensive Equity Manager Search

AQR

As of 6/30/18

Founded: 1998	Firm Assets (\$mil): \$225,846
Location: Greenwich, CT	# of Employees: 914
Contact: Joey Lee (310) 651-5470	Employee Owned (%): 70%

Ownership and Control Structure *(of Firm)*

AQR is a global investment management firm founded in 1998 by alumni of the Ph.D. finance program at the University of Chicago. AQR takes a systematic, research-driven approach, applying quantitative tools to process fundamental information and manage risk. AQR Capital Management Holdings, LLC is 100% owner of AQR Capital Management LLC, whose principals hold majority interest in the firm.

Fund-Offerings and Services *(of Firm)*

AQR provides global investment management services to individuals and institutions through a variety of investment vehicles, including mutual funds, separate accounts, and commingled funds. The firm currently offers 41 equity products, 9 Balanced/Multi-Asset products, and 1 fixed income product.

Investment Philosophy *(of Candidate Fund)*

AQR's firm-wide investment philosophy is the systematic application of fundamental investing, driven by a research philosophy and process. In the Defensive Equity strategy, the philosophy is that an equity portfolio constructed to capture the low-risk anomaly across multiple dimensions can provide equity-like returns with less risk and reduced drawdowns. AQR believes the strategy provides a more balanced exposure to sectors and securities, with intuitive controls around turnover and unintended exposures.

Decision Making Practices *(of Fund)*

Jacques Friedman, Principal, Andrea Frazzini, Principal, and Michele Aghassi, Principal, are the key investment professionals dedicated to the management of the U.S. Defensive Equity strategy and have decision making authority.

Investment Process *(of Fund)*

The quantitative investment process utilizes a bottom-up process implementing risk management statistically and fundamentally. The Barra U.S. Equity Risk Model is used to generate volatility estimates and fundamental views are determined by proprietary stock selection models. Theoretical long-short factor "portfolio views" are used in order to build efficient long-only portfolios. The individual portfolios are combined based on a weighted average of each risk factor to create a baseline theoretical long-short fundamental risk portfolio. This theoretical portfolio, which is long low and short high fundamental risk securities, corresponds to what AQR would like to hold in a long-short context and in the absence of investment constraints and trading costs. In order to translate this long-short portfolio into an actual long-only portfolio, optimization techniques are employed to compute expected returns. The expected returns are then used in a total return/total risk optimization that incorporates trading costs, liquidity and diversification constraints. Further optimization is employed to streamline the input of data, maximize exposure to low fundamental risk and minimize absolute volatility.

Product Summary

Product: U.S. Defensive Equity	Product Assets (\$mil): \$3,645
# of Securities: 215	CF Acct Min (\$mil): \$5.0
Annual Turnover: 16.7%	Process: Bottom-up Quant
Style: Defensive	Size: Large Cap

U.S. Defensive Equity Manager Search

AQR

As of 6/30/18

Key Personnel in Product

Jacques Freidman (Principal)	Andrea Frazzini (Principal)	Michele Aghassi (Principal)
<ul style="list-style-type: none"> •M.S. from Univ of WA •20 years w/ AQR •7 years w/ product •22 years inv. experience 	<ul style="list-style-type: none"> •Ph.D. from Yale •10 years w/ AQR •7 years w/ product •13 years inv. experience 	<ul style="list-style-type: none"> •Ph.D. from Mass. Inst. of Tech •13 years w/ AQR •7 years w/ product •20 years inv. experience

Personnel Turnover in Product*

<i>Product Related Personnel</i>	<i>Current #</i>	<i>Departures</i>	<i>Additions</i>
<i>Portfolio Managers</i>	43	--	--
<i>Analysts</i>	43**	22**	41
<i>Traders</i>	36	14	17
<i>Client Service/Marketing</i>	165	16	50

*During the last 3 Years Ending 6/30/2018

**Analysts grouped together with Portfolio Managers

Product Contact Information

Joey Lee, Business Development, U.S. Institutional
(310) 651-5470

Joe.lee@agr.com

100 Wilshire Boulevard, Suite 250
Santa Monica, CA 90401

Firm Legal / Litigation Issues

Registered Investment Advisor	Yes
Exempt from SEC Registration	No
Major Pending Litigation	No
Major Previous Judgement	No
Fiduciary Liability Insurance	Yes
Errors & Omissions Insurance	Yes
Firm Bonded	Yes
GIP Compliance	Yes

U.S. Defensive Equity Manager Search

AQR

As of 6/30/18

Product Client Base

	# of Accounts	Assets (\$mil)
Sub-Advisory	2	996
Public	1	776
Corporate	15	254
Other	1	1,618
Total	19	3,644

	# of Accounts	Assets (\$mil)
Institutional	19	3,644
Taxable	0	0
Tax Exempt	19	3,390
Total	19	3,644

Largest Clients

Insurance, \$758 m
 Public Pension, \$752m
 Corporate Pension, \$247m
 Asset Mgmt, \$216m

Clients Gained/Lost over last 3.5 Years

	# of Accounts	Assets (\$mil)
Gained	71	11,225
Lost	21	1,648

Investment Vehicles and Contracting Entities

	LEGAL CONTRACTING ENTITY
Separate Account	AQR Capital Management, LLC
Commingled Fund	AQR Capital Management, LLC
Mutual Fund	Not Offered

U.S. Defensive Equity Manager Search

Intech As of 6/30/18

Founded: 1987	Firm Assets (\$mil): \$50.2
Location: West Palm Beach, FL	# of Employees: 80
Contact: Chris Carroll (561) 775-1130	Employee Owned (%): 3%

Ownership and Control Structure *(of Firm)*

Intech was founded in 1987 at Princeton by pioneering mathematician Dr. E. Robert Fernholz. Intech is majority owned by Janus Henderson Group. Existing management agreements between the firms give Intech’s executive committee autonomous decision-making authority to effectively manage Intech’s day-to-day business.

Fund-Offerings and Services *(of Firm)*

Intech serves institutional investors, delivering global equity and absolute-return solutions. All Intech strategies subscribe to a distinctive investment idea: equity price volatility is enduring and a reliable source of both excess return and a key to risk control. This principle motivates the use of one process across five investment platforms. Each platform addresses specific return and risk objectives – relative or absolute.

Investment Philosophy *(of Candidate Fund)*

Using the mathematical principles of Stochastic Portfolio Theory, the U.S. Adaptive Volatility strategy seeks to provide above benchmark returns with considerably less risk compared to its broad-based market cap weighted equity benchmark. Intech implements a volatility-capture approach, which identifies target weights in stocks and then regularly rebalances in an attempt to lock in an excess return. Intech looks to exploit natural and persistent stock-market volatility.

Decision Making Practices *(of Fund)*

The Portfolio Manager overseeing the U.S. Adaptability Fund is Adrian Banner, Ph.D.

Investment Process *(of Candidate Fund)*

The U.S. Adaptive Volatility product does not rely on or utilize fundamental research; does not result in stock selection based on forecasts of individual stock, sector or factor alphas; nor does it require any top-down or bottom-up sector or industry analysis. Instead, a mathematically based investment process following Stochastic Portfolio Theory focuses solely on the covariance structure of the market and the correlations of stocks. The investment process starts with the universe of securities in the Russell 1000 Index, stocks not meeting minimum liquidity thresholds are excluded and the remaining stocks are analyzed for key risk parameters. Target portfolio proportions are established as a result of Intech’s optimization process. Once those proportions are determined and the portfolio is constructed, it is then rebalanced to these target proportions and re-optimized on a periodic basis.

Product Summary

Product: U.S. Adaptive Volatility	Product Assets (\$mil): \$1,492
# of Securities: 160	Sep Acct Min (\$mil): \$50
Annual Turnover: 19%	Process: Quantitative
Style: Mathematical	Size: Large Cap

U.S. Defensive Equity Manager Search

Intech

As of 6/30/18

Key Personnel in Product

Adrian Banner, Ph.D.
(CEO/CIO)

- Ph.D. Mathematics from Princeton
- 16 years w/ Intech
- 5 years w/ product
- 16 years inv. experience

Vassilios Papathanakos, Ph.D.
(EVP, Deputy CIO)

- Ph.D. Physics from Princeton
- 12 years w/ Intech
- 5 years w/ product
- 12 years inv. experience

Phillip Whiteman, Ph.D.
(Principal)

- Ph.D. Mathematics Princeton
- 8 years w/ Intech
- 5 years w/ product
- 8 years inv. experience

Personnel Turnover in Product*

<i>Product Related Personnel</i>	Current #	Departures	Additions
<i>Portfolio Managers</i>	5	--	1
<i>Analysts</i>	3	1	3
<i>Traders</i>	4	--	1
<i>Client Service/Marketing</i>	29	7	4

*During the last 3 Years Ending 6/30/2018

Product Contact Information

Christopher Carroll, Vice President, Product Management

(561) 775-1130

productmanagement@intechinvestments.com

CityPlace Tower

525 Okeechobee Boulevard, Suite 1800

West Palm Beach, FL 33401

Firm Legal / Litigation Issues

Registered Investment Advisor	Yes
Exempt from SEC Registration	No
Major Pending Litigation	No
Major Previous Judgement	No
Fiduciary Liability Insurance	Yes
Errors & Omissions Insurance	Yes
Firm Bonded	Yes
GIP Compliance	Yes

U.S. Defensive Equity Manager Search

Intech
As of 6/30/18

Product Client Base

	# of Accounts	Assets (\$mil)
Mutual Fund	1	1,408
Union/Multi-Employer	1	83
Total	3	1,492

Largest Clients

Commingled Fund, \$32 m
Mutual Fund, \$1,262 m
Taft-Hartley, \$82 m

	# of Accounts	Assets (\$mil)
Institutional	3	1,492
Taxable	0	0
Tax Exempt	3	1,492
Total	3	1,492

Clients Gained/Lost over last 3.5 Years

	# of Accounts	Assets (\$mil)
Gained	1	10
Lost	1	10

Investment Vehicles and Contracting Entities

	LEGAL CONTRACTING ENTITY
Separate Account	Intech Investment Management, LLC
Collective Investment Trust	Intech Investment Management, LLC
Mutual Fund	Not Offered

U.S. Defensive Equity Manager Search

SPI

As of 6/30/18

Founded: 2004	Firm Assets (\$mil): \$124
Location: Oakland, CA	# of Employees: 7
Contact: Steve Singleton (510)268-4850	Employee Owned (%): 50%

Ownership and Control Structure *(of Firm)*

SPI Strategies is affiliated with and 50% owned by Blaylock Van, LLC, a broker-dealer. The other 50% is split between Carlton Martin, Chairman (30%) and Steven Singleton, Chief Investment Officer (20%). Blaylock Van is the Managing Member. Decisions regarding operations, compensation structure and future equity participation must be unanimous.

Fund-Offerings and Services *(of Firm)*

SPI Strategies is an active quantitative equity manager that uses technology to deploy systematic portfolios for institutional and retail investors. Through the use of our proprietary platform, ELROI - Research Analytics, SPI models active and alternative strategies through the blending of fundamental, technical and quantitative factors to address the various style/sector/size directional components of the domestic U.S. Equity market. Currently the firm offers five strategies.

Investment Philosophy *(of Candidate Fund)*

The product looks to achieve long term capital appreciation through consistent annual absolute returns that “go along and extend” traditional benchmarks in up markets and continue that appreciation, as well, in down markets.

Decision Making Practices *(of Fund)*

Steve Singleton is the key decision maker for the strategy.

Investment Process *(of Candidate Fund)*

SPI utilizes a long/short portfolio structure that allows the portfolio to capture upside equity returns in up markets and avoid downside exposure in down markets. The long component is a sector diversified portfolio that finds alpha by favoring stocks with strong economic moats, expected earnings catalysts, reasonable debt, behavioral attractiveness and positive sentiment. The short portfolio exploits the “flight” behavior associated with fear and is composed of the most volatile liquid stocks.

Product Summary

Product: ELROI Long Alpha Plus Portfolio	Product Assets (\$mil): \$120
# of Securities: 40	Sep Acct Min (\$mil): --
Annual Turnover: 100%	Process: Quantitative
Style: Growth/Risk Mitigation	Size: Large Cap

U.S. Defensive Equity Manager Search

SPI

As of 6/30/18

Key Personnel In Product

Steven Singleton (CIO)	Carlton Martin, CFA (Chairman)	Ormur Munoz (Portfolio Manager)
<ul style="list-style-type: none"> • BA from Claremont McKenna College • 14 years w/ SPI • 2 years w/ product • 26 years inv. experience 	<ul style="list-style-type: none"> • MBA from American University • 14 years w/ SPI • 2 years w/ product • 40 years inv. experience 	<ul style="list-style-type: none"> • MBA from San Francisco State • 4 years w/ SPI • 2 years w/ product • 4 years inv. experience

Personnel Turnover in Product*

Product Related Personnel	Current #	Departures	Additions
Portfolio Managers	2	--	2
Analysts	2	--	1
Traders	2	--	--
Client Service/Marketing	--	--	--

*During the last 3 Years Ending 6/30/2018

Product Contact Information

Steve Singleton, CIO

steve@spistrategies.com

(510) 268-4850

Firm Legal / Litigation Issues

Registered Investment Advisor	Yes
Exempt from SEC Registration	No
Major Pending Litigation	No
Major Previous Judgement	No
Fiduciary Liability Insurance	No
Errors & Omissions Insurance	No
Firm Bonded	No
GIP Compliance	In process of hiring

U.S. Defensive Equity Manager Search

SPI

As of 6/30/18

Product Client Base

	# of Accounts	Assets (\$mil)
Public Fund	1	120
Total	1	120

Largest Clients

Public Pension, \$120 m

	# of Accounts	Assets (\$mil)
Institutional	1	120
Total	1	120

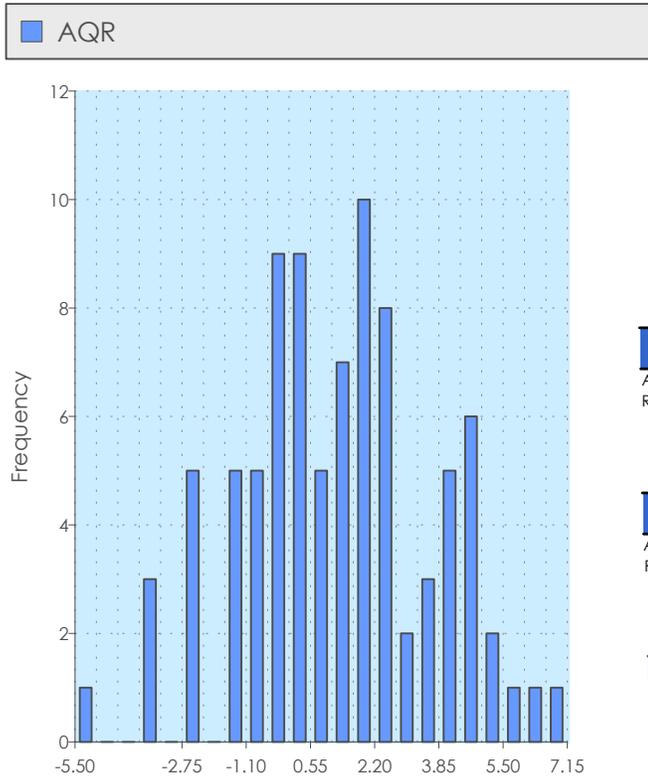
Clients Gained/Lost over last 3.5 Years

	# of Accounts	Assets (\$mil)
Gained	2	141
Lost	0	0

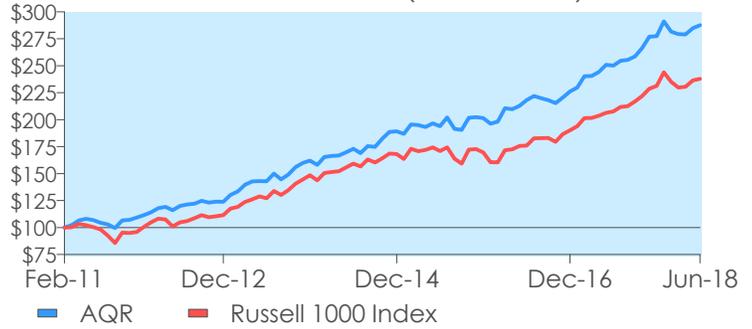
Investment Vehicles and Contracting Entities

	LEGAL CONTRACTING ENTITY
Separate Account	SPI Strategies, LLC
Collective Investment Trust	Not Offered
Mutual Fund	Not Offered

MONTHLY DISTRIBUTION OF RETURNS (Mar 11-Jun 18)



GROWTH OF \$100 (Feb 11-Jun 18)



Since Inception

	# Mo.	Gain Freq, %	Average Gain, %	Average Loss, %	Max Drawdown	Kurtosis	Skewness
AQR	88	68.18	2.49	-1.49	-7.91	-0.21	-0.01
Russell 1000 Index	88	70.45	2.54	-2.62	-17.07	1.07	-0.06

2-Year Period

	# Mo.	Gain Freq, %	Average Gain, %	Average Loss, %	Max Drawdown	Kurtosis	Skewness
AQR	24	29.17	2.10	-1.08	-4.18	-0.02	-0.06
Russell 1000 Index	24	12.50	1.83	-2.63	-5.86	0.56	-0.37

Annualized Performance

	3M	1Y	2Y	3Y	5Y	7Y
AQR	2.95	15.02	14.84	14.04	15.03	15.19
Russell 1000 Index	3.57	14.54	16.27	11.64	13.37	13.12

Monthly Excess Returns Total Return, %

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017	-0.38	0.70	0.05	0.46	1.46	-1.02	-0.17	-0.01	-0.83	0.75	0.87	-0.97
2016	2.86	0.99	-0.70	-1.01	-0.22	2.23	-2.07	-1.04	-0.85	0.65	-1.55	0.66
2015	1.54	-1.09	0.90	-1.63	0.48	0.54	2.24	0.79	2.27	-2.19	-0.06	1.34
2014	0.70	-0.05	-0.13	-0.15	-0.53	-0.43	-0.67	-0.25	1.31	1.85	0.88	0.52
2013	-0.32	1.15	0.84	0.34	-2.00	1.26	-0.36	-0.77	-0.42	0.22	-0.36	-1.28
2012	-2.96	-1.94	0.28	1.51	3.57	-0.38	-0.07	-1.87	-0.39	0.43	-0.07	-1.19
2011	NA	NA	1.95	1.33	2.35	0.71	-0.21	4.36	4.15	-4.07	0.70	1.28

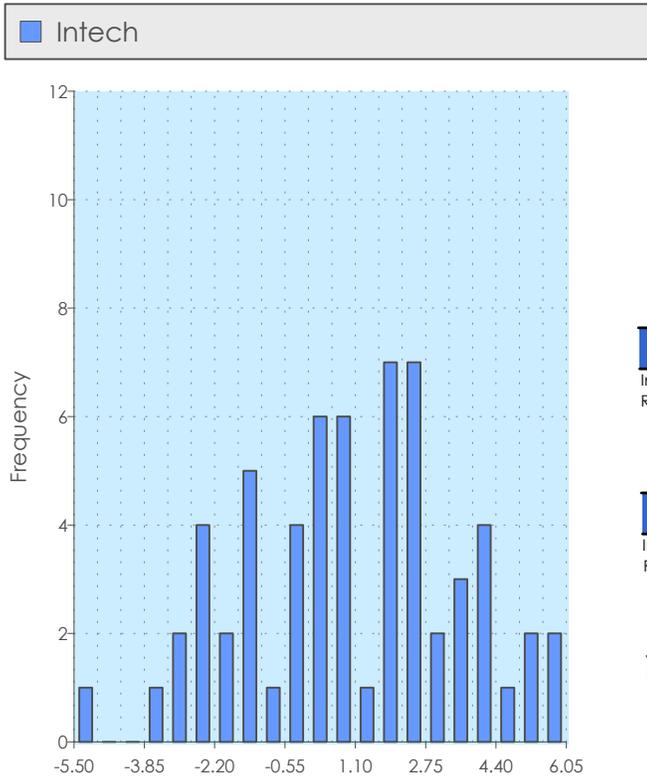
Calendar Year Excess Returns

	AQR
2017	-0.97
2016	0.66
2015	1.34
2014	0.52
2013	-1.28
2012	-1.19
2011	1.28

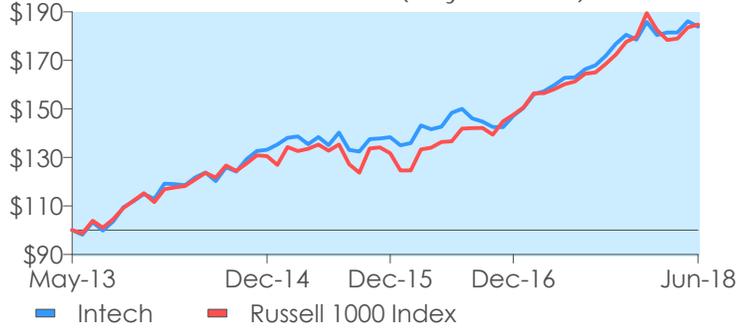
PERFORMANCE STATISTICS	AQR	Russell 1000 Index	MPT STATISTICS	S.I. Alpha	S.I. Beta	S.I. R-Squared	S.I. Correlation	Down Market Capture (%)
Average Return, %	1.21	0.99	AQR	6.00	0.70	0.814	0.90	63.06
Months	88	88						
Best Month	Oct-11	Oct-11						
Best Monthly Return, %	7.13	11.21						
Worst Month	Aug-15	Sep-11						
Worst Monthly Return, %	-5.23	-7.46						

RISK STATS (2 Year Annualized)	Standard Deviation	Downside Deviation	Sortino Ratio	Sharpe Ratio	RISK STATS (Inception Ann.)	Standard Deviation	Downside Deviation	Sortino Ratio	Sharpe Ratio
AQR	6.83	2.71	34.92	1.94	AQR	8.50	3.79	17.21	1.71
Russell 1000 Index	7.23	3.35	39.35	2.01	Russell 1000 Index	10.93	6.13	5.02	1.11

MONTHLY DISTRIBUTION OF RETURNS (Jun 13-Jun 18)



GROWTH OF \$100 (May 13-Jun 18)



Since Inception

	# Mo.	Gain Freq. %	Average Gain, %	Average Loss, %	Max Drawdown	Kurtosis	Skewness
Intech	61	67.21	2.41	-1.81	-5.58	-0.58	-0.14
Russell 1000 Index	61	72.13	2.36	-2.40	-8.59	0.20	-0.07

2-Year Period

	# Mo.	Gain Freq. %	Average Gain, %	Average Loss, %	Max Drawdown	Kurtosis	Skewness
Intech	24	29.17	1.89	-1.48	-5.01	-0.65	-0.34
Russell 1000 Index	24	12.50	1.83	-2.63	-5.86	0.56	-0.37

Annualized Performance

	3M	1Y	2Y	3Y	5Y
Intech	1.34	12.83	11.33	10.84	13.38
Russell 1000 Index	3.57	14.54	16.27	11.64	13.37

Monthly Excess Returns Total Return, %

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017	0.22	-0.13	0.75	0.54	0.61	-0.59	0.06	0.69	0.16	0.61	-0.94	-2.24
2016	2.92	0.75	-1.60	-1.68	-0.99	3.78	-2.73	-2.75	-0.96	0.40	-3.98	1.38
2015	4.40	-3.75	1.67	-3.04	0.88	-0.54	1.91	0.92	2.23	-4.21	-0.13	2.20
2014	1.38	0.83	-0.78	-0.85	0.41	-0.61	-1.22	0.59	0.35	1.68	-0.04	0.61
2013	NA	NA	NA	NA	NA	-0.48	-0.09	-0.60	0.30	1.17	-0.38	-0.12

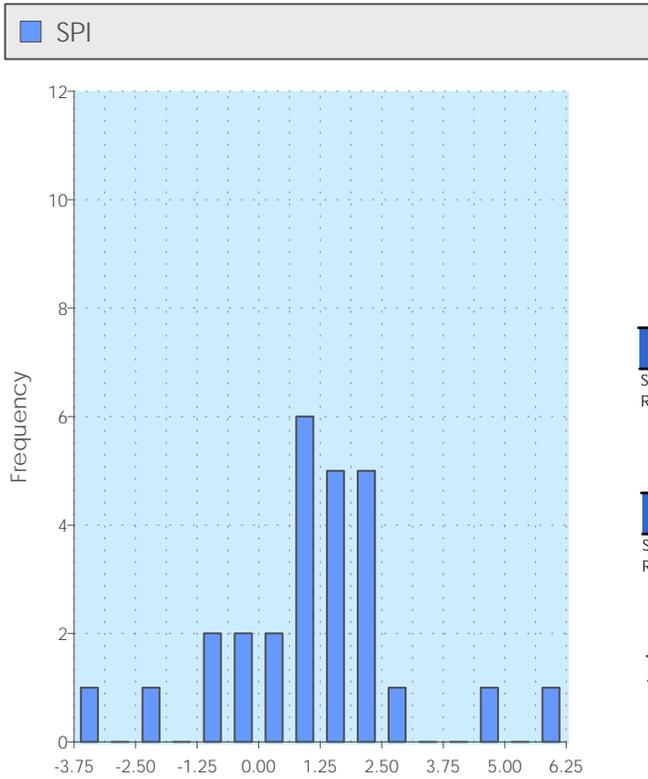
Calendar Year Excess Returns

	Intech
2017	-2.24
2016	1.38
2015	2.20
2014	0.61
2013	-0.12

PERFORMANCE STATISTICS	Intech	Russell 1000 Index	MPT STATISTICS	S.I. Alpha	S.I. Beta	S.I. R-Squared	S.I. Correlation	Down Market Capture (%)
Average Return, %	1.00	1.01	Intech	3.40	0.70	0.64	0.80	52.49
Months	61	61						
Best Month	Feb-14	Oct-15						
Best Monthly Return, %	5.58	8.09						
Worst Month	Aug-15	Aug-15						
Worst Monthly Return, %	-5.10	-6.02						

RISK STATS (2 Year Annualized)	Standard Deviation	Downside Deviation	Sortino Ratio	Sharpe Ratio	RISK STATS (Inception Ann.)	Standard Deviation	Downside Deviation	Sortino Ratio	Sharpe Ratio
Intech	6.67	3.25	14.58	1.51	Intech	8.65	4.30	9.23	1.39
Russell 1000 Index	7.23	3.35	39.35	2.01	Russell 1000 Index	9.82	5.18	6.81	1.24

MONTHLY DISTRIBUTION OF RETURNS (Apr 16-Jun 18)



GROWTH OF \$100 (Mar 16-Jun 18)



Since Inception

	# Mo.	Gain Freq. %	Average Gain, %	Average Loss, %	Max Drawdown	Kurtosis	Skewness
SPI	27	77.78	1.89	-1.29	-3.36	1.57	-0.02
Russell 1000 Index	27	88.89	1.71	-2.63	-5.86	0.81	-0.31

2-Year Period

	# Mo.	Gain Freq. %	Average Gain, %	Average Loss, %	Max Drawdown	Kurtosis	Skewness
SPI	24	20.83	1.92	-1.45	-3.36	1.55	-0.06
Russell 1000 Index	24	12.50	1.83	-2.63	-5.86	0.56	-0.37

Annualized Performance

	3M	1Y	2Y
SPI	0.08	13.89	15.48
Russell 1000 Index	3.57	14.54	16.27

Monthly Excess Returns Total Return, %

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017	0.47	-2.68	1.32	-0.90	0.54	-0.33	-2.11	0.70	2.28	-1.20	-1.26	-2.09
2016	NA	NA	NA	-1.05	0.75	0.59	-0.81	-0.81	1.12	3.57	-2.86	0.45

Calendar Year Excess Returns

	SPI
2017	-2.09
2016	0.45

PERFORMANCE STATISTICS	SPI	Russell 1000 Index	MPT STATISTICS	S.I. Alpha	S.I. Beta	S.I. R-Squared	S.I. Correlation	Down Market Capture (%)
Average Return, %	1.18	1.22	SPI	6.61	0.49	0.275	0.52	-22.16
Months	27	27						
Best Month	Jan-18	Jan-18						
Best Monthly Return, %	5.89	5.49						
Worst Month	Apr-18	Feb-18						
Worst Monthly Return, %	-3.36	-3.67						

RISK STATS (2 Year Annualized)	Standard Deviation	Downside Deviation	Sortino Ratio	Sharpe Ratio	RISK STATS (Inception Ann.)	Standard Deviation	Downside Deviation	Sortino Ratio	Sharpe Ratio
SPI	6.64	2.91	46.92	2.07	SPI	6.42	2.76	48.07	2.10
Russell 1000 Index	7.23	3.35	39.35	2.01	Russell 1000 Index	6.86	3.16	41.28	2.04

U.S. Defensive Equity Manager Search

GLOSSARY OF TERMS

Alpha

The premium an investment earns above a set standard. This is usually measured in terms of a common index (i.e., how the stock performs independent of the market). An Alpha is usually generated by regressing a security's excess return on the S&P 500 excess return.

Annualized Performance

The annual rate of return that when compounded t times generates the same t -period holding return as actually occurred from period 1 to period t .

Beta

The measure of an asset's risk in relation to the Market (for example, the S&P 500) or to an alternative benchmark or factors. Roughly speaking, a security with a Beta of 1.5, will have moved, on average, 1.5 times the market return.

Bottom-up

A management style that de-emphasizes the significance of economic and market cycles, focusing instead on the analysis of individual stocks.

Correlation

Measures whether or not different investments will move at the same time for the same reason and in the same direction. If true, they have a correlation of plus 1. If, on the other hand, they were to move in exactly opposite direction they would have a negative correlation of minus 1.

Covariance

A measure of the degree to which returns on two investments move in tandem. A positive covariance means that asset returns move together. A negative covariance means returns move inversely.

Dividend Discount Model

A method to value the common stock of a company that is based on the present value of the expected future dividends.

Growth Stocks

Common stock of a company that has an opportunity to invest money and earn more than the opportunity cost of capital.

Hybrid

A management style that utilizes both bottom-up and top-down investment philosophy components.

Information Ratio

The ratio of annualized expected residual return to residual risk. A central measurement for active management, value added is proportional to the square of the information ratio.

R-Squared

Square of the correlation coefficient. The proportion of the variability in one series that can be explained by the variability of one or more other series in a regression model. A measure of the quality of fit. 100% R-square means perfect predictability.

Sharpe Ratio

A measure of excess return relative to total variability. It is calculated by subtracting the risk free rate from the rate of return for a portfolio and dividing the result by the standard deviation of the portfolio returns.

Standard Deviation

The square root of the variance. A measure of dispersion of a set of data from its mean.

Style Analysis

Refers to returns-based style analysis using a multi-factor attribution model. The model calculates the product's average exposure to particular investment styles over time (i.e., the product's normal style benchmark).

Top-down

Investment style that begins with an assessment of the overall economic environment and makes a general asset allocation decision regarding various sectors of the financial markets and various industries.

Turnover

For mutual funds, a measure of trading activity during the previous year, expressed as a percentage of the average total assets of the fund. A turnover rate of 25% means that the value of trades represented one-fourth of the assets of the fund.

Appendix

DISCLOSURES: This document is provided for informational purposes only. It does not constitute an offer of securities of any of the issuers that may be described herein. Information contained herein may have been provided by third parties, including investment firms providing information on returns and assets under management, and may not have been independently verified. The past performance information contained in this report is not necessarily indicative of future results and there is no assurance that the investment in question will achieve comparable results or that the Firm will be able to implement its investment strategy or achieve its investment objectives. The actual realized value of currently unrealized investments (if any) will depend on a variety of factors, including future operating results, the value of the assets and market conditions at the time of disposition, any related transaction costs and the timing and manner of sale, all of which may differ from the assumptions and circumstances on which any current unrealized valuations are based.

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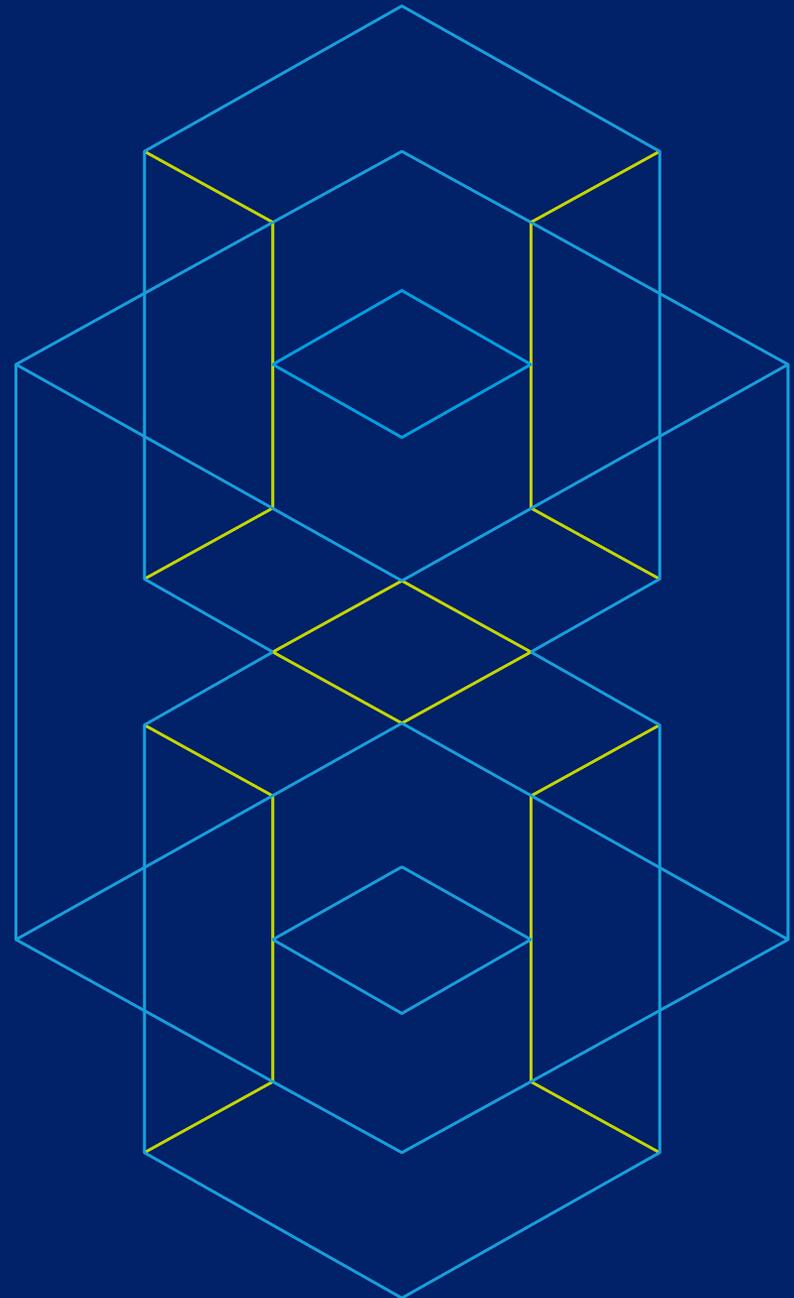
CITY OF OAKLAND
U.S. DEFENSIVE EQUITY PRESENTATION
AQR CAPITAL MANAGEMENT

AQR U.S. Defensive Equity

Prepared exclusively for the City of Oakland
Police and Fire Retirement System

Private and Confidential

September 26th, 2018



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AQR Presenter

Dave Kershner, CFA, *Vice President*

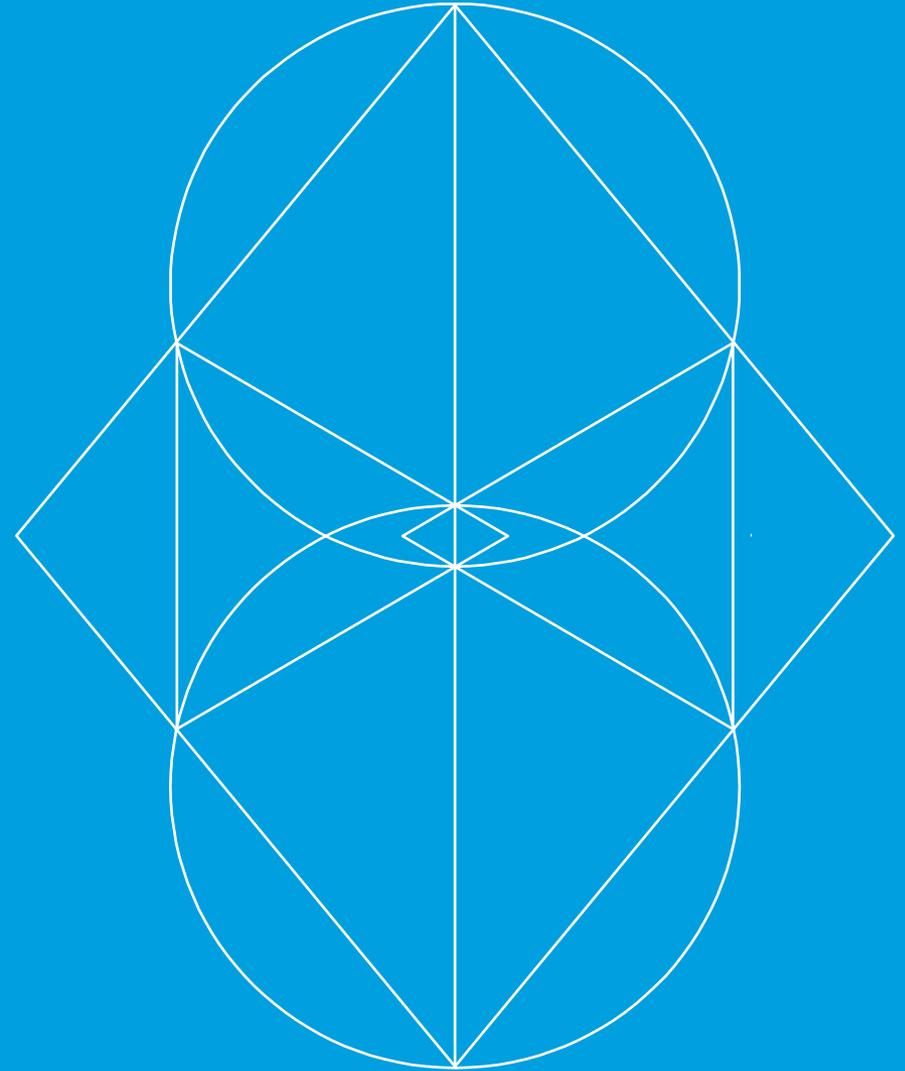
Dave is a Vice President on the strategy team within AQR's Global Stock Selection group, where he is responsible for addressing involved client requests, running portfolio analysis and monitoring accounts. Prior to AQR, Dave was a portfolio manager and vice president with Dimensional Fund Advisors. Dave earned his B.S. and M.S. in electrical engineering from Pennsylvania State University and his M.B.A. in finance from The Anderson School at UCLA. Dave is a CFA charterholder.

Michael Porter, CFA, CMA, *Vice President*

Michael is a vice president on AQR's Consultant Relations team. Based in Los Angeles, he represents AQR strategies and capabilities to U.S. and Canadian institutional investment research professionals and consultants. Prior to AQR, he was a senior vice president at Saddle Peak Asset Management, where he built relationships with investment consultants, foundations, endowments and high-net-worth families and individuals. Earlier, he was a vice president for consultant relations at Dimensional Fund Advisors and a vice president for relationship management at Metropolitan West Asset Management. He is a member of the Applied Behavioral Finance Committee for CFA's Los Angeles chapter. Michael earned a B.S. in business administration from Villanova University, graduating *cum laude*, and an M.B.A. from the S.C. Johnson Graduate School of Management at Cornell University. He is a CFA charterholder and a Certified Management Accountant.



AQR Overview



Our Firm

AQR is a global investment management firm built at the intersection of financial theory and practical application. We strive to deliver superior, long-term results for our clients by looking past market noise to identify and isolate what matters most, and by developing ideas that stand up to rigorous testing. Our focus on practical insights and analysis has made us leaders in alternative and traditional strategies since 1998.

At a Glance

- AQR takes a systematic, research-driven approach to managing alternative and traditional strategies
- We apply quantitative tools to process fundamental information and manage risk
- Our clients include institutional investors, such as pension funds, defined contribution plans, insurance companies, endowments, foundations, family offices and sovereign wealth funds, as well as RIAs, private banks and financial advisors
- The firm has 35 principals and 932 employees; over half of employees hold advanced degrees
- AQR is based in Greenwich, Connecticut, with offices in Boston, Chicago, Hong Kong, London, Los Angeles, and Sydney
- Approximately \$226 billion in assets under management as of June 30, 2018*



*Approximate as of 6/30/2018, includes assets managed by AQR and its advisory affiliates.

Who We Are

Cliff Asnes, Ph.D.*
Managing and Founding Principal

Portfolio Management, Research & Trading

John Liew, Ph.D.*
Founding Principal

Portfolio Management and Research

Michele Aghassi, Ph.D.
Principal

Michael Mendelson*
Principal

Andrea Frazzini, Ph.D.
Principal

Tobias Moskowitz, Ph.D.
Principal

Jacques Friedman
Principal

Yao Hua Ooi
Principal

Brian Hurst
Principal

Lasse Pedersen, Ph.D.
Principal

John Huss
Principal

Scott Richardson, Ph.D.
Principal

Ronen Israel*
Principal

Mark Mitchell, Ph.D.
Principal (CNH)

Roni Israelov, Ph.D.
Principal

Todd Pulvino, Ph.D.
Principal (CNH)

Michael Katz, Ph.D.
Principal

Rocky Bryant
Principal (CNH)

David Kupersmith
Principal

Oktay Kurbanov
Principal

Trading

Ari Levine
Principal

Isaac Chang
Managing Director

Brian Hurst
Principal

Risk Management

Risk Management

Lars Nielsen
Principal
Chief Risk Officer

Business Development

David Kabiller, CFA*
Founding Principal

Client Solutions

Gregor Andrade, Ph.D.
Principal

Jeremy Getson, CFA
Principal

Bill Cashel
Principal

Marco Hanig, Ph.D.
Principal

Jeff Dunn
Principal

Michael Mendelson*
Principal

Chris Palazzolo, CFA
Principal

Portfolio Solutions

Antti Ilmanen, Ph.D.
Principal

Marketing

Suzanne Escousse
Principal
Chief Marketing Officer

Corporate Infrastructure

Finance

John Howard*
Principal,
Chief Finance Officer /
Co-Chief Operating Officer

Bradley Asnes
Principal
Co-Chief Operating Officer

Accounting, Operations and Client Administration

Steve Mellas
Principal

Systems Development and IT

Neal Pawar
Principal
Chief Technology Officer

Human Resources

Jen Frost
Principal
Chief Human Resources Officer

Legal & Compliance

Legal

Billy Fenrich
Principal
Chief Legal Officer

Compliance

H.J. Willcox
Principal
Chief Compliance Officer



*Member of Executive Committee
Personnel as of 6/30/2018

AQR Overview

Recognized research excellence among world class academia

Academic Engagement

19 current and former professors work at AQR

Nearly half of our employees hold advanced degrees (including 78 Ph.D.s)

Established the AQR Asset Management Institute at The London Business School to promote excellence in asset management

The AQR Insight Award gives an annual \$100,000 prize honoring unpublished papers that provide the most significant investment insights

Our online research library contains more than 300 papers, journal articles, books and periodicals, as well as our data sets

Awards and Prizes

54 Research Awards

Notable awards include¹:

- 8 Bernstein Fabozzi JPM Awards
- 8 Graham & Dodd Awards
- 6 Smith Breeden Awards²
- 4 DFA Prizes
- 3 Michael Brennan Awards²
- 1 Fischer Black Prize
- 1 Bernacer Prize
- 1 Markowitz JOIM Award

Highly Ranked Finance Research³

SSRN Downloads

1. New York University (NYU)
2. Harvard University
3. University of Chicago
4. University of Navarra
5. Stanford University
6. University of Pennsylvania
7. Columbia University
8. Yale University
9. Duke University
10. University of Oxford
11. MIT
12. **AQR Capital Management**
13. U.S. Government
14. University of Toronto
15. University of New South Wales

Top Journal Article Citations

1. University of Chicago
2. **AQR Capital Management**
3. Yale University
4. University of Pennsylvania
5. New York University (NYU)
6. Duke University
7. Ohio State University
8. Copenhagen
9. Harvard University
10. Universita Bocconi
11. U. of Rochester
12. Columbia University
13. Federal Reserve Bank of NY
14. Washington University
15. Dartmouth College

As of March 31, 2018. Source: AQR and www.ssm.com.

¹Graham & Dodd Awards won in 2016, 2011, 2005, 2004, 2003, 1998, 1991; Bernstein Fabozzi Awards won in 2016, 2014, 2013, 2013, 2005, 2004, 2003, 2002; Smith Breeden Awards won in 2010, 2008, 2002, 2000, 1998, 1998; DFA Awards won in 2016, 2014, 2008, 2005; Michael Brennan Awards won in 2013 and 2005, runner-up in 2006; Fischer Black Prize won in 2007; Bernacer Prize won in 2011; Markowitz Award won in 2016.

²Two Smith Breeden awards were second place mentions; one Michael Brennan award was a second place mention.

³Social Science Research Network (SSRN) Finance Economic Network ranked by total new downloads of papers in the last 3 Y ears. SSRN List is as of February 1, 2018, Google Scholar list as of 08/10/2017.



AQR's Long History of Style Premia Research

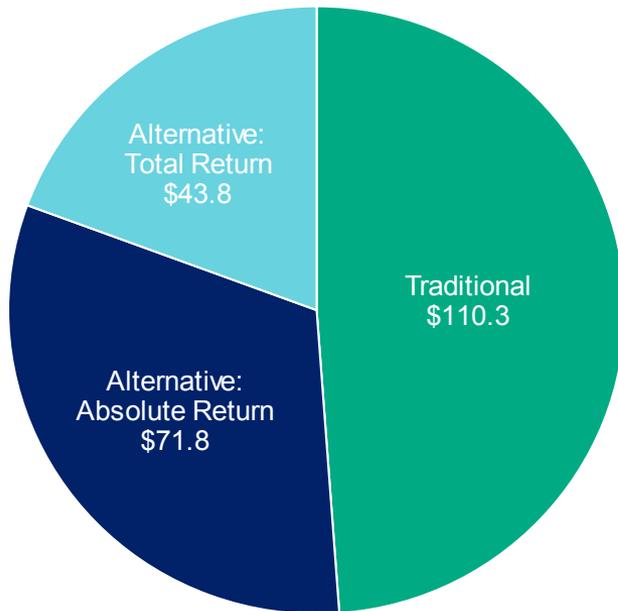
AQR style premia research includes key studies of defensive styles

2017		Israel, Jiang and Ross explore the importance of implementation in building style portfolios in “Craftsmanship Alpha: An Application to Style Investing”
2016		Fitzgibbons, Friedman, Pomorski and Serban argue for an integrated approach to styles in “Long Only Style Investing: Don’t Just Mix, Integrate”
2015		Asness, Frazzini, Israel and Moskowitz summarize what we know and dispel myths about value in “Fact, Fiction, and Value Investing” Asness, Frazzini, Israel, Moskowitz and Pedersen resurrect the size premium in “Size Matters, if You Control Your Junk”
2014		Ilmanen, Maloney and Ross explore the macro sensitivities of styles in “Exploring Macroeconomic Sensitivities” Asness, Frazzini, Israel and Moskowitz summarize what we know and dispel myths about momentum in “Fact, Fiction, and Momentum Investing”
2013		Asness, Frazzini and Pedersen examine the quality factor in “Quality Minus Junk” Frazzini, Israel and Moskowitz evaluate trading costs in “Trading Costs of Asset Pricing Anomalies”
2012		Koijen, Moskowitz, Pedersen and Vrugt document pervasiveness of carry strategies in “Carry” Frazzini and Pedersen demonstrate pervasiveness of low-risk style in “Betting Against Beta” Asness and Frazzini challenge the traditional construction of the value premium in “The Devil in HML’s Details” Israel and Moskowitz show robustness of equity styles in “How Tax Efficient Are Equity Styles” and “The Role of Shorting, Firm Size and Time on Market Anomalies” Israel, Ilmanen and Moskowitz combine four styles in multiple contexts in “Investing with Style”
2010		Asness, Frazzini and Pedersen examine applications of the low-risk style in “Leverage Aversion and Risk Parity” Ilmanen presents long-term evidence for major strategy styles in his book, <i>Expected Returns</i> Berger, Israel and Moskowitz describe potential role for momentum in “The Case for Momentum Investing”
2009		Gârleanu, Pedersen and Poteshman explore demand-pressure effects on option prices in “Demand-Based Option Pricing”
2008		Asness, Moskowitz and Pedersen demonstrate the pervasiveness of value and momentum in “Value and Momentum Everywhere” Brunnermeier, Nagel and Pedersen analyze risks to carry strategies in “Carry Trades and Currency Crashes”
2006		Frazzini investigates behavioral explanations for momentum in “The Disposition Effect and Under-Reaction to News”
1998	AQR Founding Principals began managing investments	Moskowitz and Grinblatt document the momentum effect in industries in “Do Industries Explain Momentum?” Asness, Liew and Stevens study styles across countries in “Parallels Between the Cross-Sectional Predictability of Stock and Country Returns” Asness documents case for two major styles in “The Interaction of Value and Momentum Strategies”
1994		Asness shows the implications for a combined value/momentum approach in his Ph.D. dissertation

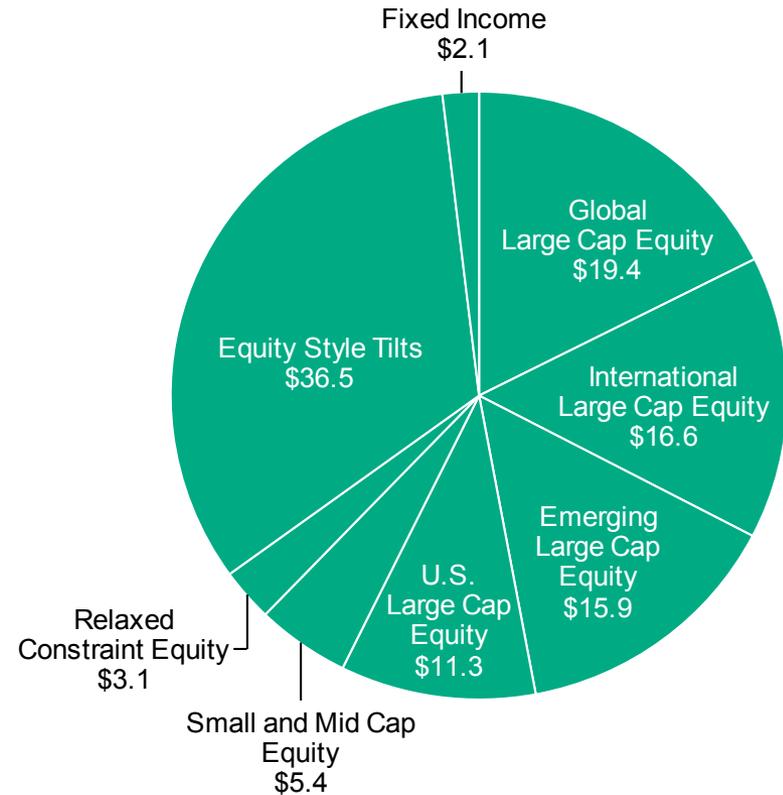


Assets Under Management

Total Assets
\$226 Billion*



Traditional Strategies
\$110 Billion*



*Approximate as of 6/30/2018, includes assets managed by AQR and its advisory affiliates.

Assets Under Management

Currently running three defensive equity strategies

Strategy	Inception Date
Global and International Defensive Equity	February 2011
U.S. Defensive Equity	February 2011
Emerging Defensive Equity	August 2012



*Approximate as of 6/30/2018, includes assets managed by AQR and its advisory affiliates.

Global Stock Selection Team

Portfolio Management and Research

Jacques Friedman
Principal

Andrea Frazzini, Ph.D.
Principal

Michele Aghassi, Ph.D., CFA
Principal

Ronen Israel
Principal

Tobias Moskowitz, Ph.D.
Principal

Scott Richardson, Ph.D.
Principal

Shaun Fitzgibbons
Managing Director

Tarun Gupta, Ph.D.
Managing Director

Rodolfo Martell, Ph.D.
Managing Director

Greg McIntire, CFA
Managing Director

Lukasz Pomorski, Ph.D.
Managing Director

Laura Serban, Ph.D.
Managing Director

Nathan Sosner, Ph.D.
Managing Director

Greg Hall
Vice President

David Kershner, CFA
Vice President

Adrienne Ross
Vice President

Portfolio Implementation

Michael Katz, Ph.D.
Principal

Oktay Kurbanov
Principal

Alla Markova
Managing Director

Trading

Isaac Chang
Managing Director

Brian Hurst
Principal

Risk Management

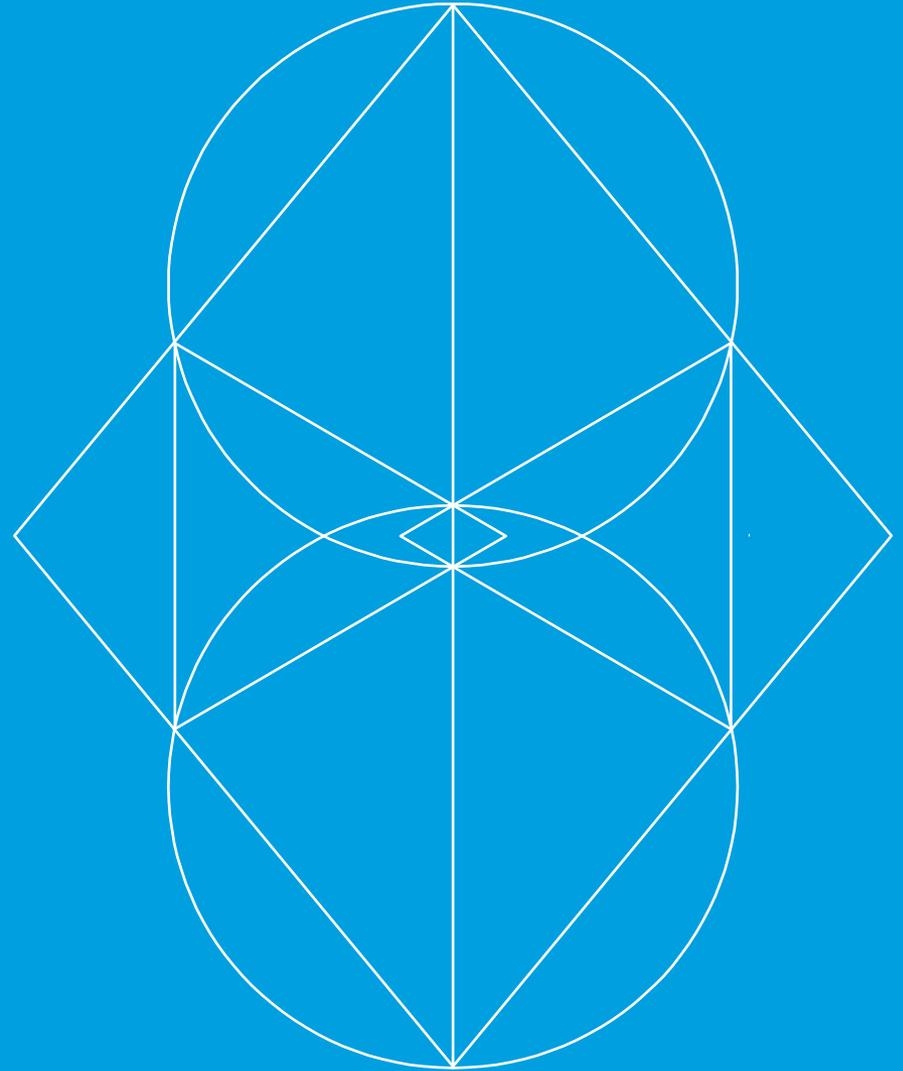
Lars Nielsen
Principal

Front Office Technology

Neal Pawar
Principal



Why AQR Defensive Equity?



Executive Summary

AQR Defensive Equity

AQR Defensive Equity strategy seeks to provide equity like returns with reduced risk through a systematic process based on fundamental investment principles.

Experienced Team

- Stable PM team has 17-year track record with \$108B* in long-only equity assets

Fundamental Investing – Systematically Applied

- Innovative research applied systematically to risk-controlled, diversified portfolios



Source: AQR. There is no guarantee, express or implied, that long-term return targets will be achieved. Realized returns may come in higher or lower than expected.
* Approximate as of 6/30/2018.

AQR's Defensive Equity

Augments defensive equity through multiple aspects of risk

Low Statistical Risk

AQR's Defensive Equity Strategy seeks to minimize total portfolio volatility...

Low Fundamental Risk

...but also includes **quality** metrics to obtain a more complete picture of risk.

Implementation

Our construction incorporates intuitive constraints to enhance **diversification**.



Investment Process

Consistent process across AQR Equity Strategies

Select	Evaluate
Construct	Trade

1. Select Investment Universe

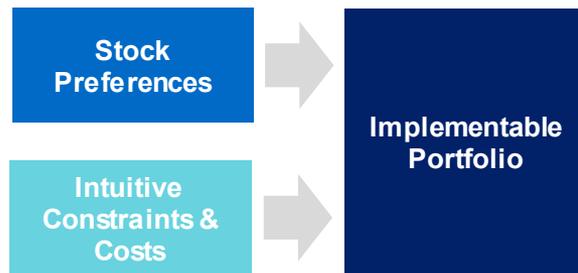


We start with broad investment universes

2. Evaluate Attractiveness of Each Stock



3. Portfolio Construction



4. Trading



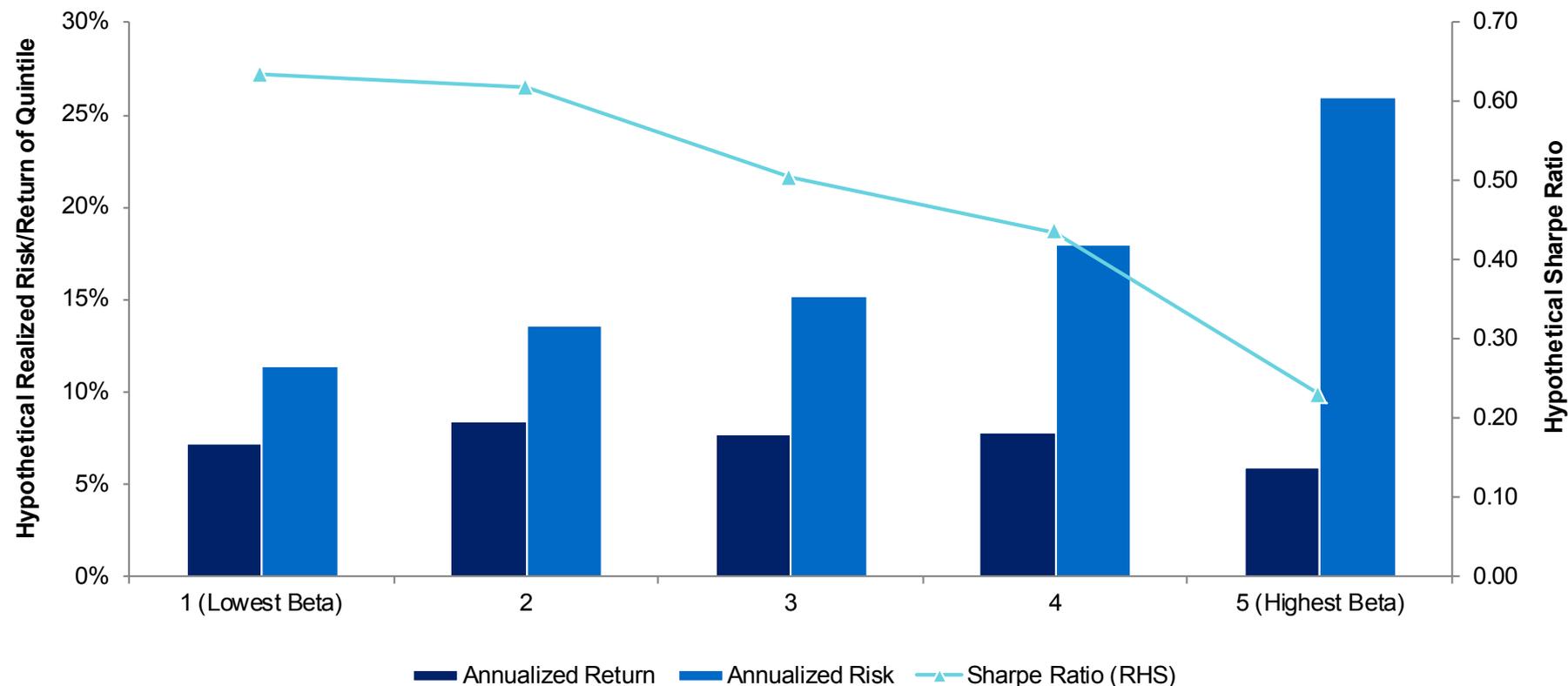
Source: AQR. Investment process is subject to change at any time without notice. Please read important disclosures in the Appendix. In equities and futures markets, AQR utilizes broker's infrastructure to access electronic trading venues. In FX markets, AQR connects directly to dealers and electronic trading venues.

Betting Against Beta: The Low-Risk Anomaly

There is significant empirical evidence that higher risk leads to lower risk-adjusted returns.

U.S. Equities

January 1926 – December 2017



Source: AQR. U.S. Equities are the Russell 3000. Prior to 1980, U.S. Equities is represented by the CRSP U.S. index. Past performance is not a guarantee of future performance. Return and Risk characteristics are provided excess of cash. Portfolios are formed by sorting stocks on realized market beta and dividing the stocks into quintile portfolios; returns are excess of cash. Quintile portfolio returns are equal-weighted returns of the stocks in that portfolio. These are not the returns of an actual portfolio AQR manages and are for illustrative purposes only. Hypothetical data has certain inherent limitations, some of which are disclosed in the Appendix. Please read important disclosures in the Appendix.

AQR Defensive Equity

Quality signals augment low volatility estimates

Quality Theme

Profitability

- High Margins
- High Asset Turnover

Sustainable Earnings

- Cash flow vs. accruals

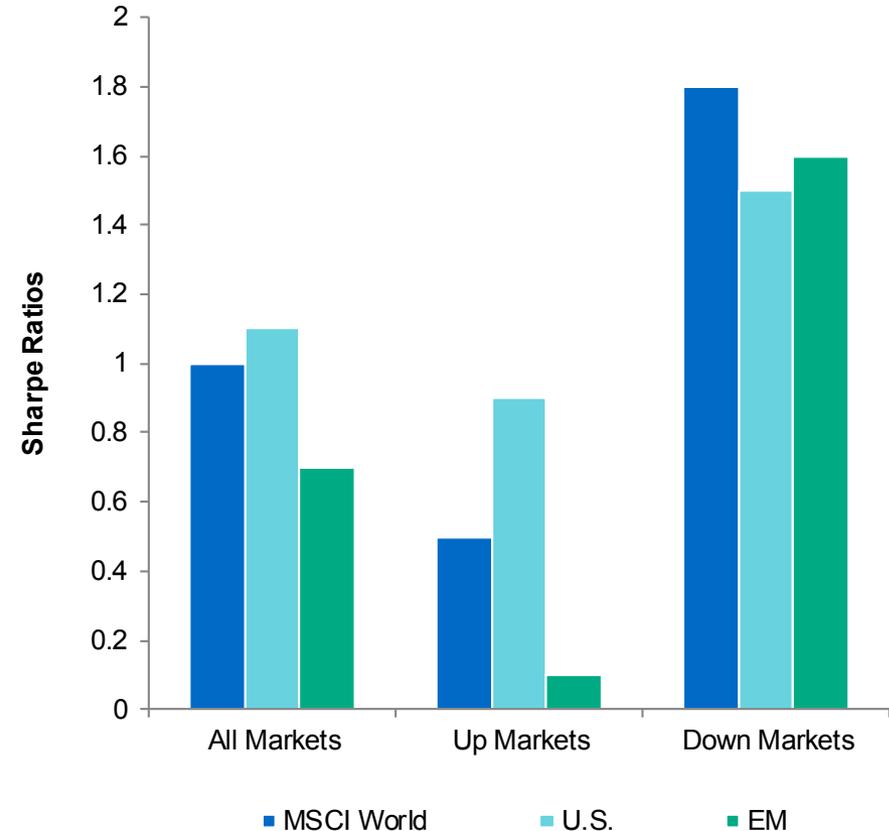
Low Earnings Risk

- Low earnings variability
- Low cash flow variability

Low Default Risk

- Distance to Default

Hypothetical Sharpe Ratio Of Quality Theme



Portfolio Construction

Intuitive constraints are designed to ensure that the portfolio remains defensive and avoids unintended factor exposures.

	Global Defensive	U.S. Defensive	Emerging Defensive
Number of Holdings	> 150	> 150	> 100
Max Position Size	1.5%	1.5%	1.5%
Industry Tilts vs. equal risk anchor*	+/-3%	+/-3%	+/-3%
Country vs. equal risk anchor*	+/-2%	N/A	+/-2%
Risk Factor Exposures**	+/-0.25 STD	+/-0.25 STD	+/-0.25 STD



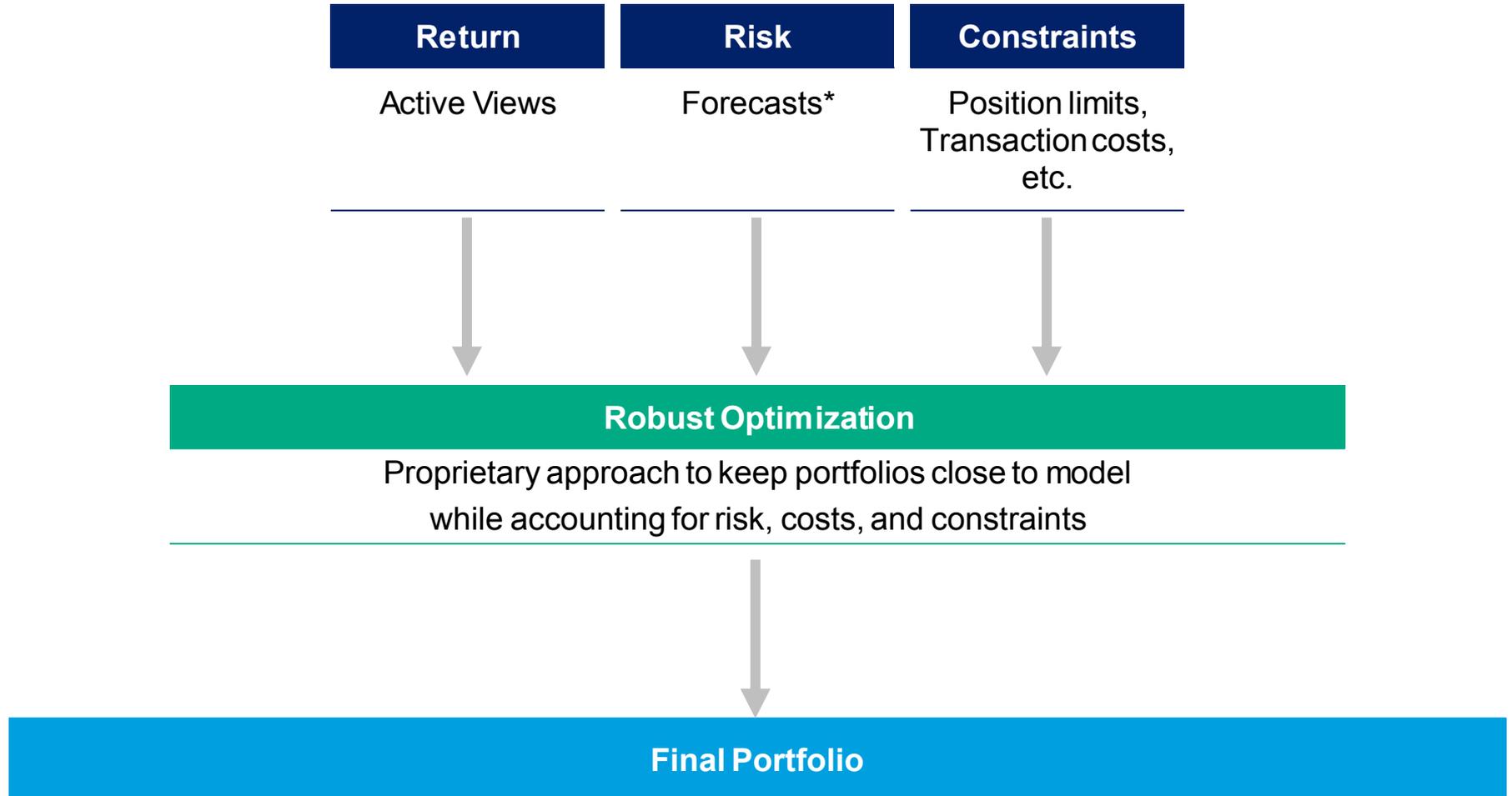
Source: AQR. Portfolio construction is subject to change at any time. Diversification does not eliminate the risk of experiencing investment losses.

* The portfolio is anchored around a benchmark with equal volatility weight to every stock, grouped by industry.

** Risk factor exposures are measured through BARRA risk models. Stylistic risks associated with low volatility and earnings quality are not constrained as they are intentional bets within the strategy.

Portfolio Construction

Proprietary rebalancing process



* We utilize BARRA models as our source of risk forecasts
Source: AQR. Investment process is subject to change at any time without notice. Please read important disclosures in the Appendix.

Advanced Trading and Research Infrastructure

AQR employs customized algorithms to help reduce trading costs

AQR Trading Highlights

- Significant focus on market structure research, execution optimization and technology
- Staff of 50+ people across traders, researchers, analysts and trading developers
- 15+ years of customized AQR algorithm development
- Electronic markets: trade and quote data for stocks, futures, currencies and options
- OTC markets: bids and offers for bonds, interest rate swaps, currencies and volatility

Typical Asset Manager



AQR

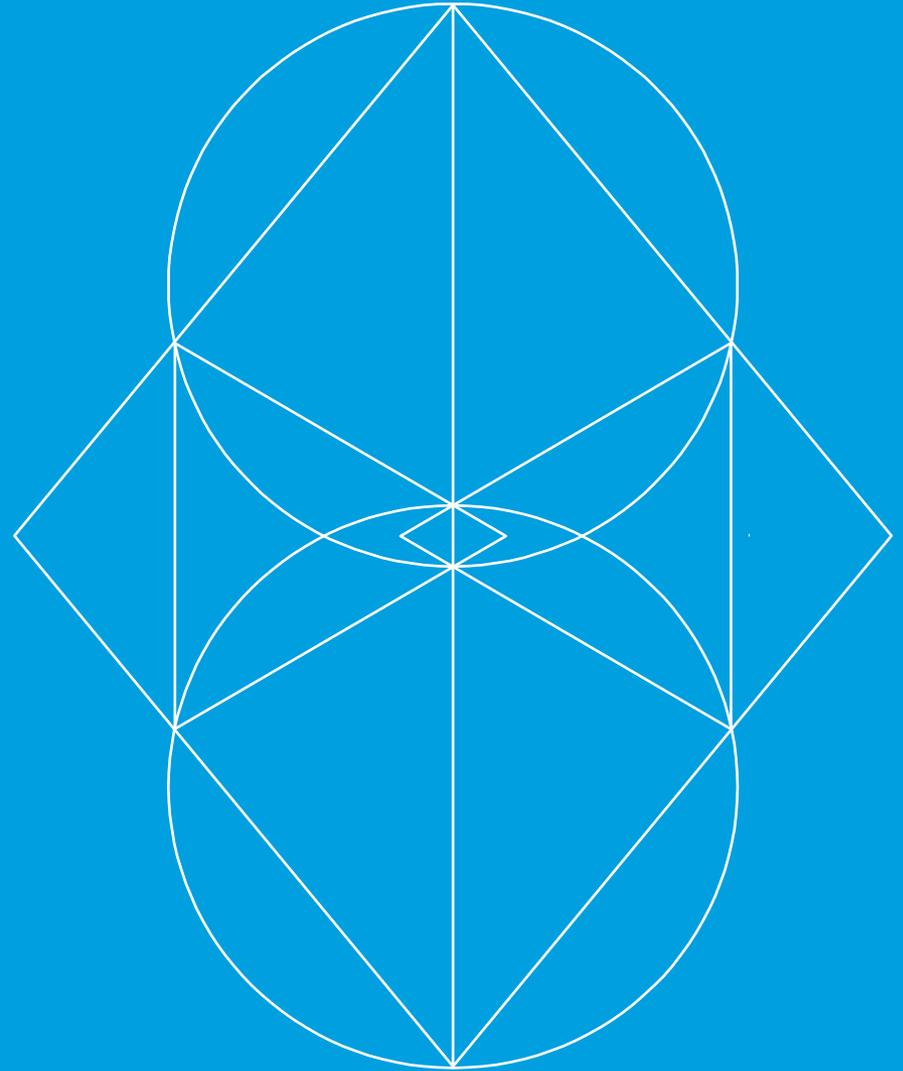


Personnel as of June 30, 2018.

Source: AQR. For illustrative purposes only, reflects typical equities and futures execution workflow. AQR's trading process is subject to change at any time without notice.

*In equities and futures markets, AQR utilizes broker's infrastructure to access electronic trading venues. In FX markets, AQR connects directly to dealers and electronic trading venues.

Positioning, Characteristics, and Performance



Strategy Characteristics

U.S. Defensive Equity Exposures

Select Evaluate
Construct Trade

Portfolio Characteristics

Stock Selection Exposure
June 30, 2018

	Portfolio	Benchmark
Number of Stocks	215	988
Average Market Cap (\$M)	116,983	194,750
Median Market Cap (\$M)	29,500	10,527
P/E (trailing)	23.7	20.4
P/E (forward)	20.9	18.8
P/B	4.0	3.1
P/CF	17.0	14.1
ROE (5-yr)	22.8%	19.4%
Debt/EQ	0.7	0.9
Sales/EV	0.3	0.4
Earnings Growth (5 yr trailing)	7.2%	8.2%
12 Month Return of Holdings*	23.2%	21.4%

Sector Exposure

Stock Selection Exposure
June 30, 2018

	Portfolio	Benchmark	Active Weight	Active Weight					
				Under	Over	Jun-18	Mar-18	Dec-17	Sep-17
Consumer Discretionary	9.7%	13.1%	-3.5%						
Consumer Staples	12.2%	6.5%	5.7%						
Energy	0.4%	6.1%	-5.7%						
Financials	14.2%	14.0%	0.3%						
Health Care	12.8%	13.6%	-0.8%						
Industrials	13.6%	9.9%	3.7%						
Information Technology	21.6%	25.6%	-3.9%						
Materials	1.6%	3.0%	-1.3%						
Real Estate	0.0%	3.5%	-3.5%						
Telecom Services	0.7%	1.9%	-1.2%						
Utilities	13.2%	2.9%	10.3%						
Total	100.0%	100.0%	0.0%						

Sources: AQR, Compustat, Datastream, Bloomberg, Worldscope and IBES. Characteristics may not be fully representative of other portfolios AQR may manage. Average P/E ratios of the stocks in the portfolios exclude individual stock price-to-earnings ratios that are negative and the top and bottom 1 percentile of the remaining. Average P/B ratios of the stocks in the portfolios exclude individual stock price-to-book ratios that are negative and the top and bottom 1 percentile of the remaining. Average Sales/EV ratios of the portfolios exclude individual stocks that have sales-to-enterprise values that are negative and the top and bottom 1 percentile of the remaining. Portfolio holdings are subject to change. Benchmark: Russell 1000 Total Return Index.

* 12 Month Return of Holdings is representative of how stocks held in the account or benchmark would have performed over the previous 12 months in USD, gross of fees and weighted as of the date reported. This performance is not representative of the actual performance of the benchmark, account, or any other portfolio that AQR manages.



U.S. Defensive Equity: Performance

Composite Performance

March 2011 – June 2018

	U.S. Defensive Equity Composite (Gross)	U.S. Defensive Equity Composite (Net)	Russell 1000*	Gross Excess Return
2011 (Mar. - Dec.)	9.3%	9.0%	-4.2%	13.5%
2012	13.3%	13.0%	16.4%	-3.1%
2013	30.9%	30.5%	33.1%	-2.2%
2014	16.7%	16.3%	13.2%	3.5%
2015	6.5%	6.2%	0.9%	5.6%
2016	12.2%	11.9%	12.1%	0.2%
2017	22.7%	22.3%	21.7%	1.0%
YTD 2018	3.7%	3.5%	2.9%	0.8%

Summary (Since March 1, 2011)

Q2 2018	2.9%	2.9%	3.6%	-0.6%
1 Year	15.0%	14.6%	14.5%	0.5%
3 Year (Ann.)	14.0%	13.7%	11.6%	2.4%
5 Year (Ann.)	15.0%	14.7%	13.4%	1.7%
7 Year (Ann.)	15.2%	14.8%	13.1%	2.1%
Since Inception (Ann.)	15.5%	15.2%	12.5%	2.9%
Annualized Volatility	8.5%	8.5%	10.9%	4.9%
Sharpe Ratio	1.8	1.7	1.1	
Beta vs. Russell 1000*	0.7	0.7		

Source: AQR. Performance for March 1, 2011 through June 30, 2018, of the U.S. Defensive Equity Composite in USD. Estimated return data for the month ending June 30, 2018. Gross performance does not reflect the deduction of investment advisory fees. Net composite returns of the AQR U.S. Defensive Equity Composite are net of a standard management fee per annum for this composite of 0.30%. Please note, as we have varying fee arrangements, the net performance numbers above are not representative of all investors or achievable by all investors. The Composite strategy is benchmark-agnostic and therefore this composite has no benchmark. Please see the Appendix for important risk and performance disclosures. Excess Returns are in excess to the listed index. The risk free rate used to calculate the Sharpe Ratio is the Merrill Lynch 3-Month T-Bill Index. The data presented herein is supplemental to the GIPS® compliant presentation for the U.S. Defensive Equity Composite included in the Appendix. *Russell 1000 (Net). Net total return indices reinvest dividends after the deduction of withholding taxes. Past performance is not a guarantee of future performance.

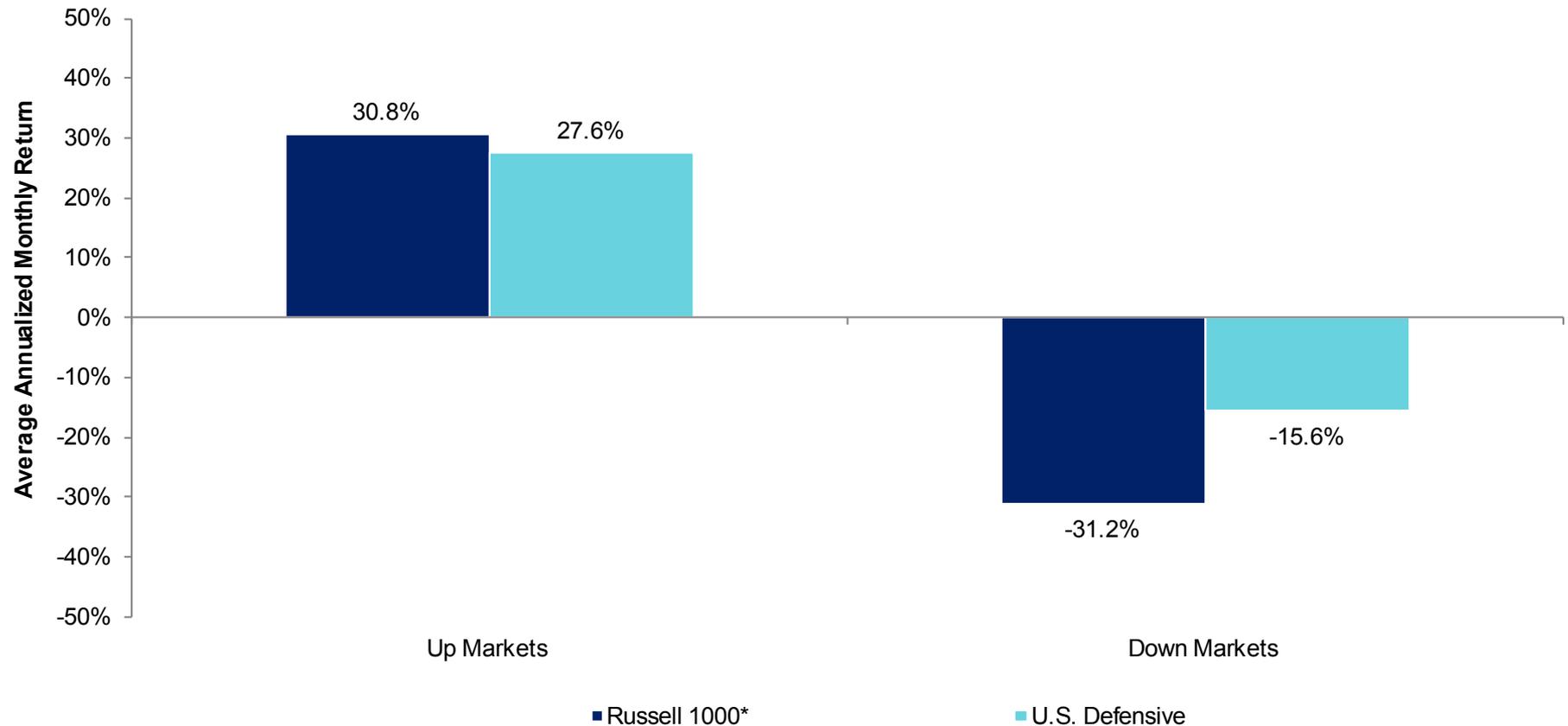


U.S. Defensive Equity: Drawdown

U.S. Defensive Equity vs. Russell 1000*

U.S. Defensive Equity Composite Performance

March 2011 – June 2018



Source: AQR. U.S. Defensive Equity Composite performance is gross of advisory fee. All performance is shown in USD. Up and Down market determinations are based on the performance of Russell 1000. This information is supplemental to the GIPS® compliant presentation for the U.S. Defensive Equity Composite included in the Appendix.* Russell 1000 (Net). Net total return indices reinvest dividends after the deduction of withholding taxes. Past performance is not a guarantee of future performance.

Conclusion

AQR U.S. Defensive Equity

Defensive Equity strategies:

- Operate through explicit controls on portfolio volatility

AQR's U.S. Defensive Equity adds:

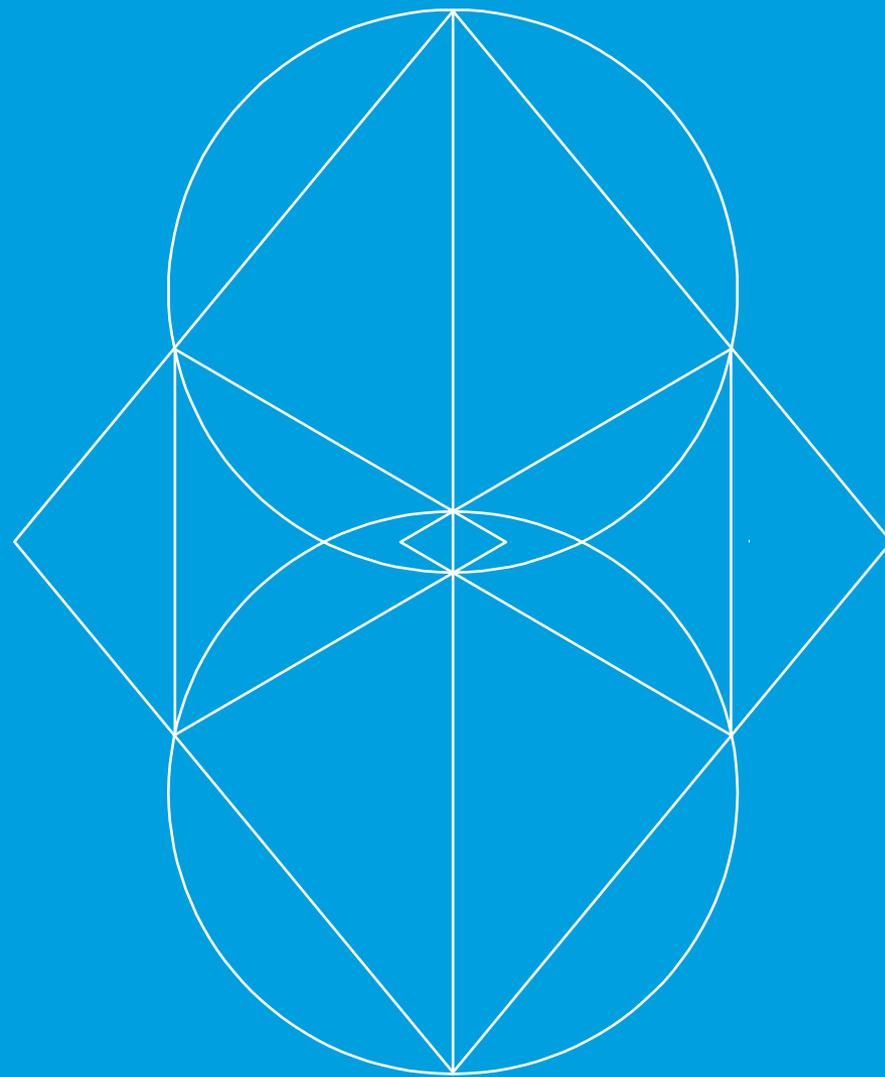
- Quality metrics to get a more complete view of risk
- Common sense controls for diversification and limiting unintended bets

AQR's Defensive strategies incorporate:

- 20 years of fundamental investing through systematic methods
- Known brand for academic-level research
- Common teams for implementation, trading and risk management



Appendices

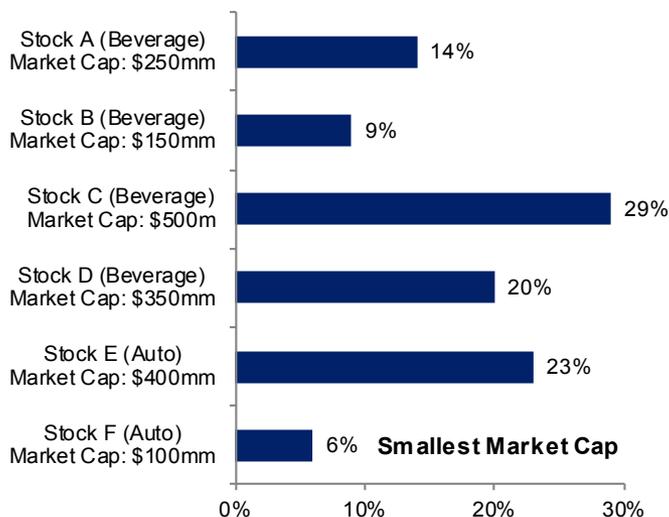


Hypothetical Example of Industry Constraints

A traditional market cap weighted index allocates weights to stocks based on market cap.

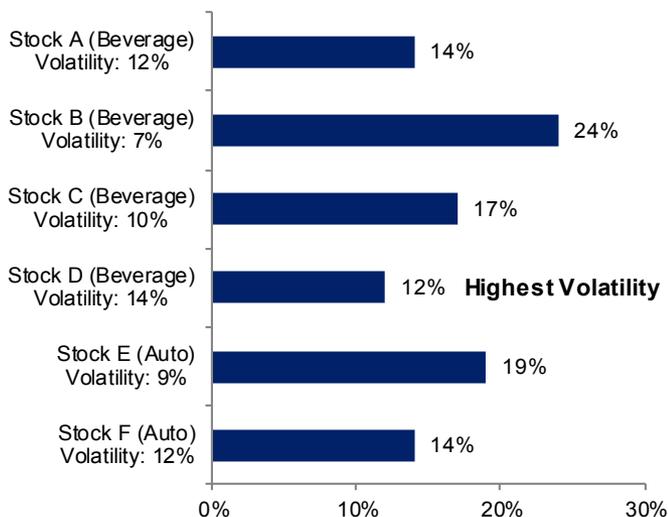
An equal volatility index allocates weights so that each stock has a proportional level of risk.

Market Cap Weighted Index



Beverage Industry Weight: 71%
Auto Industry Weight: 29%
Total: 100%

Equal Volatility Index



Beverage Industry Weight: 67%
Auto Industry Weight: 33%
Total: 100%

Industry Weight Constraints: (based on equal volatility index)

Beverage: 67% +/- 5%

62% - 72%

Auto: 33% +/- 5%

28% - 38%

Industry weight constraints are anchored around a portfolio that spreads risk equally across all stocks.



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There is a risk of substantial loss associated with trading commodities, futures, options, derivatives and other financial instruments. Before trading, investors should carefully consider their financial position and risk tolerance to determine if the proposed trading style is appropriate. Investors should realize that when trading futures, commodities, options, derivatives and other financial instruments one could lose the full balance of their account. It is also possible to lose more than the initial deposit when trading derivatives or using leverage. All funds committed to such a trading strategy should be purely risk capital.

Broad-based securities indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds. Investments cannot be made directly in an index.

The MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets.

The MSCI Global Minimum Volatility Indexes are designed to serve as transparent and relevant benchmarks for managed volatility equity strategies. The indexes aim to reflect the performance characteristics of a minimum-variance strategy, focused on providing absolute return and volatility with the lowest absolute risk. Please note used in this presentation is an AQR proxy MSCI Minimum Volatility Index.

The Russell 1000 Index is an index of approximately 1,000 of the largest companies in the U.S. equity markets. It comprises over 90% of the total market capitalization of all listed U.S. stocks, and is considered a bellwether index for large cap investing.

The MSCI Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets.

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Upon request, AQR will make available a complete list and description of all Firm composites, as well as additional information regarding the policies for valuing portfolios, calculating performance, and preparing compliant presentations.

GIPS Compliance: AQR claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. AQR has been independently verified for the period August 1, 1998 through December 31, 2017. The verification reports are available upon request. Verification assesses whether (1) the Firm has complied with all 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. Verification does not ensure the accuracy of any specific composite presentation.

Composite Characteristics: New accounts that fit a composite definition are added at the start of the first full calendar month after the assets come under management, or after it is deemed that the investment decisions made by the investment advisor fully reflect the intended investment strategy of the portfolio. A composite will exclude terminated accounts after the last full calendar month performance measurement period that the assets were under management. The composite will continue to include the performance results for all periods prior to termination. For periods beginning July 1, 2010 through February 28, 2015, AQR defined a significant cash flow as an external cash flow within a portfolio of 50%. Additional information is available upon request.

Calculation Methodology: All portfolios are valued daily, weekly, intra-monthly or monthly as defined by Firm policy. The Modified Dietz calculation methodology is used when calculating monthly and intra-month returns. Mutual funds and UCITS are valued daily and performance is calculated on a daily basis. Gross of fees returns are calculated gross of management and performance fees, administrative and custodial costs, and net of transaction costs beginning January 1, 2010. Prior to January 1, 2010, gross of fees returns are gross of management and performance fees, and net of administrative, custodial, and transaction costs. Additional information regarding fees and the calculation of gross and net performance is available upon request.

The dispersion measure is the equal-weighted standard deviation of accounts in a composite for the entire year. Dispersion is not considered meaningful for periods shorter than one year or for periods during which a composite contains five or fewer accounts for the full period. The three-year annualized ex-post standard deviation measure is inapplicable when 36 monthly returns are not available.

Returns are calculated net of all withholding taxes on foreign dividends. Accruals for fixed income and equity securities are included in calculations. AQR’s management or advisory fees are described in Part 2A of its Form ADV. In addition, AQR funds may have a redemption charge up to 2.00% based on gross redemption proceeds that may be charged upon early withdrawals. Consultants supplied with gross results are to use this data in accordance with SEC, CFTC and NFA guidelines.

Other Disclosures: AQR may engage in leveraged, derivative, and short positions in order to meet its performance objectives. The use of these positions may have a material impact on performance results. Additionally, there may be subjective unobservable inputs used in the valuation of certain financial instruments utilized by certain AQR managed investment vehicles. The risks inherent to the strategies employed by accounts included are set forth in the applicable offering documents and other information provided to potential subscribers, from where more detailed information regarding the extent to which leverage, derivatives, and short positions can be obtained. These are available upon request, if not provided along with this presentation itself.

Past performance is not an indication of future performance.



Performance Disclosures

AQR Capital Management, LLC
US Defensive Equity Composite
3/1/2011 – 12/31/2017

Year	Gross Return %	Net Return %	Number of Portfolios	Composite 3-Yr StDev %	Composite Assets (\$M)	Total Firm Assets (\$M)	% of Non-Fee Paying Portfolios
2011	9.28	9.01	2	N/A	70.70	43,540.99	2.38
2012	13.31	12.98	3	N/A	94.90	71,122.42	2.19
2013	30.88	30.50	2	N/A	317.20	98,302.69	-
2014	16.69	16.35	2	7.81	310.77	122,655.99	-
2015	6.50	6.18	3	9.32	800.15	142,173.39	-
2016	12.25	11.92	4	8.87	1,538.48	175,089.36	-
2017	22.70	22.34	5	8.22	3,297.81	223,432.52	-

Composite Description: The US Defensive Equity Composite (the "Composite") was created in March 2011. Accounts included seek to provide capital protection when U.S. equity markets decline, while capturing a significant portion of the upside in rising U.S. equity markets.

Benchmark: The Composite strategy is benchmark-agnostic and therefore this composite has no benchmark. The Composite is denominated in USD.

Fees: Composite net of fees returns are calculated by deducting the maximum model management or advisory fee AQR could charge from the composite monthly gross returns. AQR's asset-based fees for portfolios within the Composite may range up to 0.30% of assets under management and are generally billed monthly or quarterly at the commencement of the calendar month or quarter during which AQR will perform the services to which the fees relate. Composite assets may have been exposed to the impact of performance fees.

Past performance is not an indication of future performance.





CITY OF OAKLAND
U.S. DEFENSIVE EQUITY PRESENTATION
INTECH INVESTMENT MANAGEMENT



Oakland Police & Fire Retirement System

September 26, 2018

HARNESS VOLATILITY™





Your requirements as we understand them

Investment Objective	Outperform U.S. equity market while managing downside risk
Meeting Objective	Understand how Intech solutions meet your investment objective
Time Availability	Twenty minutes, leaving ten minutes for questions

Specialist in quantitative equity investing since 1987

As of June 30, 2018

Client Benefits with Substance

- Alpha source is always present regardless of market direction
 - Harness volatility by capturing trading profit
- Distinct approach drives lower correlation to other managers
- Focus on downside protection by minimizing total risk
- Adapting portfolio volatility to changing market conditions

Intech® by the Numbers

30+ / YEAR INVESTING HERITAGE

\$50 / BILLION IN ASSETS UNDER MANAGEMENT

\$10 / BILLION IN LOW AND ADAPTIVE VOLATILITY STRATEGIES

189 / INSTITUTIONAL CLIENTS IN FIVE CONTINENTS

10+ / YEAR AVERAGE ACCOUNT TENURE

#7 / LARGEST GLOBAL EQUITY QUANTITATIVE MANAGER

#4 / LARGEST U.S. EQUITY QUANTITATIVE MANAGER

Deep experience partnering with police & firefighter plans

As of June 30, 2018



Austin Firefighters Relief and Retirement Fund



Toronto Fire Department Superannuation and Benefit Fund



**OKLAHOMA FIREFIGHTERS
PENSION & RETIREMENT SYSTEM**

Oklahoma Firefighters' Pension & Retirement System



El Paso Firemen & Policemen's Pension Fund



City of Fort Lauderdale Police and Fire Retirement System



Boca Raton Police & Firefighters' Retirement System

Current P&F Clients

- US\$600 million across the U.S. and Canada
 - 9 plans
 - Average 11+ years tenure

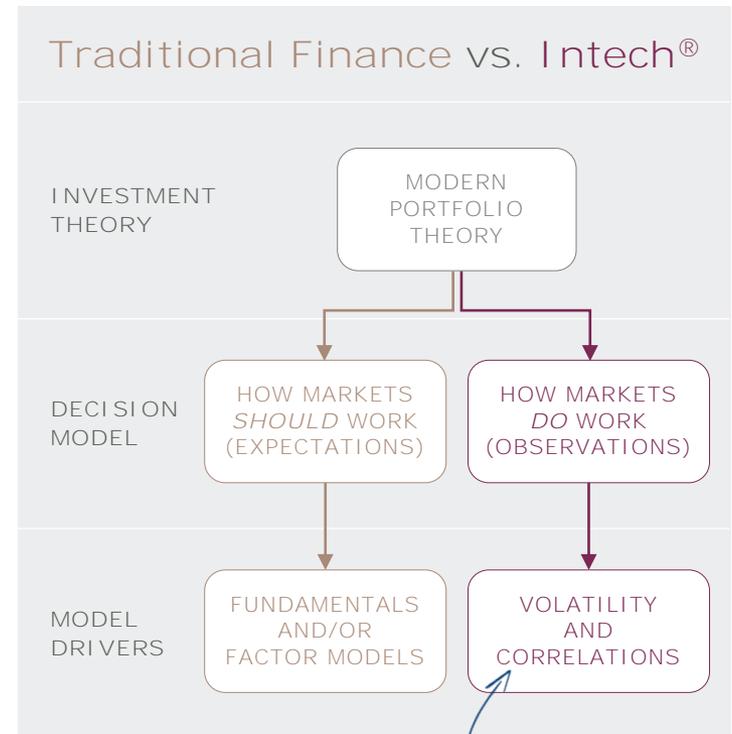
Public Plan Practice

- US\$8.1 billion across the U.S.
 - 34 plans
 - Average 11+ years tenure

Investment philosophy with real distinction

We believe...

- Equity markets may or may not be efficient, but representative benchmarks are not.
- Equity volatility as an observable and accessible alpha source regardless of market direction.
- Harnessing volatility for risk-adjusted results requires advanced mathematics and systematic rebalancing.



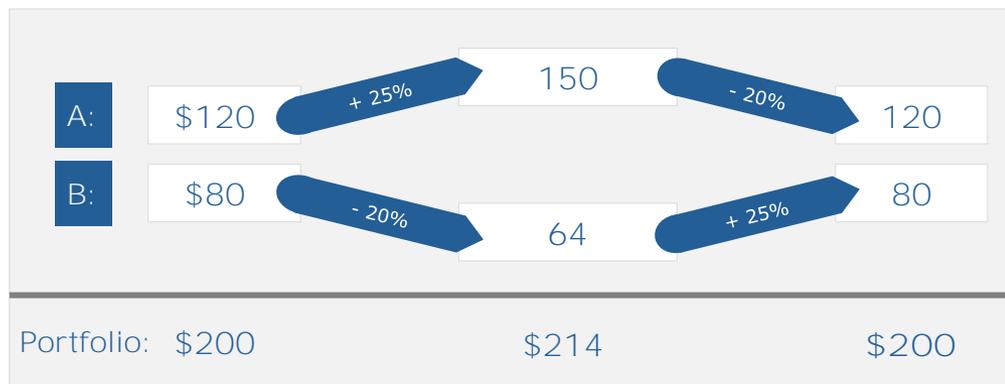
No reliance on factors, fundamentals, market inefficiencies, or forecasts

The power of rebalancing

Simple Two-Stock Example

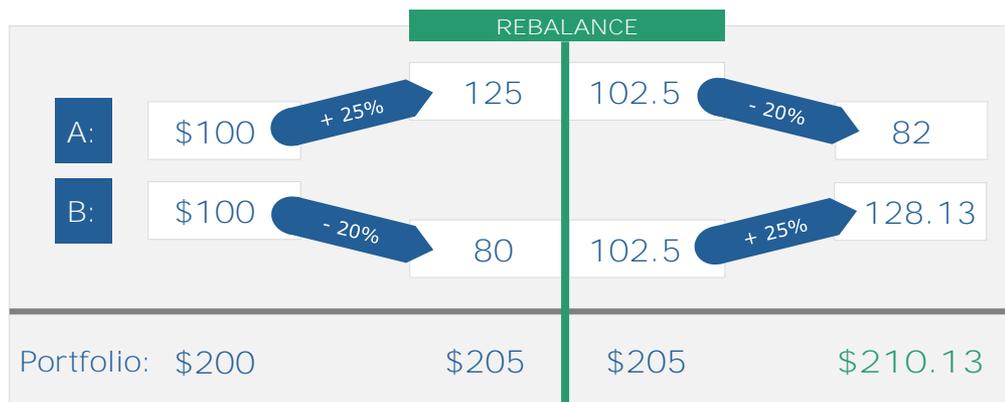
Passive Portfolio: No Excess Return

Stock A Return: 0%, Stock B Return: 0%, Portfolio Return = 0%



Rebalanced Portfolio: Excess Return

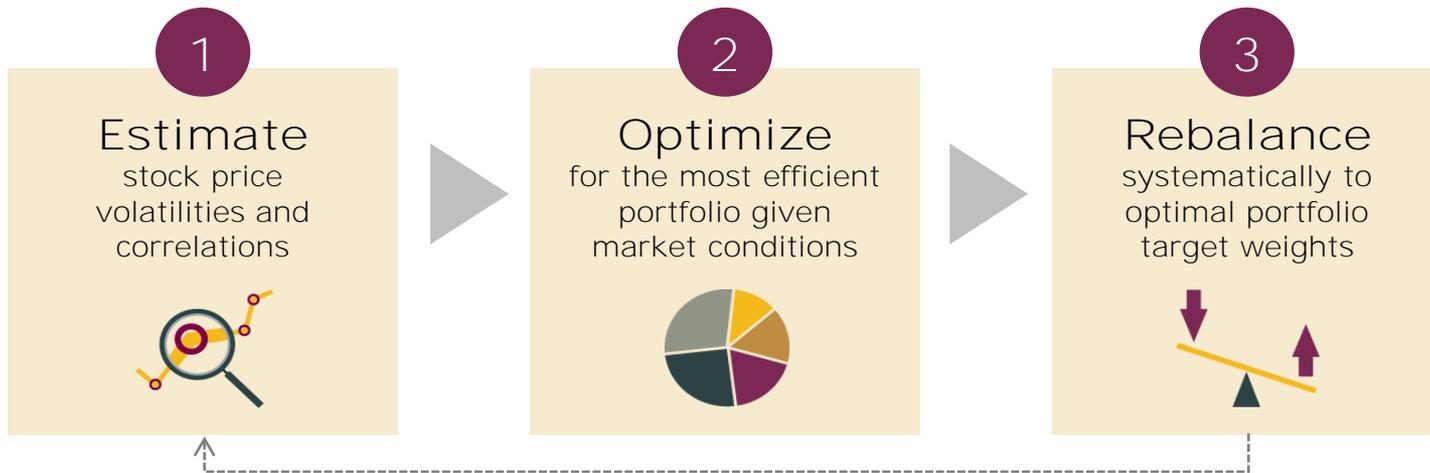
Stock A Return: 0%, Stock B Return: 0%, Portfolio Return = 5.1%



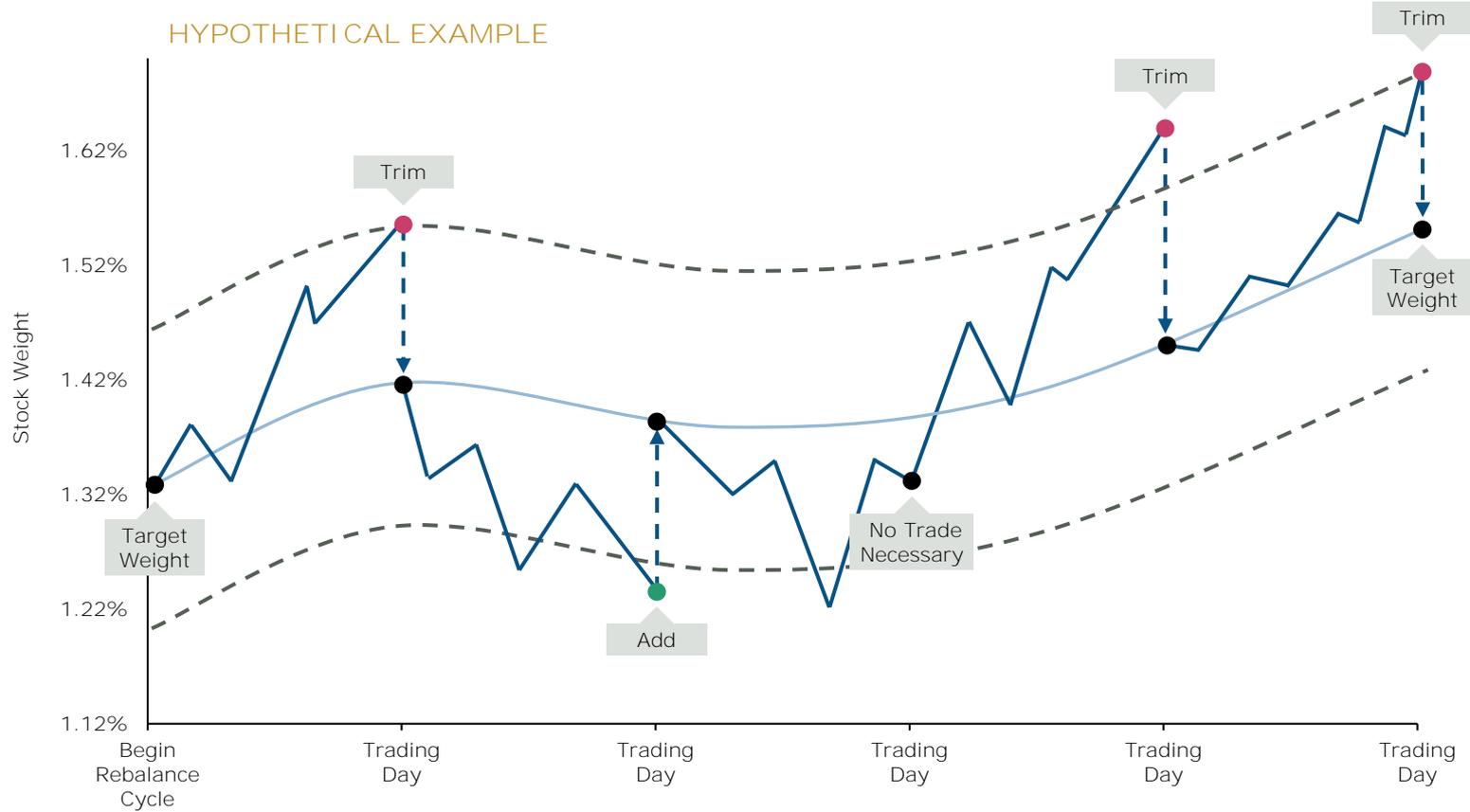
The Rebalancing Effect

- In this two-stock example, the passive portfolio captures no value from the stock price movement when their overall returns are zero.
- Rebalancing, however, produces a positive return, despite no return from the stocks over the period.
- Applying this process across portfolios with hundreds of stocks results in thousands of opportunities to capture this source of alpha over time.
- **Intech's approach is to reweight** stocks based on stock volatility and correlation, and then rebalance periodically in order to capture alpha.

Investment process



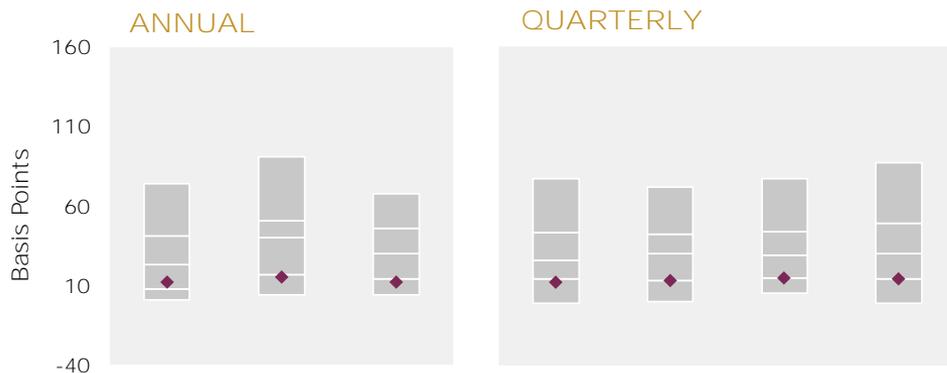
Systematically rebalance positions



- Target weights are determined at optimization.
- Trading bands around target weights may vary by strategy, stock and through time.
- Rebalance to target weights periodically only if stock weights move outside designated bands.

Trading efficiency

Intech's Total Trading Cost vs. Industry: U.S. Equities
As of March 31, 2018



	2015	2016	2017
5th Percentile	74	91	68
25th Percentile	41	51	46
Median	23	40	30
75th Percentile	8	17	14
95th Percentile	1	4	4
Intech	12	15	12
Percent Rank	66%	83%	79%

	2017 Q2	2017 Q3	2017 Q4	2018 Q1
5th Percentile	77	72	77	87
25th Percentile	43	42	44	49
Median	26	30	29	30
75th Percentile	14	13	15	14
95th Percentile	-1	0	5	-1
Intech	12	13	15	14
Percent Rank	78%	76%	78%	75%

Trading Costs

- Commission = 4 bps
- **Market impact** \approx 10 bps
- No soft dollars are used or captured by Intech.
- Efficient electronic, straight-through processing with all brokers for order entry and confirmation.

Source: Investment Technology Group. Total Trading Cost = Impact Cost + Commissions. Impact cost measures the implementation shortfall as the difference between the price at which the broker receives the order and the execution price. Industry trading costs reflect a United States peer group, which includes 139 investment management firms encompassing a total value of approximately USD 1,410 million in market value traded for the most recent quarter shown. Prior to the first quarter of 2016, Intech trading costs reflect rebalancing trades within U.S. -only equity strategies. Beginning with the first quarter of 2016, Intech trading costs reflect rebalancing trades for U.S. equities in all strategies. Additional information about Investment Technology Group can be obtained from its website at www.itg.com. Data reflects past performance, which is no guarantee of future results.

Portfolio characteristics

U.S. Adaptive Volatility Representative Portfolio vs. Russell 1000 Index
As of June 30, 2018

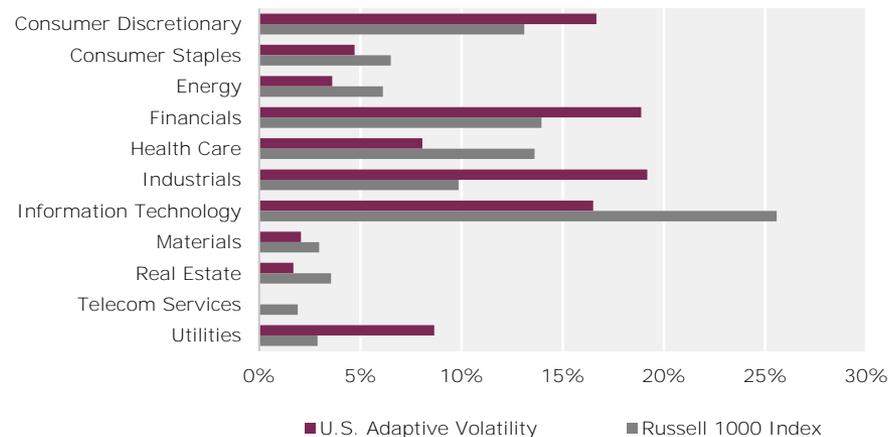
PORTFOLIO CHARACTERISTICS

Characteristics	U.S. Adaptive Volatility	Russell 1000 Index
Number of Securities	158	987
Beta (5 Yr. Historical)	0.70	1.00
R-Squared (5 Yr. Historical)	0.63	1.00
Price/Earnings Ratio (LTM)	27.00	28.73
Dividend Yield (Current)	1.46%	1.89%
EPS Growth (5 Yr. Historical)	10.91%	9.12%
Price/Book Ratio	4.73	4.64
Weighted Average Market Cap	\$48.8 B	\$194.9 B
Weighted Median Market Cap	\$20.2 B	\$83.3 B

PORTFOLIO MARKET CAPITALIZATION

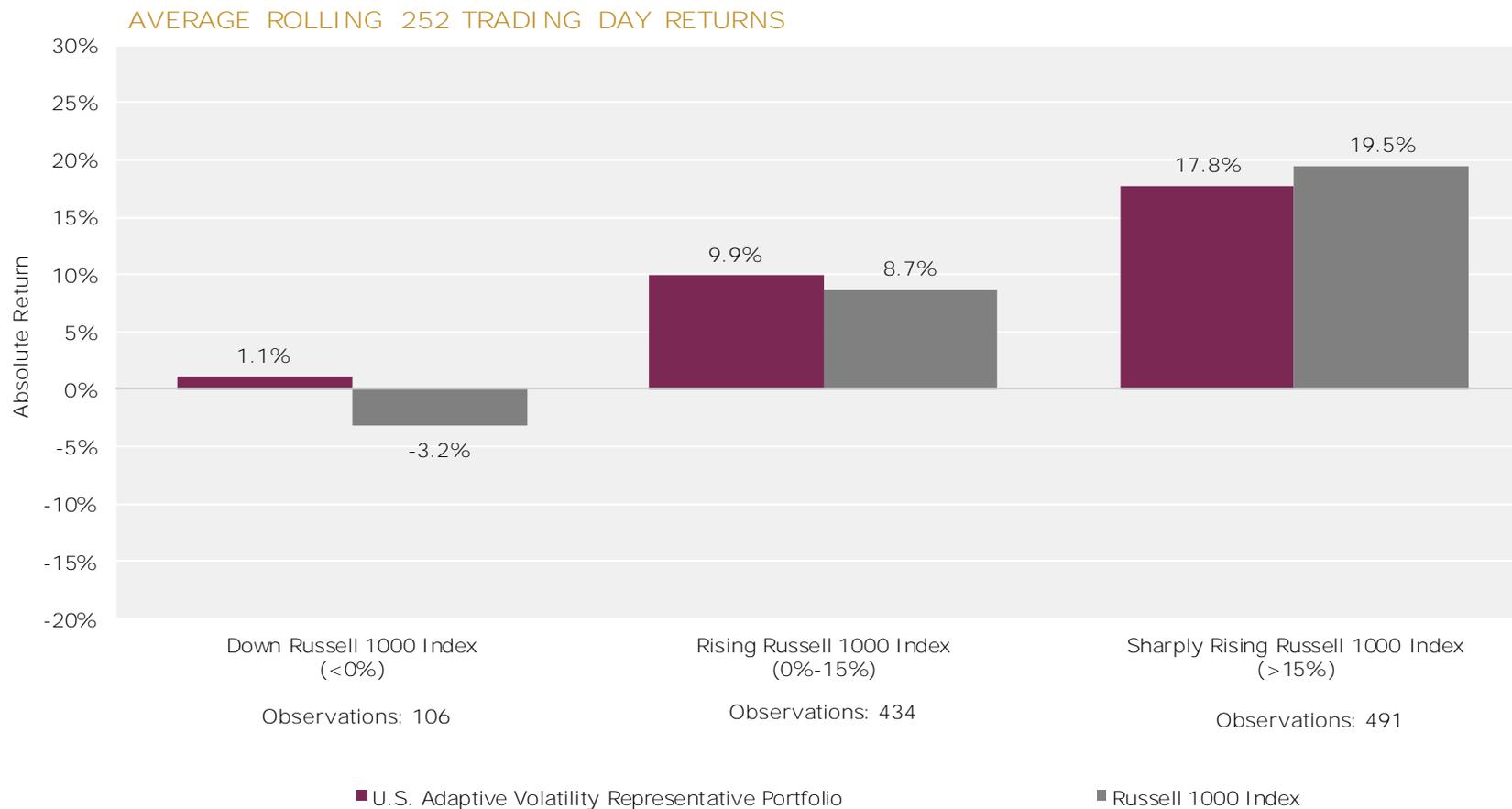
Market Cap Range	U.S. Adaptive Volatility	Russell 1000 Index
> \$100B	11.64%	45.67%
\$25B - \$100B	29.79%	28.93%
\$15B - \$25B	23.50%	9.98%
\$2B - \$15B	35.08%	15.42%
< \$2B	0.00%	0.00%
Total	100.00%	100.00%

SECTOR EXPOSURES



Performance across different equity market environments

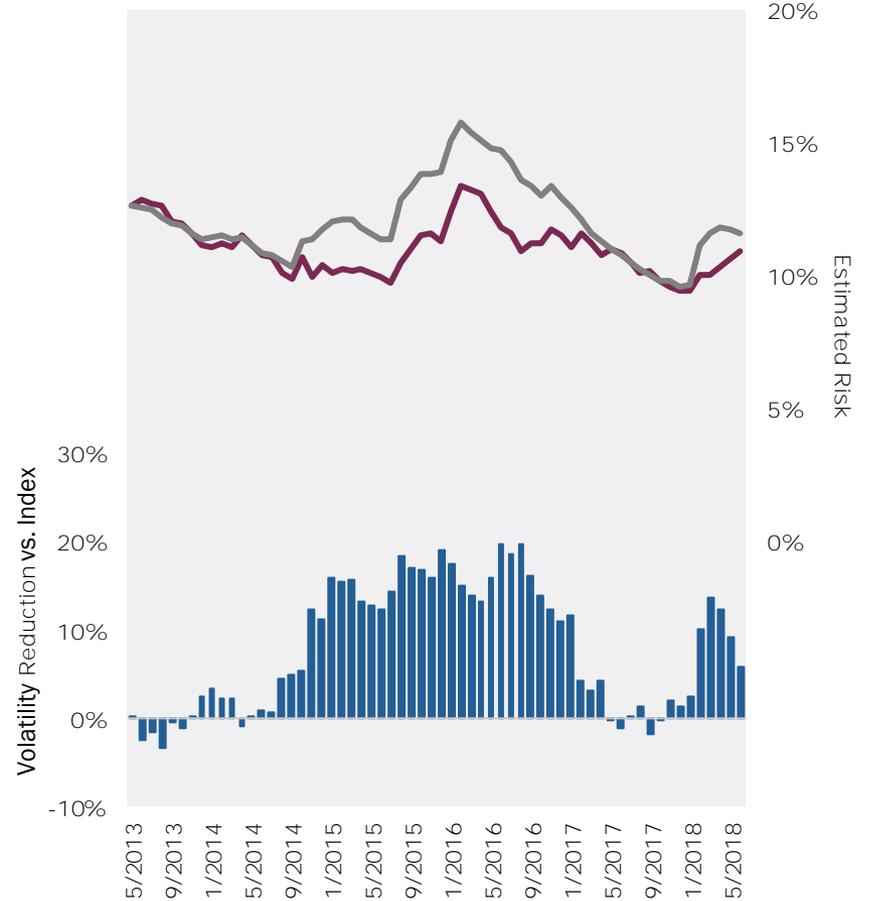
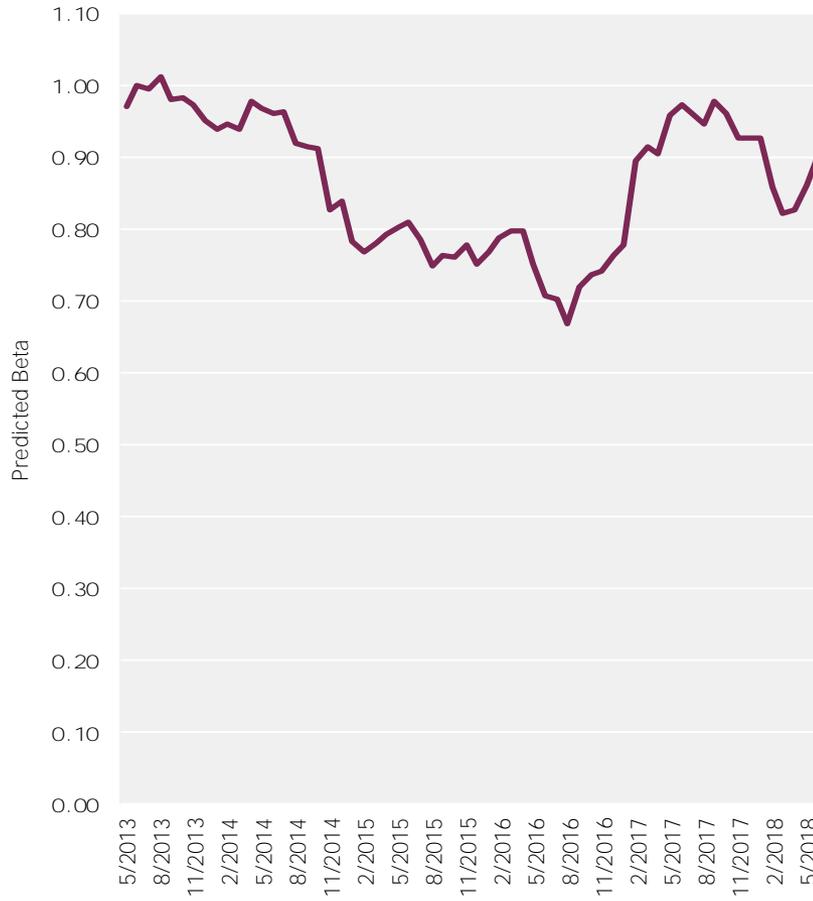
U.S. Adaptive Volatility Representative Portfolio vs. Russell 1000 Index
June 1, 2013 – June 30, 2018



Performance includes the reinvestment of dividends and other earnings. Data presented gross of fees. Data presented reflects past performance, which is no guarantee of future results. Performance for other accounts may differ from the representative portfolio. Actual advisory fees may vary among clients invested in this strategy. Actual advisory fees paid may be higher or lower than the model advisory fees. Some clients may utilize a performance based fee. Fee schedules are available upon request.

Adaptive volatility based on market conditions

U.S. Adaptive Volatility vs. Russell 1000 Index
 May 31, 2013 - June 30, 2018



Volatility Reduction Total Risk Benchmark Risk

Source: Barra. Representative portfolio shown. Performance includes the reinvestment of dividends and other earnings. Data presented reflects past performance, which is no guarantee of future results. Performance for other accounts may differ from the representative portfolio.

Trading profit contribution regardless of market direction

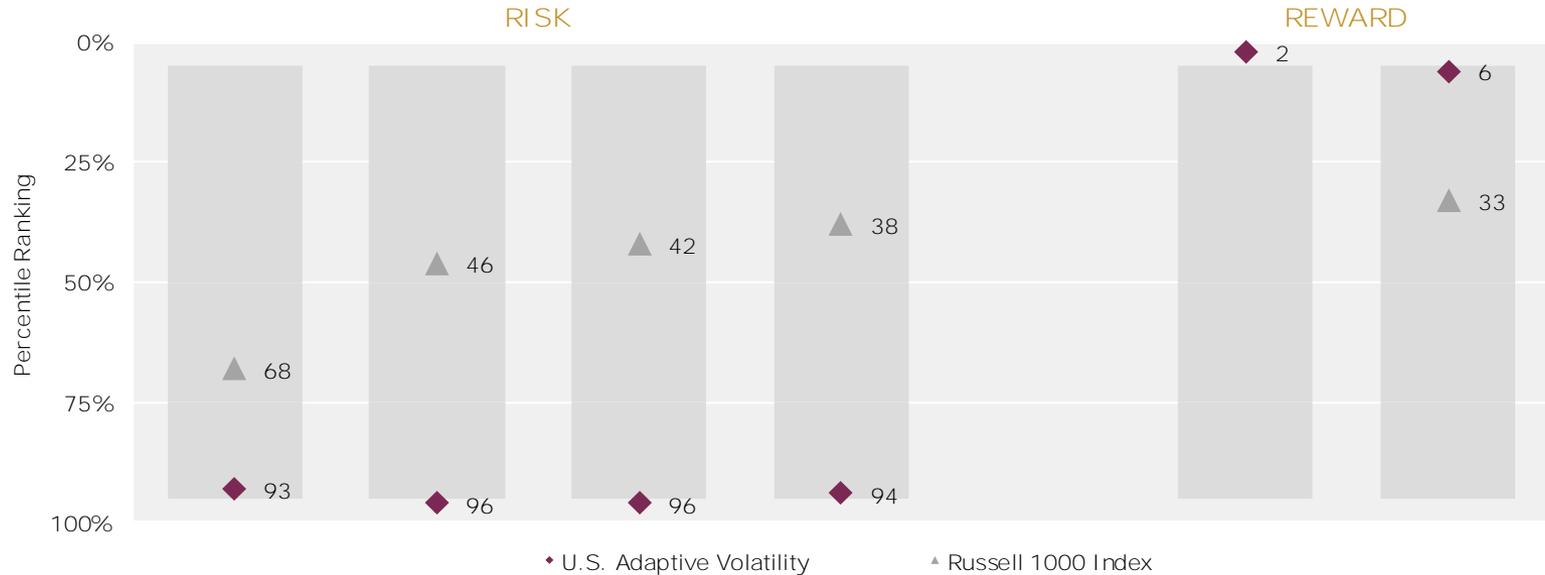
U.S. Adaptive Volatility Representative Portfolio vs. Russell 1000 Index
As of June 30, 2018

(Annualized) 6/1/2013 - 6/30/2018	Trading Profit Contribution	Residual	Total Excess Return
Average Excess Return	0.88%	-1.02%	-0.14%
Tracking Error	0.73%	6.03%	5.91%
Information Ratio	1.21	-0.17	-0.02

- **Intech's** optimization process attempts to construct a diversified, risk-managed portfolio that is positioned to efficiently capture the rebalancing premium over time.
- Trading profit, an approximate measurement of the rebalancing premium, is expected to explain an increasingly larger portion of relative performance over the long term.
- Residual effects from the positioning of the portfolio can impact its return relative to its benchmark over the short term.
- Trading profit contribution is typically more consistent than the residual, resulting in lower tracking error and a higher information ratio as a component of total excess return.

Historical low risk and high reward outcomes

U.S. Adaptive Volatility Composite vs. Russell 1000 Index
 Peer Universe: eA U.S. Large Cap Core Equity
 June 1, 2013 (inception) – June 30, 2018

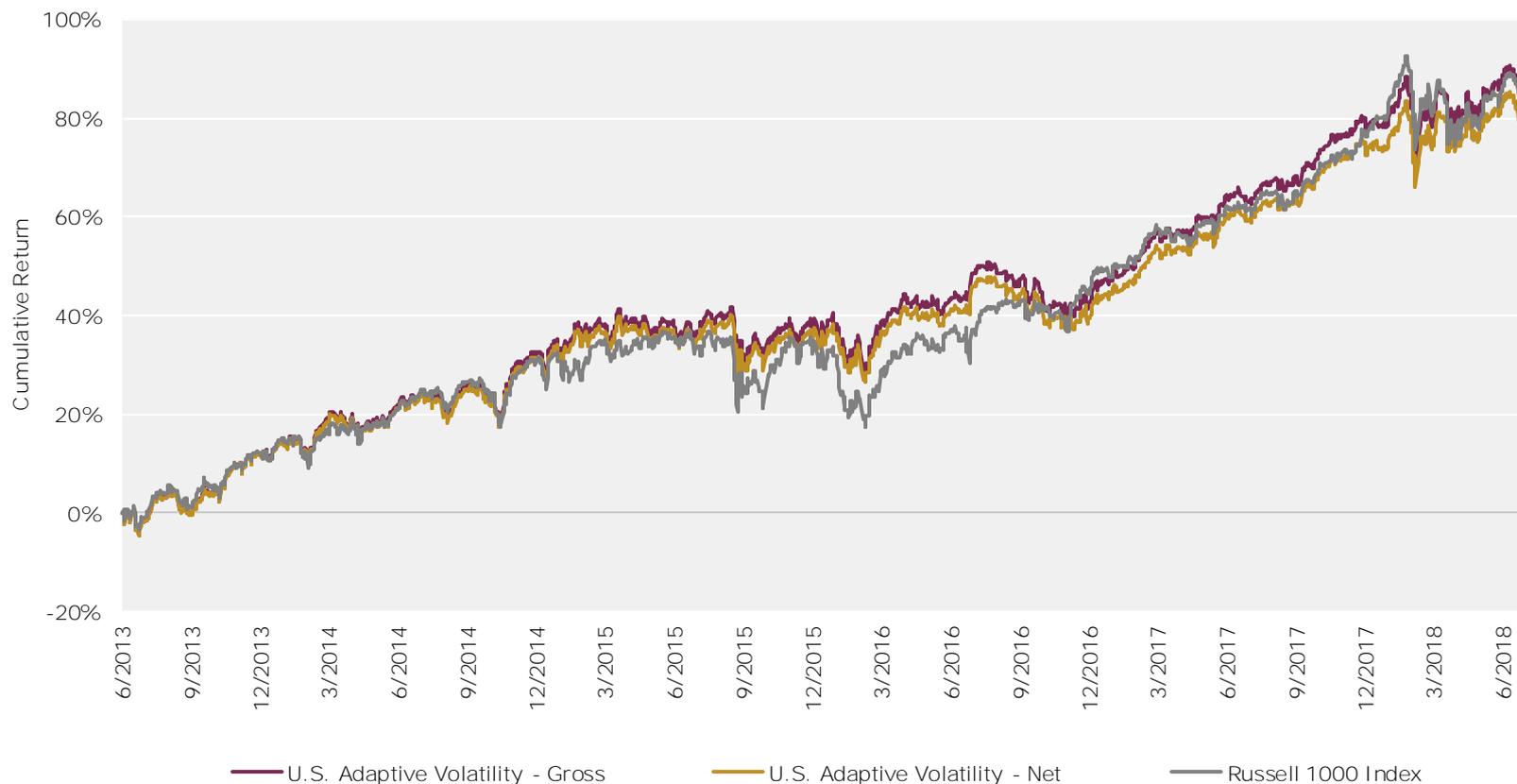


	Standard Deviation	Beta	Downside Capture	Upside Capture	Alpha	Sharpe Ratio
5th Percentile	11.59%	1.11	116.21%	110.26%	2.18%	1.44
25th Percentile	10.57%	1.04	104.73%	102.11%	0.74%	1.30
Median	10.14%	1.00	98.98%	97.97%	0.00%	1.22
75th Percentile	9.66%	0.95	92.58%	92.70%	-0.87%	1.11
95th Percentile	8.35%	0.74	63.65%	78.03%	-2.60%	0.91
# of Members in Universe	314	314	314	314	314	314
U.S. Adaptive Volatility	8.65%	0.70	57.87%	78.95%	3.47%	1.43
Russell 1000 Index	9.82%	1.00	100.00%	100.00%	---	1.27

Sources: FactSet and eVestment Alliance. For Rankings, 0=Highest and 100=Lowest. Results are annualized. Data presented reflects past performance, which is no guarantee of future results. See Composite Performance and Presentation Notes for additional information.

Cumulative return

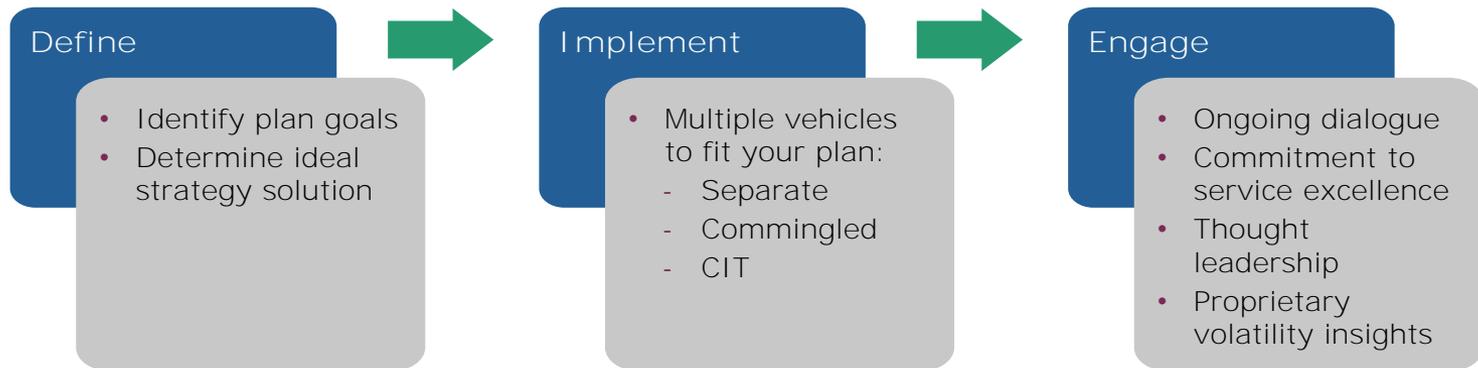
U.S. Adaptive Volatility Representative Portfolio
Russell 1000 Index
June 1, 2013 – June 30, 2018



Performance includes the reinvestment of dividends and other earnings. Data presented reflects past performance, which is no guarantee of future results. Performance for other accounts may differ from the representative account. Net of fees return shown reflects the deduction of the maximum fee for the strategy as reflected in Intech's standard fee schedule, and are not necessarily the actual fees deducted for this portfolio. Actual advisory fees may vary among clients invested in this strategy. Actual advisory fees paid may be higher or lower than the model advisory fees. Some clients may utilize a performance based fee. Fee schedules are available upon request.

A client-focused partnership throughout the relationship

- Volatility expertise with proprietary insights
- Portfolio-centric approach at minimizing volatility
- Unique alpha source independent of the low volatility anomaly
- Dynamic adjustment of volatility reduction to market volatility





Appendix

Investment management fees

SEPARATE ACCOUNT

Fee

		Fee
U.S. Adaptive Volatility	First \$100 Million	55 basis points
	Next \$100 million	50
	Next \$100 million	45
	Next \$200 million	42
	Over \$500 million	40

Minimum investment size \$50 million

COLLECTIVE INVESTMENT TRUST

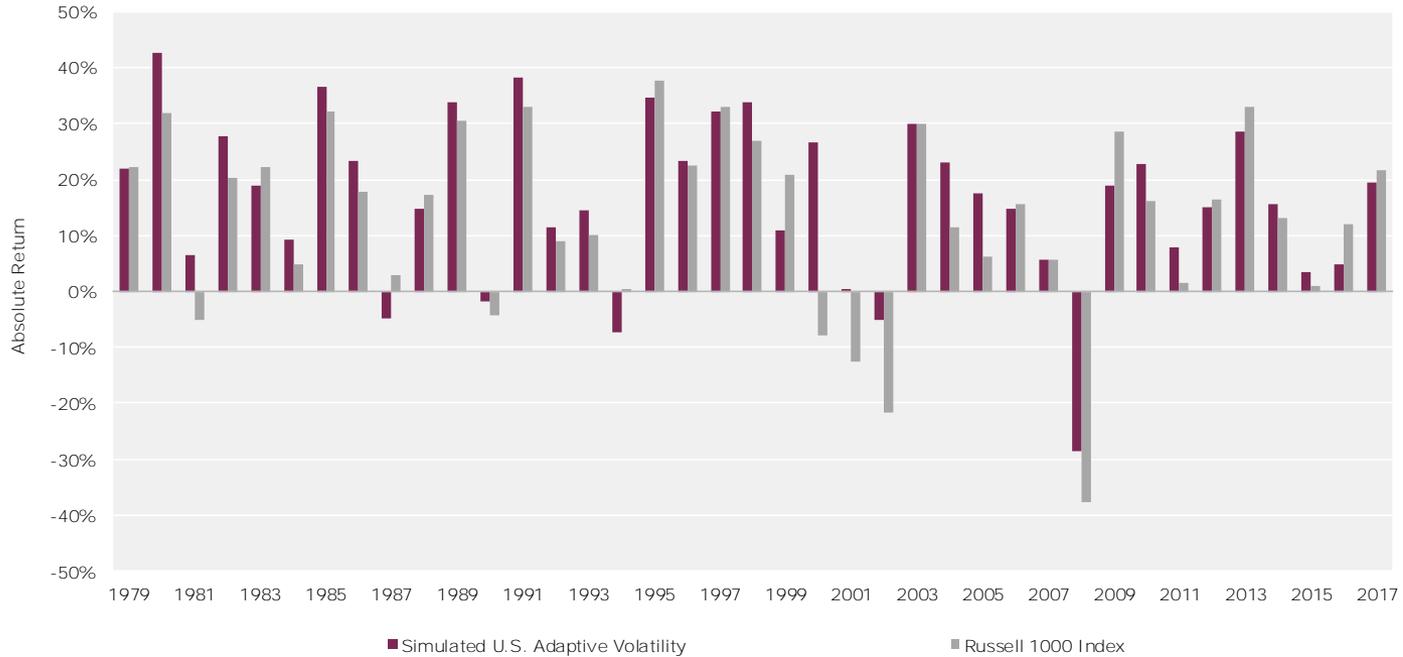
Fee

		Fee
U.S. Adaptive Volatility	\$5 million - \$50 million	45 basis points
	\$50 million - \$200 million	40
	Over \$200 million	35

Minimum investment size \$5 million

Simulated annual performance

Simulated U.S. Adaptive Volatility
 Russell 1000 Index
 January 1, 1979 – December 31, 2017



	2008	2009	Cumulative Return
Simulated U.S. Adaptive Volatility	-28.51%	18.97%	-14.94%
Russell 1000 Index	-37.60%	28.43%	-19.85%
Difference	9.09%	-9.46%	4.91%

Intech's U.S. Adaptive Volatility strategy outperformed its benchmark over time with lower volatility (simulated).

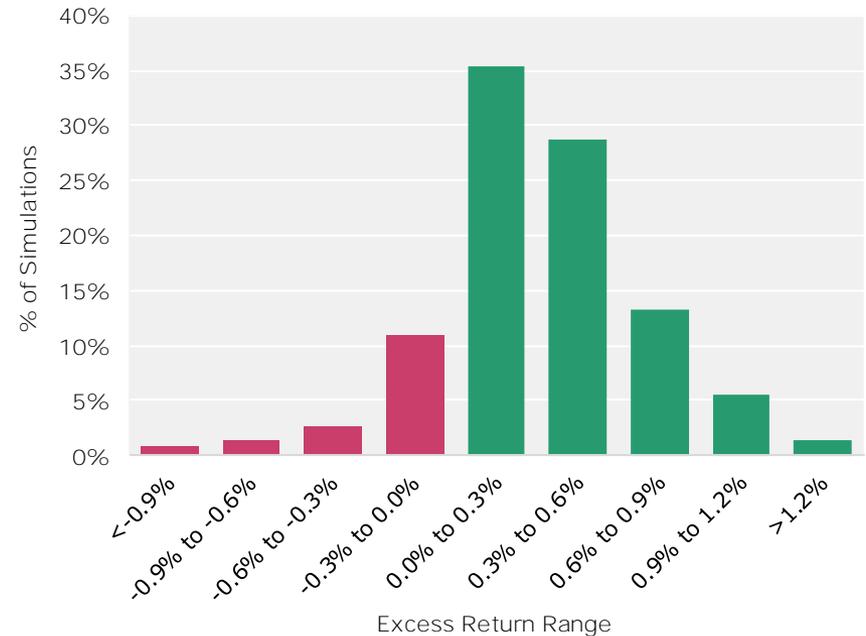
Simulations have been compiled solely by Intech and have not been independently verified. **Intech's** simulations are produced with the benefit of hindsight by applying its mathematical optimization process to historical data, and unlike traditional simulations, do not involve fundamental estimates. Simulations are hypothetical, not real, and are presented to potentially allow investors to understand and evaluate **Intech's** investment process by seeing how a product may have performed during certain time periods. Simulations do not reflect results or risks associated with actual trading of an account, and there is no guarantee that an actual account would have achieved similar results. In no circumstances should simulated results be regarded as any representation, guarantee, assumption, or prediction of future performance, or that investors will be able to avoid losses. Simulations do not reflect numerous other material economic, market, and implementation factors that may have impacted **Intech's** trading or decision-making in the actual management of an account and cannot be fully accounted for in the preparation of simulations, all of which can adversely affect actual results. See Simulations Disclaimer at the end of this presentation for additional information.

Hypothetical multi-manger experiment: Excess return

April 1, 2009 – March 31, 2018

- Randomly replacing one core equity manager with the Simulated Intech U.S. Adaptive Volatility strategy improved the excess return of the multi-manager portfolio by an average of 31 bps.
- The excess return of the three-manager portfolio improved in 84% of all trials.

CHANGE IN EXCESS RETURN IN A THREE-MANAGER PORTFOLIO WHEN ADDING SIMULATED INTECH U.S. ADAPTIVE VOLATILITY



Mean Change in Excess Return: 31 bps
Percent with Increase in Excess Return: 84.3%
Number of Managers in Universe: 269
Peer Universe: eA U.S. Large Cap Equity
Benchmark: Russell 1000 Index

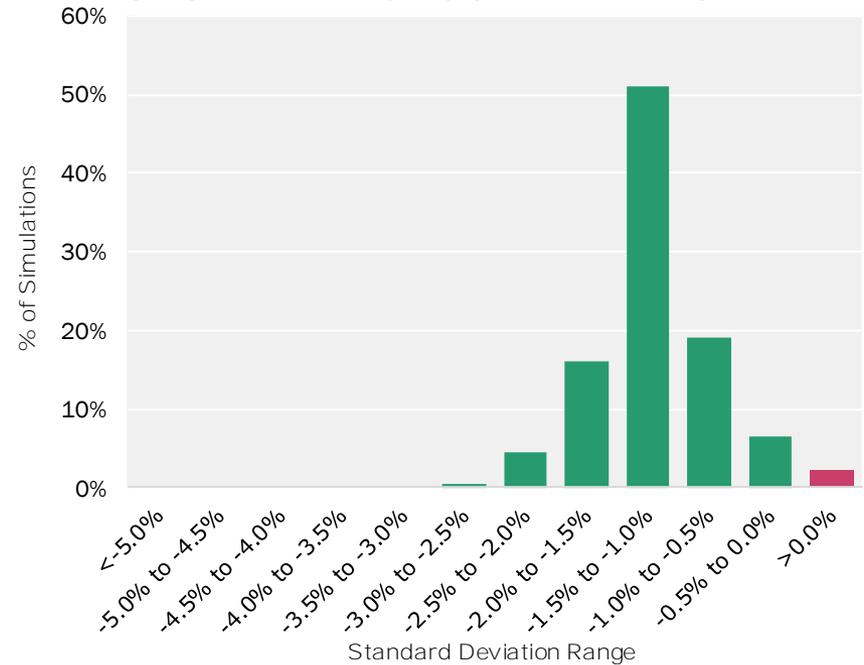
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Hypothetical multi-manager experiment: Standard deviation

April 1, 2009 – March 31, 2018

- Randomly replacing one core equity manager with the Simulated Intech U.S. Adaptive Volatility strategy reduced the standard deviation of the three-manager portfolio by an average of 117 bps.
- The standard deviation of the three-manager portfolio was reduced in 97.8% of all trials.

CHANGE IN STANDARD DEVIATION IN A THREE-MANAGER PORTFOLIO WHEN ADDING SIMULATED INTECH U.S. ADAPTIVE VOLATILITY



Mean Change in Standard Deviation: -117 bps
Percent with Decrease in Standard Deviation: 97.8%
Number of Managers in Universe: 269
Peer Universe: eA U.S. Large Cap Core Equity
Benchmark: S&P 500 Index

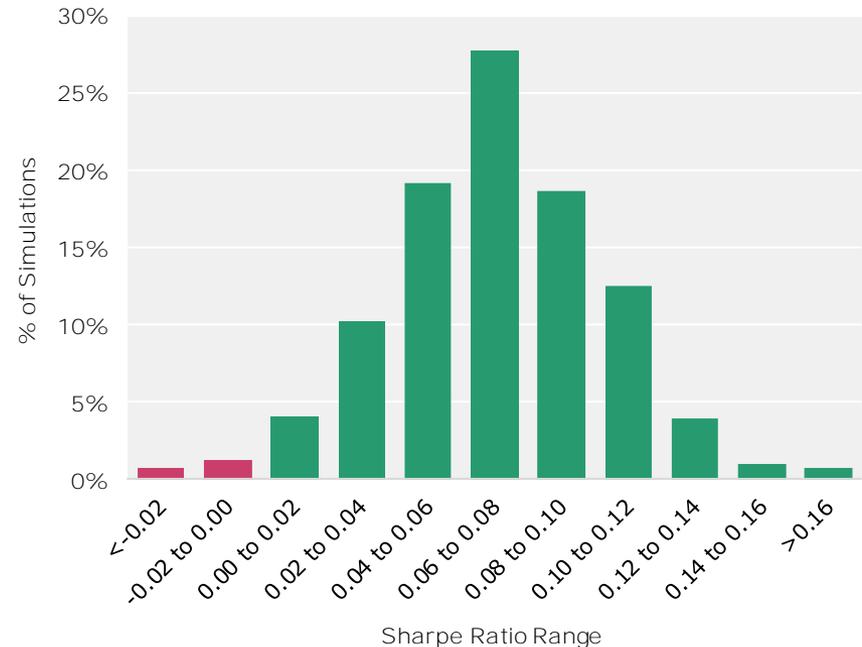
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Hypothetical multi-manager experiment: Sharpe ratio

April 1, 2009 – March 31, 2018

- Randomly replacing one core equity manager with the Simulated Intech U.S. Adaptive Volatility strategy improved the Sharpe Ratio of the three-manager portfolio by an average of 0.07.
- The Sharpe Ratio of the three-manager portfolio improved in 98.0% of all trials.

CHANGE IN SHARPE RATIO IN A THREE-MANAGER PORTFOLIO WHEN ADDING SIMULATED INTECH U.S. ADAPTIVE VOLATILITY

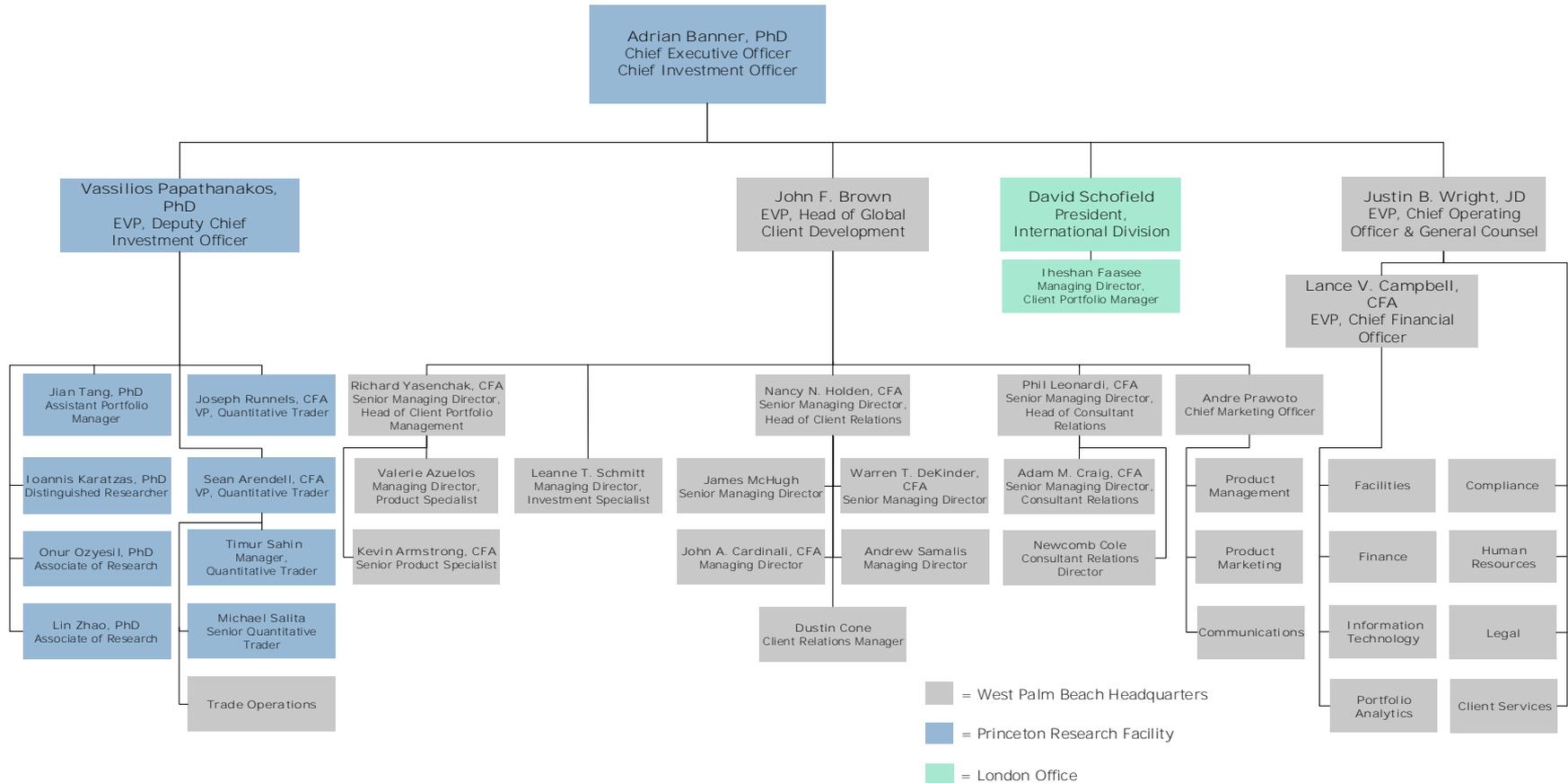


Mean Change in Sharpe Ratio: 0.07
Percent with Increase in Sharpe Ratio: 98.0%
Number of Managers in Universe: 269
Peer Universe: eA U.S. Large Cap Core Equity
Benchmark: S&P 500 Index

Simulations have been compiled solely by Intech and have not been independently verified. Intech's simulations are produced with the benefit of hindsight by applying its mathematical optimization process to historical data, and unlike traditional simulations, do not involve fundamental estimates. Simulations are hypothetical, not real, and are presented to potentially allow investors to understand and evaluate Intech's investment process by seeing how a product may have performed during certain time periods. Simulations do not reflect results or risks associated with actual trading of an account, and there is no guarantee that an actual account would have achieved similar results. In no circumstances should simulated results be regarded as any representation, guarantee, assumption, or prediction of future performance, or that investors will be able to avoid losses. Simulations do not reflect numerous other material economic, market, and implementation factors that may have impacted Intech's trading or decision-making in the actual management of an account and cannot be fully accounted for in the preparation of simulations, all of which can adversely affect actual results. See Simulations Disclaimer at the end of this presentation for additional information.

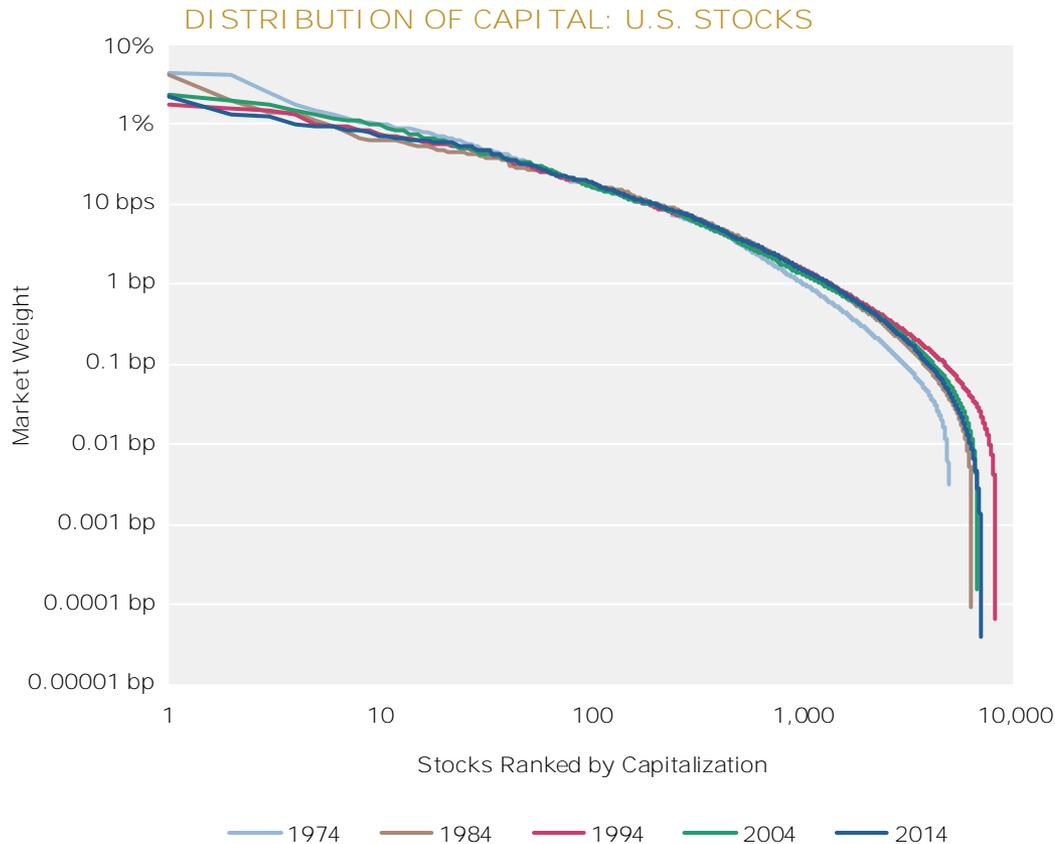
Organizational chart

As of August 31, 2018



- Unique combination of academic and seasoned investment expertise
- Tenured, stable investment management team
- Independently managed

Size effects tend to average out over time



- Decade after decade, the capital distribution curve has returned to a typical shape.
- Trending of large stocks relative to small stocks affects the capital **distribution curve's shape**.
 - Trending has averaged out over time.
- Diversity does not change if the capital distribution curve does not change shape.
 - Changes in diversity have averaged out over time.

Intech adaptive and low volatility strategy performance

As of June 30, 2018

				Annualized Returns			Inception Date				
ADAPTIVE VOLATILITY EQUITY				OTD	YTD	1 Yr	3 Yrs	5 Yrs	ITD	Inception Date	
Global	Global All Country Adaptive Volatility ex Australia (AUD) Gross			2.72%	3.35%	14.22%	10.70%		15.32%	10/1/2013	
	MSCI All Country World ex Australia Index (AUD)			4.46%	5.75%	15.62%	10.25%		14.46%		
	Difference (Gross-Index)			-1.74%	-2.40%	-1.40%	0.45%		0.85%		
	Global All Country Adaptive Volatility ex Australia (AUD) Net			2.57%	3.04%	13.54%	10.04%		14.63%		
	Global Adaptive Volatility Gross			-0.24%	-1.20%	11.53%	9.78%		8.55%	7/1/2014	
	MSCI World Index			1.93%	0.76%	11.70%	9.10%		7.27%		
	Difference (Gross-Index)			-2.17%	-1.95%	-0.17%	0.68%		1.28%		
	Global Adaptive Volatility Net			-0.37%	-1.47%	10.92%	9.18%		7.96%		
	Global Adaptive Volatility (EUR) Gross			4.80%	2.84%	10.38%	9.11%		12.89%	7/1/2014	
	MSCI World Index (EUR)			7.37%	3.62%	9.11%	7.41%		11.63%		
	Difference (Gross-Index)			-2.57%	-0.79%	1.27%	1.70%		1.27%		
	Global Adaptive Volatility (EUR) Net			4.67%	2.57%	9.82%	8.55%		12.31%		
Global	Global All Country Adaptive Volatility Gross			-1.26%	-0.06%	11.94%	9.34%		9.48%	10/1/2014	
	MSCI All Country World Index			0.72%	-0.13%	11.31%	8.78%		7.95%		
	Difference (Gross-Index)			-1.97%	0.07%	0.63%	0.56%		1.53%		
	Global All Country Adaptive Volatility Net			-1.40%	-0.36%	11.27%	8.69%		8.83%		
	U.S.	U.S. Adaptive Volatility Gross			1.35%	3.02%	12.83%	10.84%	13.38%	12.73%	6/1/2013
		Russell 1000 Index			3.57%	2.85%	14.54%	11.64%	13.37%	12.83%	
Difference (Gross-Index)			-2.22%	0.17%	-1.70%	-0.80%	0.01%	-0.10%			
U.S. Adaptive Volatility Net			1.21%	2.74%	12.22%	10.24%	12.76%	12.12%			
LOW VOLATILITY EQUITY											
Global	Global Low Volatility Gross			0.18%	-2.61%	7.22%	7.92%	9.55%	11.05%	1/1/2012	
	MSCI World Index			1.93%	0.76%	11.70%	9.10%	10.55%	12.04%		
	Difference (Gross-Index)			-1.75%	-3.36%	-4.47%	-1.17%	-1.00%	-0.99%		
U.S.	Global Low Volatility Net			0.09%	-2.78%	6.85%	7.55%	9.17%	10.66%		
	U.S. Low Volatility Gross			1.71%	-2.06%	6.23%	10.23%	11.68%	12.70%	8/1/2012	
	Russell 1000 Index			3.57%	2.85%	14.54%	11.64%	13.37%	14.64%		
	Difference (Gross-Index)			-1.86%	-4.91%	-8.31%	-1.41%	-1.70%	-1.94%		
U.S. Low Volatility Net			1.63%	-2.22%	5.88%	9.87%	11.31%	12.33%			

Past performance does not guarantee future results. Performance includes the reinvestment of dividends and other earnings. Difference may not agree with input data due to rounding. See Presentation Notes for additional information.

Presentation Notes

Intech Investment Management LLC ("Intech") is a specialized global asset manager registered under the Investment Advisers Act of 1940 that applies advanced mathematics and systematic portfolio rebalancing to exploit a unique and reliable source of excess returns and risk control – stock price volatility. Intech is a subsidiary of Janus Henderson Group plc (NYSE: JHG) and is affiliated with its subsidiaries and affiliates. Past performance cannot guarantee future results. Investing involves risk, including the possible loss of principal and fluctuation of value. In addition, the proprietary mathematical investment process used by Intech may not achieve the desired results. Performance results reflect the reinvestment of dividends and other earnings. Portfolio performance results shown are time-weighted rates of return using daily valuation, include the effect of transaction costs (commissions, exchange fees, etc.), and are gross of non-reclaimable withholding taxes, if any. The composite includes all actual fee-paying accounts managed on a fully discretionary basis according to the investment strategy from inception date, including those no longer under management. Accounts meeting such criteria enter the composite upon the full first month under management. For periods of less than one year, performance is not annualized. Reporting currency is USD unless otherwise noted. Intech claims compliance with the Global Investment Performance Standards (GIPS®). To receive a complete list of composite descriptions and/or presentations that adhere to the GIPS standards, please contact Intech at Finance@intechinvestments.com.

The gross performance results presented do not reflect the deduction of investment advisory fees. Returns will be reduced by such **advisory fees and other contractual expenses as described in each client's individual contract.**

The net performance results presented reflect the deduction of model investment advisory fees, and not the advisory fees actually charged to the accounts in the composite. Prior to December 31, 2004, the model advisory fees deducted reflect the maximum fixed fee in effect for each strategy. Beginning January 1, 2005, the model advisory fees deducted reflect the standard fee schedule in effect during the period shown, applied to each account in the composite on a monthly basis. Standard fee schedules are available upon request. Actual advisory fees paid may vary among clients invested in the same strategy, which may be higher or lower than the model advisory fees. Some accounts may utilize a performance-based fee.

Global All Country Adaptive Volatility ex Australia (AUD) Composite, previously named the Global All Country Managed Volatility ex Australia (AUD) Composite, includes all fully discretionary separately managed portfolios invested in this strategy. The strategy pursues a risk-managed approach to construct a diversified portfolio of global large capitalization securities. The benchmark is the MSCI All Country World ex Australia Index. The objective is to outperform the benchmark over the full market cycle, with a total volatility (standard deviation) below that of the index. The composite was created in November 2013.

Global Adaptive Volatility Composite, previously named the Global Managed Volatility Composite, includes all fully discretionary separately managed portfolios invested in this strategy. The strategy pursues a risk-managed approach to construct a diversified portfolio of global large capitalization securities. The benchmark is the MSCI World Index. The objective is to outperform the benchmark over the full market cycle, with a total volatility (standard deviation) below that of the index. The composite was created in July 2014.

Global Adaptive Volatility (EUR) Composite, previously named the Global Managed Volatility (EUR) Composite, includes all fully discretionary separately managed portfolios invested in this strategy. The strategy pursues a risk-managed approach to construct a diversified portfolio of global large capitalization securities. The benchmark is the MSCI World Index. The objective is to outperform the benchmark over the full market cycle, with a total volatility (standard deviation) below that of the index. The composite was created in July 2014.

Global All Country Adaptive Volatility Composite, previously named the Global All Country Managed Volatility Composite, includes all fully discretionary separately managed portfolios invested in this strategy. The strategy pursues a risk-managed approach to construct a diversified portfolio of global large capitalization securities. The benchmark is the MSCI All Country World Index. The objective is to outperform the benchmark over the full market cycle, with a total volatility (standard deviation) below that of the index. The composite was created in October 2014.

U.S. Adaptive Volatility Composite, previously named the U.S. Managed Volatility Composite, includes all fully discretionary separately managed portfolios invested in this strategy. The strategy pursues a risk-managed approach to construct a diversified portfolio of U.S. large capitalization securities. The benchmark is the Russell 1000 Index. The objective is to outperform the benchmark over the full market cycle, with a total volatility (standard deviation) below that of the index. The composite was created in June 2013.

Global Low Volatility Composite includes all fully discretionary separately managed portfolios invested in this strategy. The strategy pursues a risk-managed approach to construct a diversified portfolio of global large capitalization securities. The benchmark is the MSCI World Index. The objective is market-like returns as compared to the benchmark over the full market cycle, with a total volatility (standard deviation) considerably below that of the benchmark. The composite was created in February 2012.

U.S. Low Volatility Composite includes all fully discretionary separately managed portfolios invested in this strategy. The strategy pursues a risk-managed approach to construct a diversified portfolio of U.S. large capitalization securities. The benchmark is the Russell 1000 Index. The objective is market-like returns as compared to the benchmark over the full market cycle, with a total volatility (standard deviation) considerably below that of the benchmark. The composite was created in August 2012.

The MSCI All Country World Index is a free float-adjusted market capitalization weighted index that is designed to measure performance of global developed and emerging equity markets.

The MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure global developed market equity performance.

The Russell 1000 Index measures performance of the 1,000 largest companies in the Russell 3000 Index.

The MSCI All Country World ex Australia Index is a free float-adjusted market capitalization-weighted index that is designed to measure performance of global developed and emerging equity markets excluding Australia.

The Index returns are provided to represent the investment environment existing during the time periods shown and are not covered by the report of independent verifiers. For comparison purposes, the index is fully invested, which includes the reinvestment of dividends and capital gains. The returns for the index do not include any transactions costs, management fees or other costs, and are gross of dividend tax withholdings unless otherwise noted. Composition of each separately managed account portfolio may differ from securities in the corresponding benchmark index. The index is used as a performance benchmark only, as Intech does not attempt to replicate an index. The weightings of securities within the portfolio may differ significantly from the weighting within the index. The index is not available for direct investment; therefore, its performance does not reflect the expenses associated with the active management of an actual portfolio.

Prices assigned to investments are published prices on their primary markets or exchanges. Non U.S. securities are translated into U.S. dollars using the 4:00 P.M. London spot rate. However, if a significant event takes place between the close of the local market and the close of the U.S. domestic market, a security may be fair valued.

Investments are subject to certain risks, including currency fluctuations and changes in political and economic conditions, which could result in significant market fluctuations. These risks are magnified for portfolios that include emerging markets.

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Simulated results are hypothetical, not real. They do not reflect the results or risks associated with actual trading or the actual performance of any account. Simulated performance results are prepared with the benefit of hindsight and we continually attempt to enhance our process. As a result, the simulated results are derived using the most current version of the investment process as of the date shown, and not the process in place during prior periods, typically resulting in more favorable results. **Simulation results do not reflect material, economic, and market factors that may have impacted Intech's trading or decision-making in the actual management of a client's account. Simulated results should not be considered indicative of Intech's mathematical process, as Intech may not have managed money during some of the periods shown or may not have managed money for the particular strategy/product shown. Intech's mathematical optimization process was applied to historical data to produce the simulations. Unlike traditional simulations that do involve fundamental estimates, Intech's do not.** In addition, the proprietary mathematical investment process used by Intech may not achieve the desired results.

Intech's simulated performance results have inherent limitations, including, among other things: 1) simulated performance results are prepared with the benefit of hindsight; 2) no price-based or volume-based deleted list; 3) no posted list; 4) index constituent changes done as a group at the beginning of the month (typically done once or twice a year based on the index changes); 5) simulated trades take place at the closing price (+80 bps for countries in the MSCI Emerging Markets Index and +40 bps for developed countries), while Intech actually trades intra-day (historically, Intech's domestic trading costs have been below the 40 bps used in the simulations); and 6) six trading tranches are simulated with the average of the six tranches being reported as the result for the period.

Past performance of simulated data is no guarantee of future results. Therefore, no current or prospective client should assume that future performance will be profitable, or equal to either the simulated performance results shown or any corresponding historical index. In particular, simulations do not reflect actual trading in an account, so there is no guarantee that an actual account would have achieved the results shown. In fact, there may be differences between simulated performance results and the actual results subsequently achieved. In no circumstances should simulated results be regarded as a representation, warranty, or prediction that investors will achieve or are likely to achieve the performance results displayed, or that investors will be able to avoid losses. Investing involves risk, including fluctuation in value, the possible loss of principal and total loss of investment.

There are numerous other factors related to the markets in general or to the implementation of any specific trading strategy, which cannot be fully accounted for in the preparation of simulated performance results, all of which can adversely affect actual trading results. Any clients invested in the strategy/product may have experienced investment results during any relevant periods that were materially different from those portrayed in the simulations.

The simulated results include the reinvestment of all dividends, interest, and capital gains, but do not reflect the deduction of investment advisory fees unless otherwise noted. Thus, simulated results will be reduced by advisory fees and any other expenses such as custodial fees, odd-lot differentials, transfer taxes, foreign exchange transaction fees, wire transfer and electronic fund fees, as well as other fees, taxes, and governmental charges that may be incurred in the management of an account, which will materially lower results over time. Where shown, simulated net of fees return reflect the deduction of the **maximum advisory fee for the strategy as reflected in Intech's standard fee schedule. Actual advisory fees may vary among** clients invested in this strategy, which may be higher or lower than model advisory fees. Some clients may utilize a performance based fee. Fee schedules are available upon request.

An index is unmanaged, is not available for direct investment, and does not reflect the deduction of management fees or other expenses.

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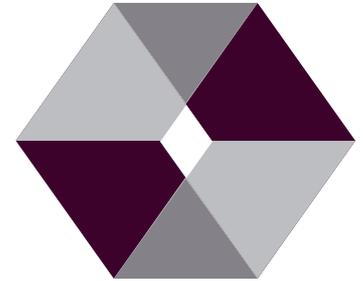
Data Source: The Center for Research in Security Prices ("CRSP") Deciles are market value weighted benchmarks of common stock performance provided by the CRSP at the University of Chicago Booth School of Business. The CRSP universe includes common stocks listed on the NYSE, AMEX, and the NASDAQ National Market excluding the following: preferred stocks, unit investment trusts, closed-end funds, real estate investment trusts, Americus Trusts, foreign stocks and American Depositary Receipts.

CITY OF OAKLAND
U.S. DEFENSIVE EQUITY PRESENTATION
SPI STRATEGIES



ELROI LONG ALPHA PLUS INSTITUTIONAL PORTFOLIO

PREPARED FOR CITY OF OAKLAND



Portfolio Managers/Presenters:
Steve Singleton
Omur Munoz
Eric Standifer

Third Quarter 2018

FOR INSTITUTIONAL INVESTOR USE ONLY

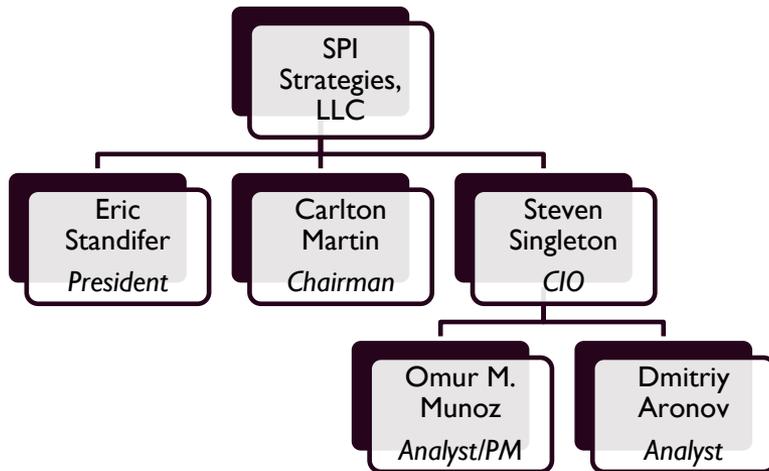


SPI STRATEGIES

FIRM OVERVIEW



Our Firm and Mission



- SPI Strategies is an Oakland based investment adviser that utilizes a unique process which quantifies traditional fundamental measures that define size and style themes.
- SPI Strategies was formed in 2004 through the union of Robert Van Securities' ELROI Research group and a former portfolio manager from one of its largest clients.
- Founding members average over 30 years in investment management.
- SPI Strategies operates with the single-minded focus of being a trusted financial advisor to institutional investors, creating active and alternative strategies through the blending of fundamental, technical and quantitative factors to address the various style/sector/size/directional components of the domestic US Equity market.
- Approximately \$120 million in assets under management as of August 31, 2018.

Investment Team

Carlton Martin, CFA
Chairman

Carlton brings over 30 years experience as both an institutional research analyst and portfolio manager specializing in fundamental research and management. Prior to joining BBV he was a Managing Director and Senior Portfolio Manager at TIAA-CREF from 1980-2004. He pioneered the TIAA-CREF family of Growth and Income Mutual Funds which had combined assets of over \$1 Bill. and co-managed the \$8.5 Bill. Global Equities Pension Fund. He earned a BA in Accounting from Howard University and an MBA in Finance from American University. Mr. Martin is a CFA Charterholder.

Steven Singleton
Chief Investment Officer

Mr. Singleton has over 29 years of experience in developing fundamental, technical, and quantitative models to understand the various factors that effect stock price and equity portfolio performance and is the creator of ELROI. Prior to joining Robert Van Securities in 1995, he spent 10 years in the financial information services business with Factset Research Systems, Interactive Data Corporation and Lotus One Source selling and supporting services that require the manipulation of fundamental, pricing and expectational data. He is a General Securities Principal, Registered Representative and Registered Research Analyst (FINRA Series 7, 24, 63, 65, 86 and 87). He is a Member of the CFA Institute and CFA Society of San Francisco. Mr. Singleton earned a B.A. in Mathematics/Economics from Claremont McKenna College (formerly Claremont Men's College).

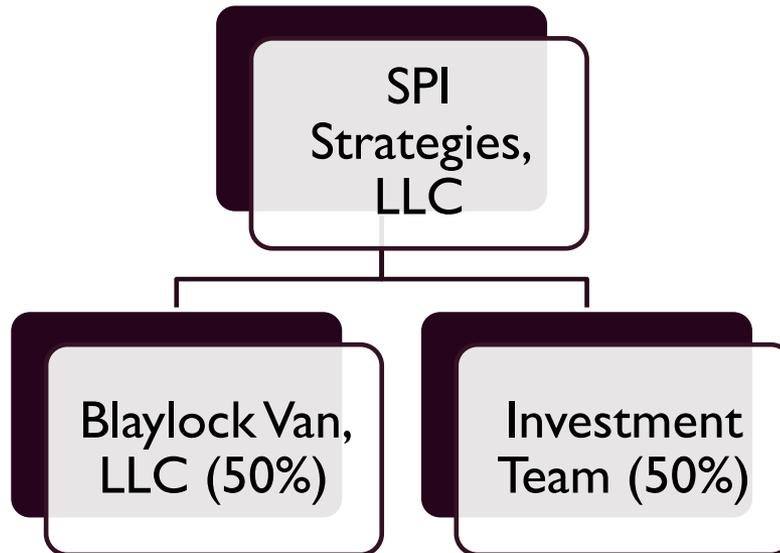
Omur Muhafiz Munoz
Portfolio Manager/Analyst

Mrs. Munoz graduated with an MBA from San Francisco State University in 2014. She worked as a Project Development Specialist at ODS Consultancy, an investment consulting firm in Turkey, prior to business school. Mrs. Munoz holds her Bachelor of Arts in Economics from Bilkent University (Ankara, Turkey) with extensive coursework in Econometrics. She is a Registered Representative and an Investment Adviser Representative (Series 7,66).

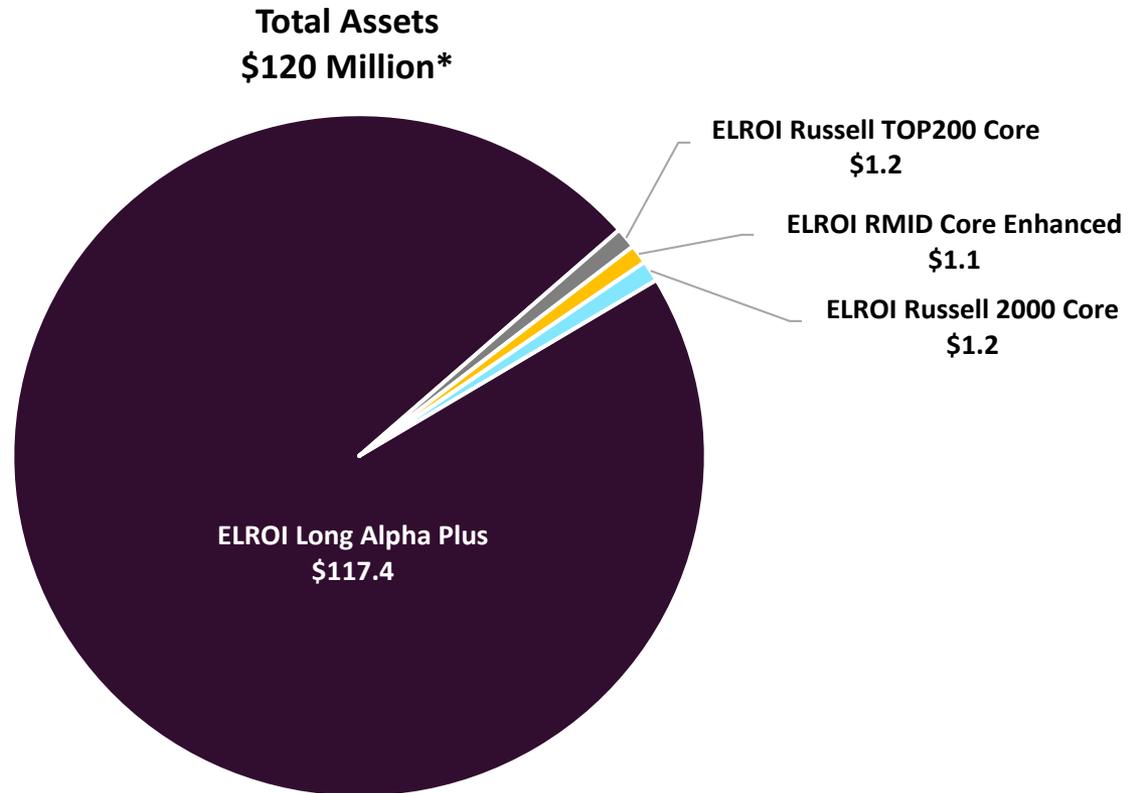
Dmitriy Aronov
Research/Market Analyst

Mr. Aronov worked as a Research Analyst Intern at Kota Global Securities before joining the Blaylock Beal Van Team. He holds his Bachelor of Arts in Economics from City University of New York – City College. He is a Registered Representative (Series 7).

Ownership Structure



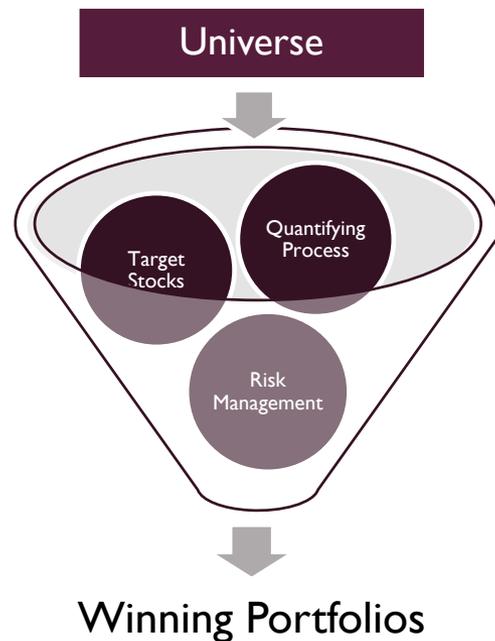
Assets Under Management



*Approximate as of 08/31/2018.

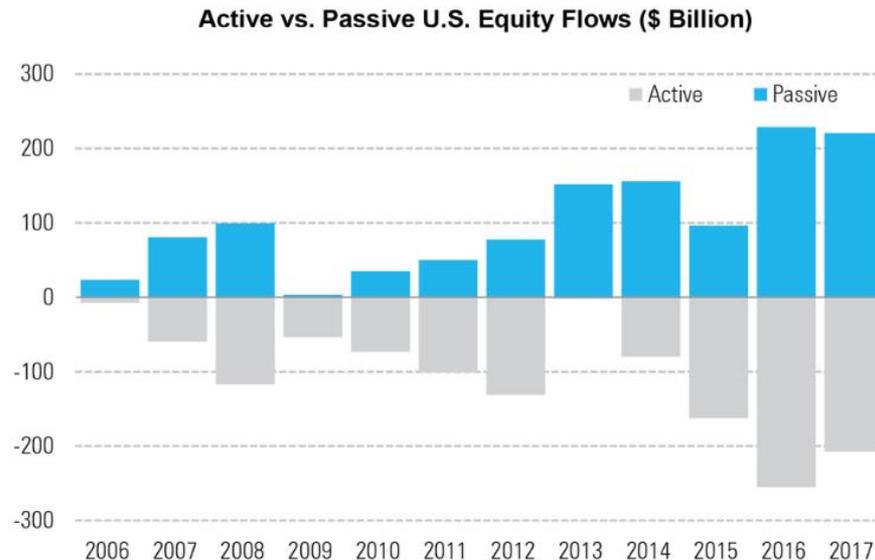
Investment Philosophy

- SPI Strategies' active equity portfolios are created within our proprietary quantitative product, **ELROI - Research Analytics**, an innovative platform that combines data and analytics to identify stocks and construct corresponding weights consistent with product theme.
- Active portfolio management is the triumph of successful stock and portfolio selection over comparable passive standards. It is our belief that this success can be achieved through modeling stock characteristics to identify those best suited to perform as expected over the next horizon, then constructing portfolios to mitigate selected and associated risks.
- We seek alpha. Correlated or uncorrelated. We achieve this by employing a wider view considering various long strategies and where appropriate incorporating short strategies.



Value Proposition

- The trend in active management has been one that has seen active managers fail to deliver excess returns on a consistent annual basis, thus leading to the outflows from active to passive funds over the past 10 years.



- We propose that the new value added manager is one who delivers consistent active returns to institutional investors via both correlated and uncorrelated means. SPI Strategies combines traditional MPT and APT techniques in its unique robo-engine (ELROI) to achieve this requisite in consistent fashion.

*Source: Morningstar

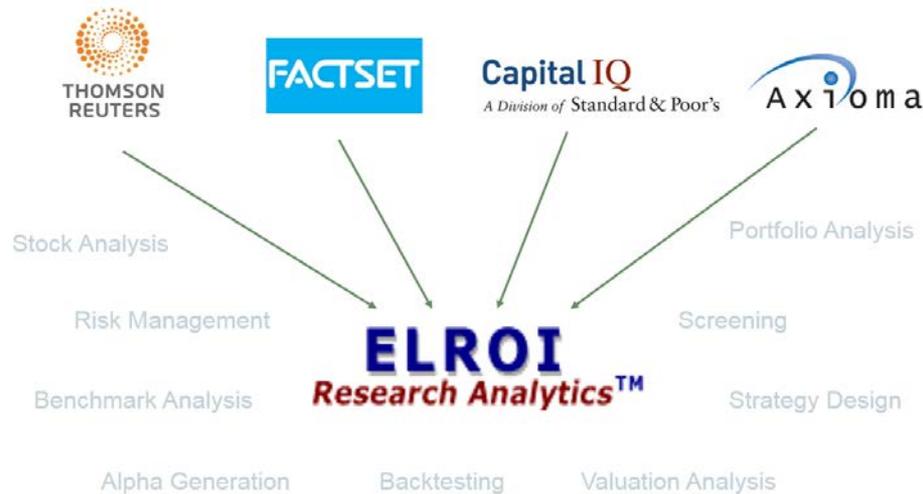


INVESTMENT PROCESS

WITH ELROI - RESEARCH ANALYTICS

ELROI and Advantages of Investing With Our Systematic Approach

- ELROI – Research Analytics is our proprietary platform for equity research and portfolio management.



Stock Selection

- Ability to monitor and screen 5000 domestic equity securities and ADRs
- Systematic approach eliminates the emotional aspect of portfolio management
- Facilitates customization of portfolios based on investor needs

Constrained Mean Variance Optimization

- Appropriates risk-adjusted stock weighting
- Avoids accidental sector and factor (style) bets
- Accommodates alpha realization

Investment Process With ELROI

- We use a quantitative approach to develop turnkey strategies to outperform associated benchmarks of all styles and sizes in the domestic U.S. equity space.

I. Screening

We select our screen according to the investment style and the associated benchmark that we seek to outperform.

2. Constructing Alpha Strategy

We construct an alpha strategy (Blended Alpha) by examining combinations of the factors shown below to explain stock price and portfolio performance in the selected investment style.

3. Stock Selection

We apply the blended alpha strategy (2) to our universe (1) and then rank the stocks from best to worst by their corresponding alpha scores. We select the top stocks to create concentrated or enhanced portfolios.

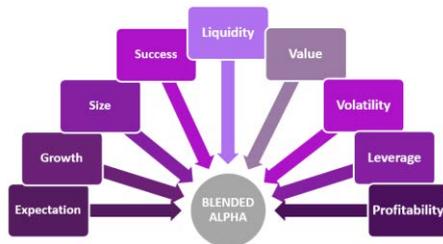
4. Risk Control and Portfolio Selection

Risk control is achieved through the *ELROI Mean/Variance optimizer** where stocks are weighted in order of potential reward to their known risk with respect to additional constraints such as size of holding or sector concentration.

We weight stocks in a risk-adjusted fashion choosing the blended alpha metrics (2) as appropriate tilts.

*see Appendix A

All Styles, Sizes and Disciplines



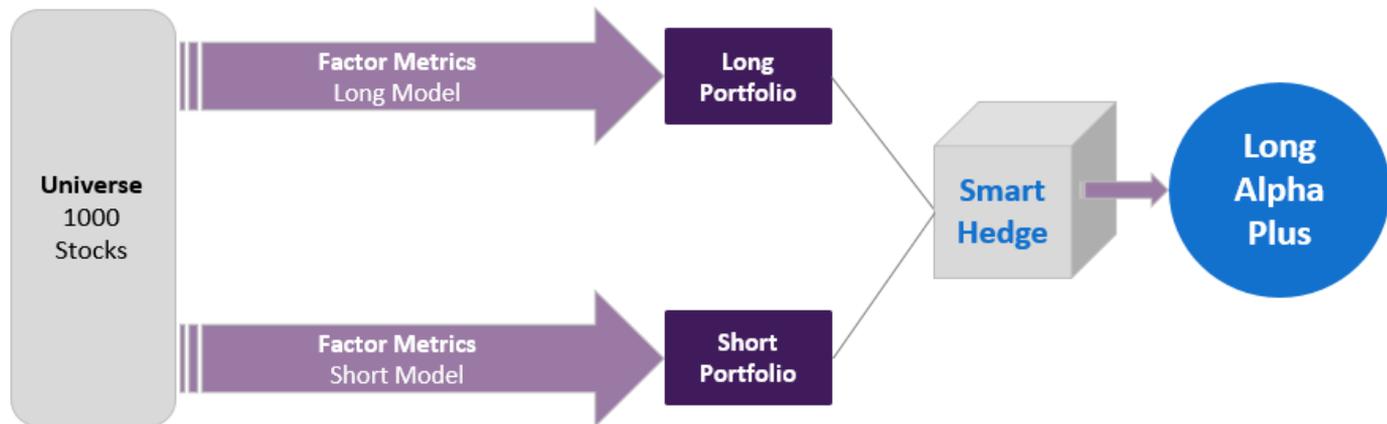


SPI STRATEGIES FLAGSHIP PORTFOLIO

ELROI LONG ALPHA PLUS

ELROI Long Alpha Plus Portfolio

- The **ELROI Long Alpha Plus Portfolio** is an Equity Long/Short vehicle designed to deliver absolute returns that compare or exceed the S&P 500 over a market cycle.
- The portfolio seeks to outperform the S&P 500 over a market cycle through the deployment of a “two alphas with no (or limited) beta” approach designed to capture upside equity market excess return and similarly avoid downside participation.
- A robust long portfolio paired with a flexible, portable short component, via our “Smart Hedge” algorithm, then becomes the appropriate vehicle to achieve this objective.



ELROI Long Alpha Plus Investment Process

Long Portfolio Creation Process:

1. Screening	2. Constructing Alpha Strategy	3. Stock Selection	4. Risk Control and Portfolio Selection
<p>Russell 1000 with a positive Intrinsic Value, a Market Value greater than \$5 Billion and Daily Value Traded of at least \$50 million.</p>	<p>A blend of Value, Growth, Expectation, Risk, Profitability, Success, Leverage and Size factors.</p>	<p>Top 20 stocks are chosen after the Alpha Strategy is applied to the screen and spanned by benchmark sector concentration to provide diversification.</p>	<p>Constraints: Max 9% of Holdings Min 0.75% of Holdings Maximum 3% Benchmark Sector Offset</p> <p>Tilt: Ex-Ante (Expectation “ELROI Target Price Model”)</p> <p>Turnover: 2 stocks quarterly, maintaining sector diversification</p>

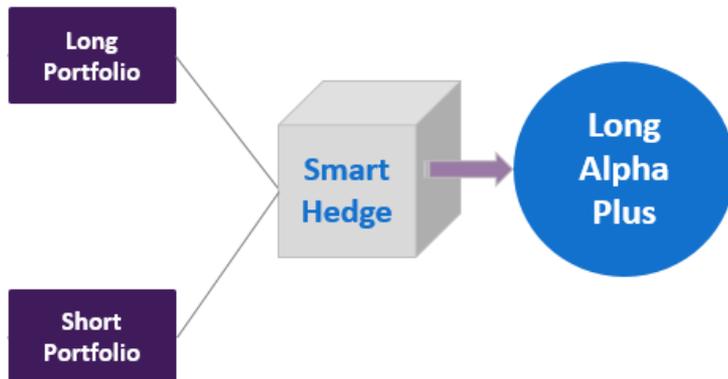
Short Portfolio Creation Process:

1. Screening	2. Constructing Alpha Strategy	3. Stock Selection	4. Risk Control and Portfolio Selection
<p>S&P 900 with a dividend yield less than 50 bps, price greater than \$5 and \$75 Million daily value traded.</p>	<p>Volatility factor</p>	<p>Top 20 stocks are chosen after the Alpha Strategy is applied to the screen and spanned by benchmark sector concentration to provide diversification.</p>	<p>Tilt: Equal Weight</p> <p>Turnover: Rebalanced monthly, maintaining sector diversification</p>

ELROI Long Alpha Plus – Smart Hedge

Market Timing Model

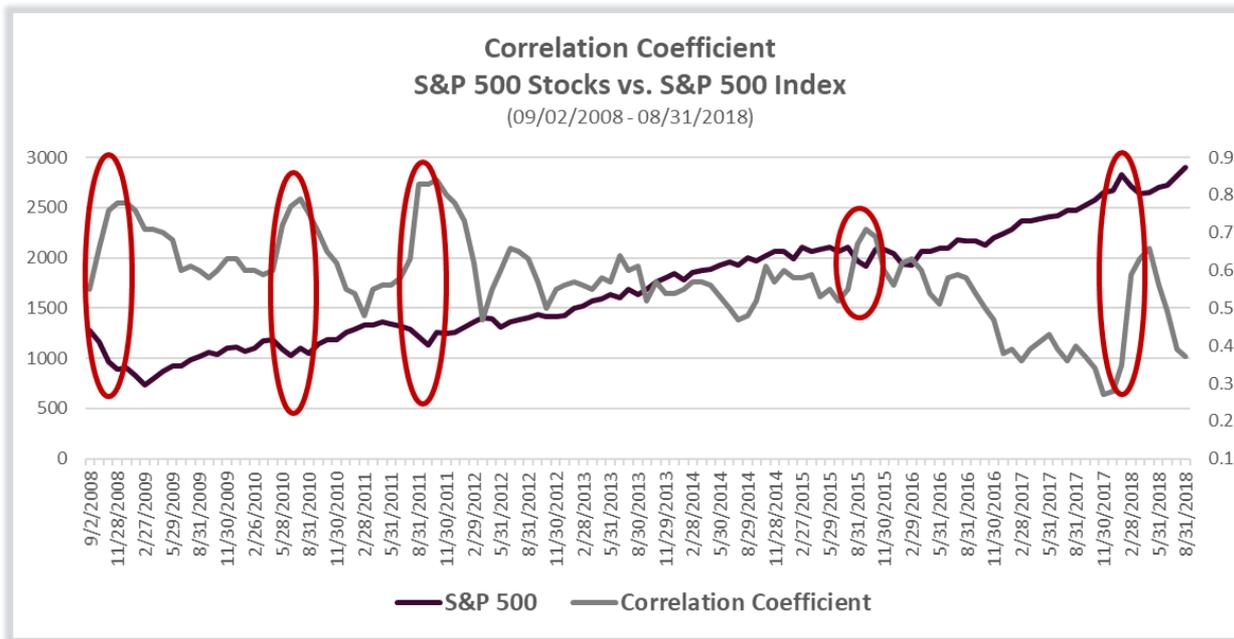
- Timing algorithm uses S&P 500 Price Index vs. 50 and 200 day moving average levels combined with behavioral view (ELROI Reward/Risk) to determine appropriate mix of long and short.
- Allows for high correlation to up markets, low (or negative) correlation to down markets to achieve absolute return goal with low overall equity exposure (combined beta = 0.35, $R^2 = 0.14$).



- **SMART HEDGE** - Controls Long/Short Exposure.
- Effectively combines both portfolios in a 100% Gross structure.

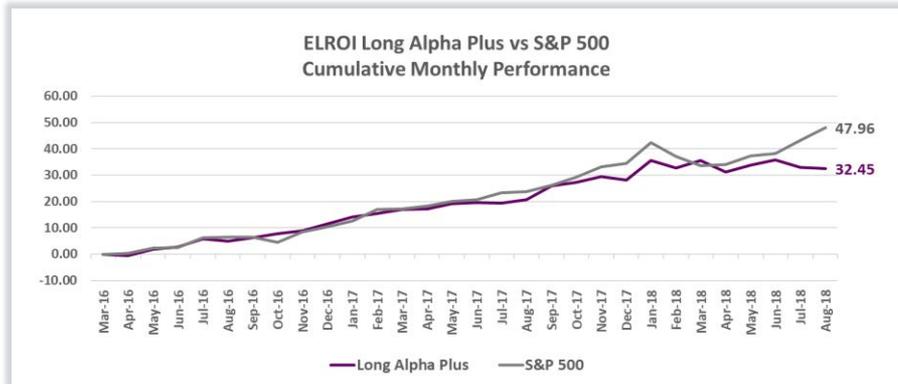
ELROI Long Alpha Plus and Correlations

- Stock correlations spike during market sell-offs with the most volatile names leading the way. ELROI Long Alpha Plus's Smart Hedge exploits this occurrence by increasing the portfolio's short exposure to its advantage.



*Source: ELROI

Performance Highlights Since Inception



Monthly Stats Through 08/31/18

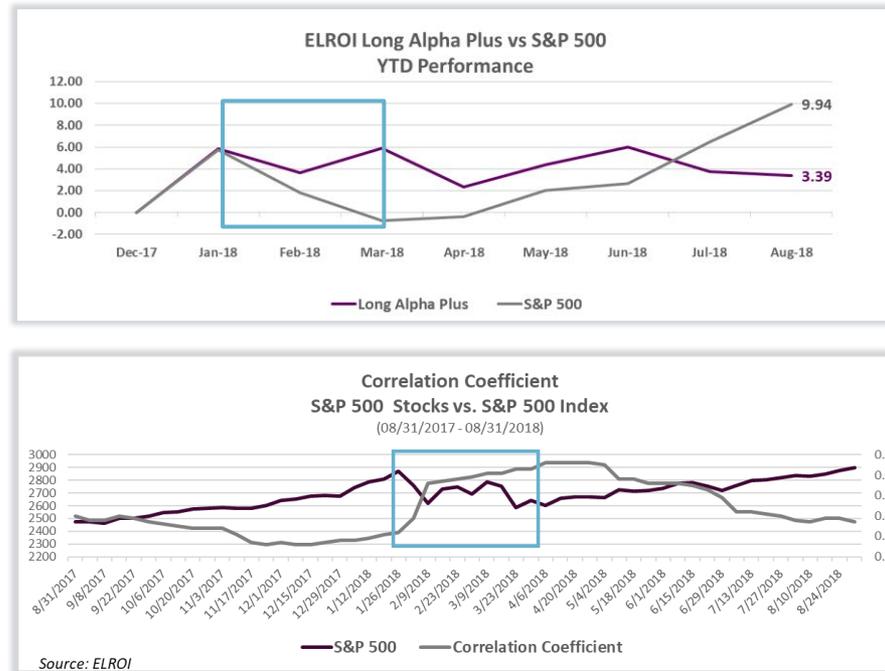
	LAP	S&P 500
Cumulative Return	32.45	47.96
Annualized Return	12.33	17.60
Alpha	0.51	
Annual Alpha	6.09	
Beta	0.35	
R2	0.14	
Portfolio Risk	1.90	2.02
Annualized Risk	6.58	6.99
Annual Return/Risk	1.87	2.52
Upside Market Capture	50%	
Downside Market Capture	-21%	
tstat (Alpha)	1.25	
tstat (Beta)	2.08	

	Long Alpha Plus	S&P 500
2016		
APRIL	-0.55	0.39
MAY	2.46	1.80
JUNE	0.78	0.26
JULY	2.96	3.69
AUGUST	-0.72	0.14
SEPTEMBER	1.16	0.02
OCTOBER	1.57	-1.82
NOVEMBER	1.04	3.70
DECEMBER	2.29	1.98
2016 TOTAL	11.47	10.47
2017		
JANUARY	2.44	1.90
FEBRUARY	1.15	3.97
MARCH	1.34	0.12
APRIL	0.11	1.03
MAY	1.78	1.41
JUNE	0.33	0.62
JULY	-0.17	2.06
AUGUST	0.97	0.31
SEPTEMBER	4.37	2.06
OCTOBER	1.06	2.33
NOVEMBER	1.75	3.07
DECEMBER	-1.02	1.11
2017 TOTAL	14.93	21.83
2018		
JANUARY	5.85	5.73
FEBRUARY	-2.09	-3.69
MARCH	2.19	-2.54
APRIL	-3.36	0.38
MAY	1.98	2.41
JUNE	1.55	0.62
JULY	-2.10	3.72
AUGUST	-0.37	3.26
2018 YTD	3.39	9.94
OVERALL TOTAL	32.45	47.96

*For all periods from April 1, 2016 forward, actual live total returns net of fees are used to represent the portfolio. For comparison to the live portfolio returns, total returns are used for the S&P 500. Neither set of returns are guaranteed for future returns.

Performance Highlights (2018 YTD)

- Q1 2018 illustrates the prowess of Long Alpha Plus's dynamic long/short structure. As correlations increased during the angst in February and March, the portfolio advanced while the market declined.



*For all periods from April 1, 2016 forward, actual live total returns net of fees are used to represent the portfolio. For comparison to the live portfolio returns, total returns are used for the S&P 500. Neither set of returns are guaranteed for future returns.

ELROI Long Alpha Plus vs. Traditional Long/Short

ELROI Long Alpha Plus	Traditional Long/Short
Low overall market correlation	Typically higher market correlation
Negative capture in down markets provides both protection and upside return potential	Downside protection but typically without negative capture
High concentration (fewer names) increases ability for greater upside capture	Tends towards lower concentration (more names)

SPI Strategies in the News

SPI Strategies Promoted to Core Mandate Status and Receives \$100 Million Allocation from Municipal Employees' Retirement System of Michigan

April 03, 2017 11:52 AM Eastern Daylight Time

OAKLAND, Calif.--(BUSINESS WIRE)--SPI Strategies, LLC ("SPI"), the registered investment advisory subsidiary of [Blaylock Beal Van, LLC](#), announced today that the Municipal Employees' Retirement System (MERS) of Michigan has promoted the firm to a "Core Mandate" within the Fund's Diversifying Strategies portfolio and increased its allocation to \$100 million. SPI was previously an Emerging Manager for MERS, the retirement services company that was created to administer the retirement plans for Michigan municipalities on a not-for-profit basis.

"The hedge fund industry is experiencing a wave of fund closings because of poor performance and high fees"

 [Tweet this](#)

SPI a year ago received \$25 million in seed funding from MERS to manage a long/short equity portfolio designed to outperform the S&P 500 while minimizing downside risk and volatility. For the 12 months ended March 31, Long Alpha Plus finished just 12 bps shy of the S&P 500 (17.05%* vs 17.17%) on 61% of the risk. The portfolio bested the HFRI Equity Hedge (Total) Index by 475 bps for the period ended February 28, the latest available reporting period for the index.

"MERS was on the forefront of Public Pension Plans who first appreciated the potential of so-called robo managed funds, quantitative funds that rely on computer models to oversee a portfolio," said Steven Singleton, SPI's chief investment officer. "We are extremely appreciative for MERS' initial support of SPI and very pleased with how our portfolio has performed."

Jeb Burns, MERS' Chief Investment Officer, also praised SPI's investment performance.

"The hedge fund industry is experiencing a wave of fund closings because of poor performance and high fees," said Burns. "But hedge funds that perform as they are designed to do continue to prosper. MERS takes great pride in having been among the first to appreciate SPI's quantitative strategies, which SPI offers at a significantly lower cost than most of its hedge fund rivals."



APPENDICES

APPENDIX A - ELROI Target Price Framework

The hypothetical backtested performance was created using a quantitative framework described in the Appendix A through Appendix E. We used the actual performance of the ELROI Long alpha Plus Portfolio net of fees, which began in April 2017. The past performance of this portfolio is then used to create a model to calculate hypothetical performance using time weighted returns.

The ELROI target price model is derived from assumptions made on the PEG ratio method of valuing stocks. The PEG ratio, as a simplified form of a two-stage equity DCF model, makes implicit assumptions on the key inputs (growth rate, required rate of return and payout ratio). At equilibrium, $PEG = 1$, a stock is considered fully valued, when priced at a level where its current year expected P/E is equal, in unit terms, to its long term forecasted growth rate in earnings. However, most stocks don't trade at this equilibrium level. Instead, we observe a premium/discount, in effect, due to the aforementioned implicit assumptions and market mispricing.

The target price framework employed by ELROI seeks to derive a *reasonable* expectation for price appreciation in the next 6 – 12 months. We say reasonable, because we are more likely to be “in the ballpark” for our entire universe (over 4500 stocks) than being absolutely correct for a few.

The DCF framework suggests that earnings will grow at rate g_{hg} during the high growth years. Extending that to the equilibrium PEG ratio, we assume that if earnings will grow at rate g_{hg} , then so will price, thereby keeping our equilibrium state intact. However, we must account for the premium/discount. Accordingly, we separate the relationship into parts, to allow for the premium and both market and industry discounts.

Part 1: Current Multiple Premium

Because the PEG ratio is rarely 1, P/E usually does not equal the growth rate. We allow for this premium/discount here.

Appreciation 1 = P/E (FY1)

Part 2: Market Discount

We adjust the growth rate appreciation by the premium/discount to the market (S&P 500).

Appreciation 2 = Growth rate(units) * Market PE(FY1)/ Stock PE(FY1)

Part 3: Industry Discount

We adjust the growth rate appreciation by the premium/discount to the Industry as defined by S&P GIC.

Appreciation 3 = Growth rate(units) * Industry PE(FY1)/ Stock PE(FY1)

Therefore, the Target or Expected price appreciation is the average of the three parts.

Expected Price Return = Average(Appreciation 1, Appreciation 2, Appreciation 3)

Ostensibly, then, the ELROI target provides a reasonable measure assuming that we believe consensus EPS forecasts and growth rates to be accurate.

APPENDIX B - Our Approach to Turnkey Strategies

In our strategy research group, our goal is to develop turnkey strategies to outperform associated benchmarks of all styles and sizes in the domestic U.S. Equity space. In order to achieve this, we must identify and uncover factors and combinations that can create the necessary advantage. Then, we must follow with effective portfolio construction that will exploit the advantage and generate sustained excess returns. There is a great deal of research and discussion on factor efficacy through the advent of efficient statistical models. Our approach, however, does not center on specific factor efficacy and time horizons. Instead, we seek to identify combinations of factors and factor conditions that will lengthen a traditional information horizon to effectively create a turkey vehicle with sustained outperformance.

Our model – Single Index

Our process begins with our approach to model construction. We employ a single-index model of the form:

$$r_p = a + b \cdot r_m + u \quad (1)$$

where r_p = Portfolio return

a = alpha

b = beta

r_m = benchmark return

u = idiosyncratic return of mean zero

From this single-index approach, Elton and Gruber (1999) show us that optimal weights can be constructed through,

$$W_i = Z_i / \sum(Z_i) \quad (2)$$

Where $Z_i = b_i / rvar_i * (a_i / b_i - C^*)^l$ (3)

W_i = weight of stock i

$rvar$ = Residual Variance of stock i

C^* = Cutoff point that determines which stocks will be included long in the portfolio. Effectively computed through considering those stocks whose a/B ratio is greater than zero. Stocks that don't meet the cutoff requirement are either sold short or not held.

Alpha (a) is defined as excess return. As such, it is often found denoted as $R_i - R_f$, where R_i is expected return for the stock and R_f represents the risk free rate. Algorithms that seek to solve for optimal solutions look to either maximize alpha with respect to beta and residual variance (as shown above) or minimize risk (tracking error).

Both forms are subject to a host of other necessary/arbitrary constraints chosen by the manager to achieve a portfolio that meets design requirements. The concept of mean/variance efficient construction suggests that through either method we should achieve optimality.

The Elton and Gruber method achieves this through the former. Accordingly, the key algorithmic consideration is the hierarchical ordering of stocks from best to worst by a/B . Our approach to constructing superior strategies is to employ this form, yet to substitute for expected excess return through CAPM (*ex-ante* alpha(a) denoted by $R_i - R_f$) any number of arrayed complements that order stocks from best to worst with appropriate magnitude that reflects our sentiment. In doing so, we expand the notion and concept of forecasting alpha into a structure limited only by the creativity of the manager and adherence to the prudence and judgment that is sound financial analysis.

The single-index model, then, gives us the structure by which to apply ordered ranks reflecting our sentiment on the prospects of future returns. For stock selection purposes, it allows the same. We construct "alphas" as multi-conditional ranks to order stocks from best to worst. This approach allows us to remain silent on which factors may drive returns in which markets and to, rather, consider the notion that while no single factor maintains an information horizon of length and breadth to sustain outperformance, blended combinations can...and do. But, as always, theory is silent on what the combinations are.

APPENDIX C - Our Approach to Turnkey Strategies

Exhibit I: Partial listing of Data Elements by Factor Category

Value	Growth Historical	Size	Success
PE - Trailing 12 months PE - Forward 12 months EV/EBITDA EV/Sales Price/Book Price/Cashflow Price/Sales Dividend Yield RewardRisk ratio (Target Appreciation/Technical Risk)	Latest Q/Q EPS % chg LTM EPS %chg Latest Q EPS momentum 12month % Ch Book Value 5yr Book Value Growth 5 yr EPS Growth 5yr FCF/share Growth 5yr Dividend/Share Growth Sales Q/Q % chg Sales LTM % chg 12month %chg Gross margin	Market Cap Small Size (Inverse of Market Cap) Sales - LTM	Expost Alpha - (1yr daily returns) Expost Alpha - (1month daily returns) Expost Alpha - (3month daily returns)
	Growth Forecast		Liquidity
	Current forecast Q/Q EPS %chg Next forecast Q/Q EPS %chg Next2 forecast Q/Q EPS %chg Current Q EPS momentum Next Q EPS momentum Next2 Q EPS momentum FY1 EPS % Change FY2 EPS %Change Forecast Long-Term Growth rate		Average Daily Volume Daily Value Traded
	Expectation	Volatility	Profitability
ExAnte Alpha (CAPM on ELROI target) PEG Return - (PEG =1 proxy) Fair Value Return (CAPM on ELROI Fair Value)	Beta - 1yr daily Beta - 1mo daily Beta - 3mo daily Total Risk Active Risk Residual Risk	Gross Margin Operating margin Pretax Margin LTM ROE LTM ROA LTM ROIC LTM ROTL Sustainable Growth 5yr ROE 5yr ROA 5yr Sustainable Growth	Leverage LT Debt/Total Cap LT Debt/Equity Total Debt/Total Cap Total Debt/Equity Total Debt/Assets Financial Leverage

Our Alpha categories

Existing research serves well to identify the key fundamental, technical and quantitative categories. Thus, to avoid re-inventing the wheel, we too categorize our factors in familiar themes:

Value	Expectation
Growth	Volatility
Size	Profitability
Success	Leverage
Liquidity	

APPENDIX D - Equating Single and Multi-Factor Forms

The single index model can be extended to approximate multi-factor constructions of the form,

$$r = X_1b_1 + X_2b_2 + X_3b_3 + \dots + X_kb_k + u$$

where, \mathbf{X} (1 through k) is a \mathbf{K} vector of factor returns, \mathbf{b} (1 through k) is a \mathbf{K} vector of factor exposures, \mathbf{u} is a \mathbf{N} vector of idiosyncratic returns of mean zero.

This extension, though, offers no specific detail or information regarding the factors or their exposures. Assuming equivalency to the single-index form, however, suggests that the single model alpha (\mathbf{a}) is approximately equal to the factor construct

$$\mathbf{bX} + u - \mathbf{bm}^*X_m,$$

where the latter term represents benchmark return and exposure to that return (beta).

$$\text{Thus, } \mathbf{a} = \mathbf{bX} + u - \mathbf{bm}^*X_m$$

It is this assumption that forms the basis of our work. Instead of specific orthogonal models, we construct collinear blends of factor conditions to approximate the more structured forms.

APPENDIX E – Notes & References

Notes

See Elton and Gruber (1999). They use $(R_i - R_f)/\text{Beta}$ as the ordering rank for input to the optimizer. Our approach differs slightly in that we consider $\alpha(a)/\text{Standard deviation}(\text{std})$ with respect to beta, where alpha (a) is our scaled computation blending concepts from different fundamental factor groups. We consider it with residual variance (rvar), as in our construct they are of similar scale and therefore compare more consistently. Closer inspection of the formula suggests, algebraically, that beta (b) effectively cancels out in the expanded first term $Z = b/\text{rvar}^* a/b - b/\text{rvar}^* C^* = a/\text{rvar} - B/\text{rvar}^* C^*$, leaving a/rvar as the critical ordering component.

References

Elton, Edward J., and Martin J. Gruber, 1999. Investments, Portfolio Theory and Asset Pricing, vol. I: Cambridge, Mass, London, England: The MIT Press

APPENDIX F - Alternatives Asset Class Return Analysis (%)*

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Through July 2018
↑ HIGH	Long Alpha Plus** 30.78	MLP 76.41	MLP 35.85	Long Alpha Plus** 16.02	Long Alpha Plus** 14.96	Long Alpha Plus** 36.97	Long Alpha Plus** 21.58	Long Alpha Plus** 5.70	Long Alpha Plus** 20.04	Private Equity 17.52	MLP 5.91
	Managed Futures 18.33	Convertible Arbitrage 47.35	Private Equity 20.73	MLP 13.88	Private Equity 14.19	MLP 27.58	Managed Futures 18.37	Private Equity 5.66	MLP 18.31	Long Alpha Plus** 14.93	Long Alpha Plus** 3.77
	Currency -3.85	Fixed Income Arbitrage 27.41	Commodity 16.83	Private Equity 11.34	Multi-Strategy 11.19	Private Equity 21.32	Private Equity 11.13	Multi-Strategy 3.84	Private Equity 13.00	Long/Short Equity 13.41	Long/Short Equity 2.09
	Global Macro -4.62	Multi-Strategy 24.62	Global Macro 13.47	Global Macro 6.44	Fixed Income Arbitrage 11.04	Long/Short Equity 17.74	Multi-Strategy 6.09	Long/Short Equity 3.55	Commodity 11.77	Currency 11.54	Global Macro 2.04
	Event Driven -17.74	Event Driven 20.38	Event Driven 12.63	Fixed Income Arbitrage 4.69	Event Driven 10.63	Event Driven 15.47	Long/Short Equity 5.55	Equity Market Neutral 1.69	Convertible Arbitrage 6.60	Equity Market Neutral 8.45	Event Driven 1.95
	Long/Short Equity -19.76	Long Alpha Plus** 20.05	Fixed Income Arbitrage 12.51	Equity Market Neutral 4.49	Long/Short Equity 8.21	Multi-Strategy 11.23	MLP 4.80	Convertible Arbitrage 0.81	Multi-Strategy 4.41	Multi-Strategy 6.83	Fixed Income Arbitrage 1.91
	Private Equity -22.61	Long/Short Equity 19.47	Managed Futures 12.22	Multi-Strategy 1.83	Convertible Arbitrage 7.82	Equity Market Neutral 9.27	Fixed Income Arbitrage 4.37	Fixed Income Arbitrage 0.59	Fixed Income Arbitrage 4.29	Fixed Income Arbitrage 6.52	Multi-Strategy 1.45
	Multi-Strategy -23.63	Commodity 18.91	Convertible Arbitrage 10.95	Convertible Arbitrage 1.13	Currency 7.45	Convertible Arbitrage 6.03	Global Macro 3.11	Global Macro 0.18	Global Macro 3.58	Event Driven 6.30	Convertible Arbitrage 0.47
	Fixed Income Arbitrage -28.82	Private Equity 13.30	Multi-Strategy 9.29	Managed Futures -4.19	MLP 4.80	Global Macro 4.32	Event Driven 1.57	Managed Futures -0.93	Currency 3.54	Convertible Arbitrage 5.01	Equity Market Neutral 0.08
	Convertible Arbitrage -31.59	Currency 11.69	Long/Short Equity 9.28	Currency -5.19	Global Macro 4.58	Fixed Income Arbitrage 3.80	Equity Market Neutral -1.19	Event Driven -6.29	Event Driven 2.68	Managed Futures 3.29	Commodity -2.14
	Commodity -36.65	Global Macro 11.55	Long Alpha Plus** 5.82	Long/Short Equity -7.31	Equity Market Neutral 0.85	Currency -2.04	Convertible Arbitrage -1.68	Currency -7.61	Long/Short Equity -3.43	Global Macro 2.14	Currency -2.57
	MLP -36.91	Equity Market Neutral 4.05	Currency 5.68	Event Driven -9.09	Commodity -1.06	Managed Futures -2.56	Currency -7.03	Commodity -24.66	Equity Market Neutral -4.58	Commodity 1.70	Managed Futures -4.81
↓ LOW	Equity Market Neutral -40.32	Managed Futures -6.57	Equity Market Neutral -0.85	Commodity -13.32	Managed Futures -2.93	Commodity -9.52	Commodity -17.01	MLP -32.59	Managed Futures -6.84	MLP -6.52	Private Equity --

*Source: Eaton Vance Monthly Market Monitor, September 2018. Data provided is for informational use only. Past performance is no guarantee of future results. Global Macro represented by Credit Suisse Global Macro Index. Private equity represented by Cambridge Associates US Private Equity Index. MLP represented by Alerian MLP Index. Event Driven represented by Credit Suisse Event Driven Index. Multi-Strategy represented by Credit Suisse Multi-Strategy Index. Long/Short Equity represented by Credit Suisse Long/Short Equity Index. Convertible Arbitrage represented by Credit Suisse Convertible Arbitrage Index. Currency represented by JP Morgan EML+ Index. Equity Market Neutral represented by Credit Suisse Equity Market Neutral Index. Fixed Income Arbitrage represented by Credit Suisse Fixed Income Arbitrage Index. Managed Futures represented by Credit Suisse Managed Futures Index. Commodity represented by Bloomberg Commodity Index.

**Model Returns prior to 3/31/16 and live returns beyond that.

IMPORTANT NOTE ON HISTORICAL HYPOTHETICAL SIMULATED PERFORMANCE

The performance information provided in this document for the period prior to, and including 3/31/16, is historical hypothetical simulated performance (“hypothetical performance”) produced by a model with the benefit of hindsight following what is believed to be a materially similar strategy that will be utilized by SPI Strategies, LLC. For all periods from April 1, 2016 forward, actual live total returns net of fees are used to represent the portfolio. The hypothetical performance was created after the period depicted and does not represent the actual performance of any fund or account and no investor has experienced these results. Hypothetical performance, involving modelling components and assumptions, has inherent limitations, some of which are described herein. Assumptions and modeling components were determined based on information available as of the date hereof and SPI assumes no responsibility to update any hypothetical performance based on a change in underlying assumptions or modeling components. Another limitation is that they do not reflect actual trading, and therefore, do not reflect the impact that economic and market factors including concentration, lack of liquidity or market disruptions, may have on investment decisions. Actual events are difficult to predict and are beyond the control of SPI. Actual events may be different, perhaps materially, from those assumed. The information contained herein does not purport to contain all of the information that may be required to evaluate the investment strategy and you should conduct your own independent analysis of the data referred to herein.

The actual performance of any fund or account managed by SPI may be materially different from the hypothetical performance shown for a number of reasons including (i) differences in net asset values and expenses ratios, (ii) differences in the portfolio, fees, commissions and dividend accounting, (iii) permitted underlying securities and investment guidelines, (iv) different valuation methodologies and liquidity terms, and (v) changes in trading strategy over time. In particular, the hypothetical performance shown to not reflect any management fee while any investment product offered by SPI will be subject to management fees.

The periodic deduction of fees produces a compounding effect on the total rate of return net of management fees. The use of the hypothetical performance is provided solely for informational purposes and should not serve as the basis for a determination to invest in any investment product or account. Benchmarks and financial indices are shown for illustrative purposes only and are provided for the purpose of making general market data available as a point of reference only. Such benchmarks and financial indices are unmanaged, assume reinvestment of income, do not reflect the impact of any trading commissions and costs, management and incentive fees, and have limitations when used for comparison or other purposes because they, among other reasons, may have a different trading strategy, volatility, credit or other material characteristics (such as limitations on the number and types of securities or instruments). No representation is made that any benchmark or index is an appropriate measure of comparison. This hypothetical strategy, when actually executed, may underperform its benchmark even though the performance presented shows that the hypothetical strategy consistently outperformed the benchmark each year. This does not include any material economic and market factors that may have impacted the adviser’s decision-making when using the model to actually manage client funds. This hypothetical strategy, when actually executed, may underperform its benchmark even though the performance presented shows that the hypothetical strategy consistently outperformed the benchmark each year. This does not include any material economic and market factors that may have impacted the adviser’s decision-making when using the model to actually manage client funds.

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IMPORTANT NOTE ON BENCHMARK PERFORMANCE INFORMATION

SPI Strategies is a subsidiary of Blaylock Van, LLC (“Blaylock Van”).

Performance shown for periods over one year is annualized.

The returns presented in this document represent different periods for different representations of the ELROI Long Alpha Plus Portfolio. For all periods prior to, and including 3/31/2016, model price returns are used to represent the portfolio, as there were no “live” assets in the strategy. Similarly, for comparison purposes, price returns are used for the S&P 500. ELROI Long Alpha Plus Portfolio Returns for the period April 2016 to July 2018 reflect the actual total returns net of fees. For comparison to the live portfolio returns, total returns are used for the S&P 500 for the same period. Neither set of returns are guaranteed for future returns.

The indices included herein are unmanaged and have no fees or expenses. An investment cannot be made directly in an index. The portfolios consist of securities which vary significantly from those in the indices listed above. Accordingly, comparing results shown to those of such indices may be of limited use.

S&P 500 Index: This index includes 500 leading companies in leading industries of the U.S. economy. Although the S&P 500® focuses on the large-cap segment of the market, with approximately 75% coverage of U.S. equities, it is also an ideal proxy for the total market. S&P 500 is part of a series of S&P U.S. indices that can be used as building blocks for portfolio construction.

Past performance is not necessarily indicative of future results. No assurance can be given that SPI Strategies’ objectives or targets will be achieved. Investing in any of the represented portfolios is intended for experienced and sophisticated investors only who are willing to bear the high economic risks of the investment. Investors should carefully review and consider potential risk before investing. This document is for informational use only and is not an offer to sell or a solicitation of an offer to buy interests in ELROI Portfolios or any SPI Strategies – or Blaylock Van managed investment vehicle. Please refer to Steven Singleton for details of investment terms and conditions. The foregoing information has not been provided in a fiduciary capacity, and it is not intended to be, and should not be considered as, impartial investment advice.

PCA INVESTMENT MARKET RISK METRICS

Monthly Report



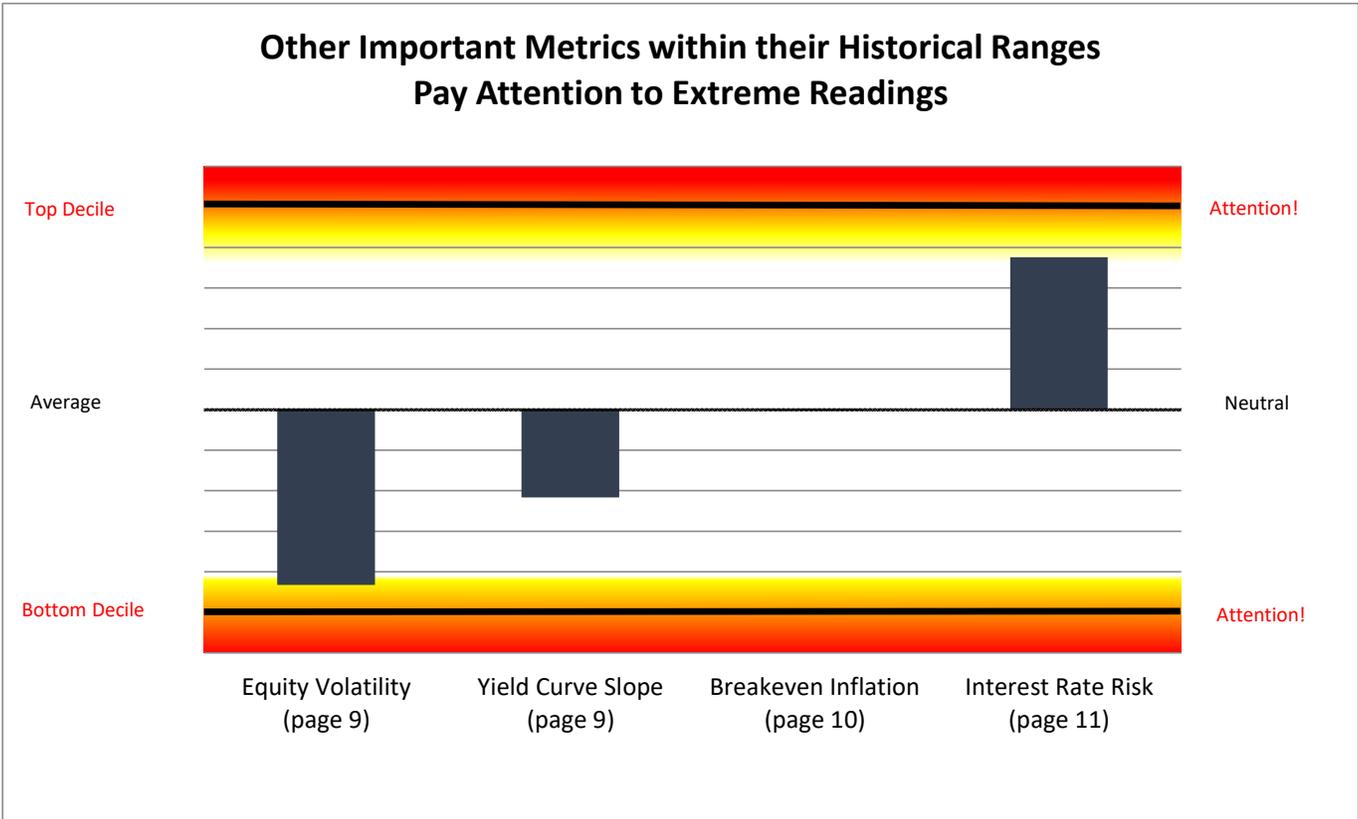
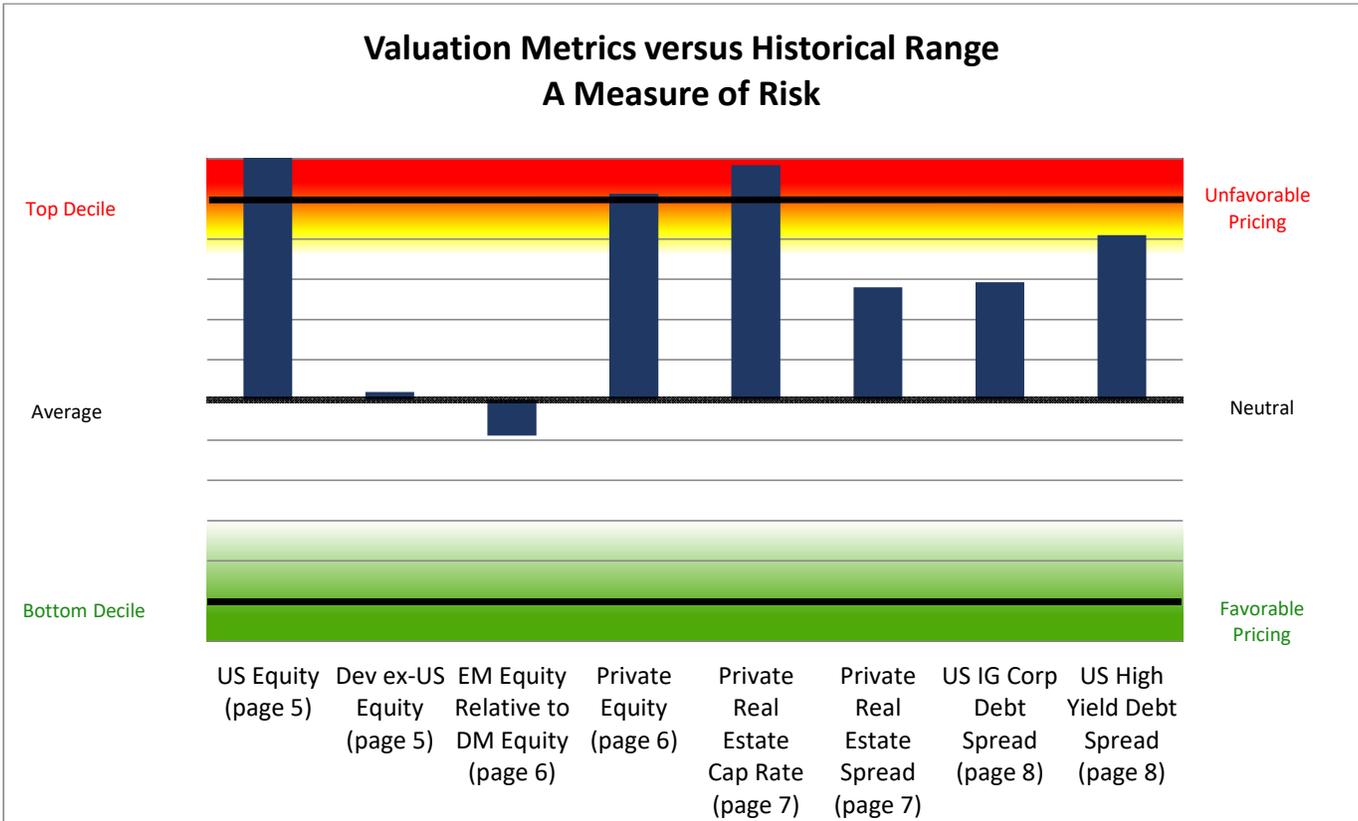
September 2018
(as of 8/31/18)

Takeaways

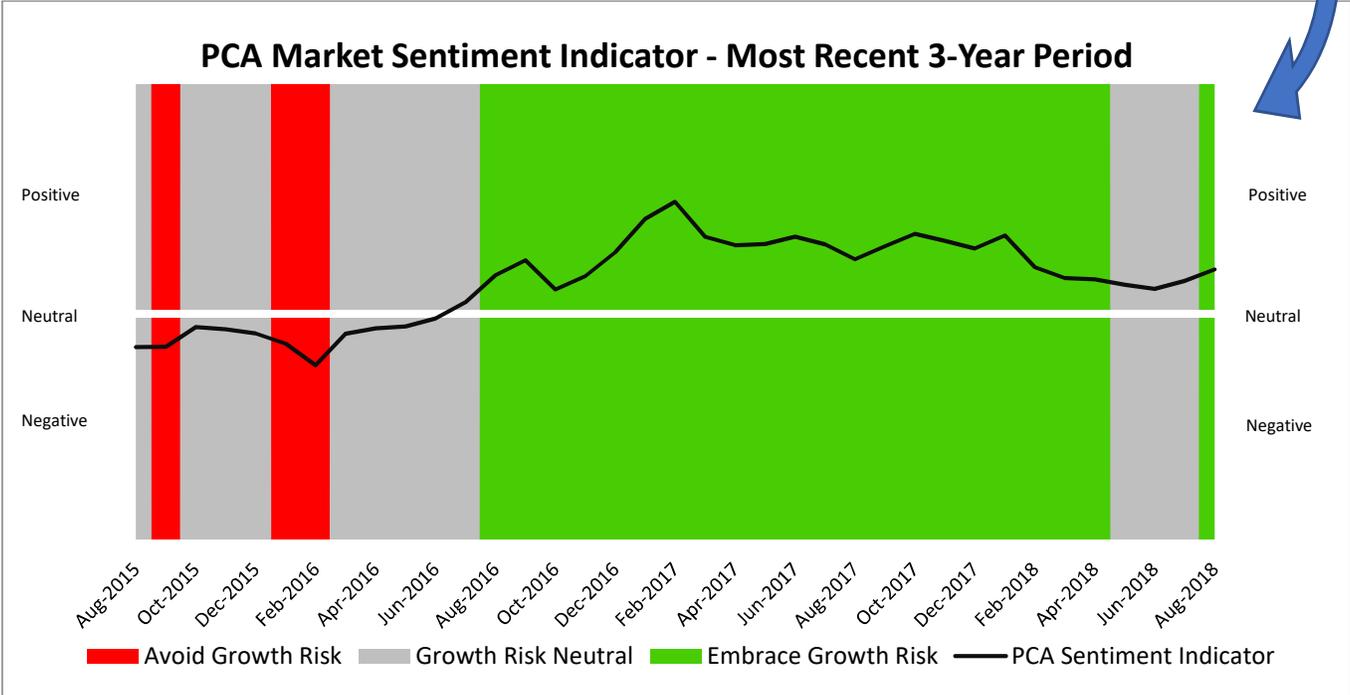
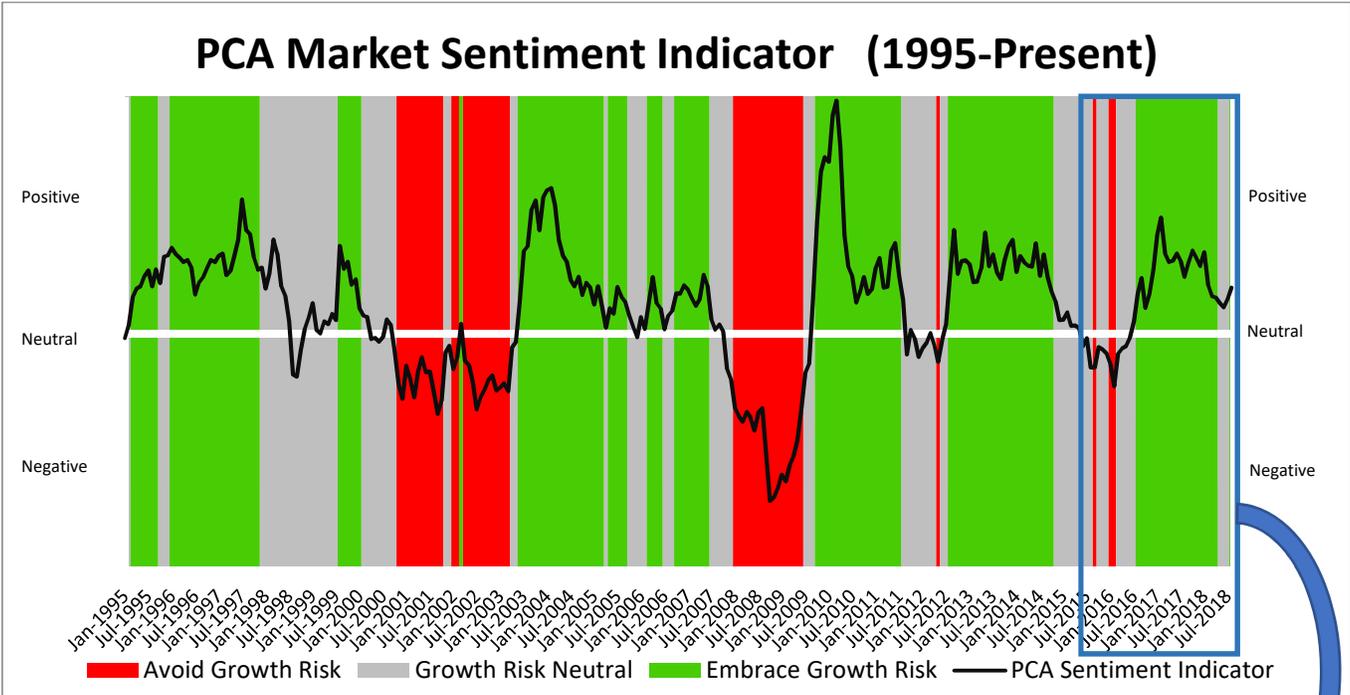
- August saw a bifurcation between U.S. and Non-U.S. equity markets. Whereas U.S. equity markets produced considerably strong returns, Non-U.S. equity markets, and Emerging Markets in particular, generated negative returns over the period.
- Implied equity market volatility (i.e., VIX) was virtually unchanged over the month and still remains materially below the long-term average level.
- A change from the previous three months, PCA's sentiment indicator (page 4) reversed back to positive (**green**). This is the result of year-over-year changes in bond spreads moving back to positive territory.
- U.S. Treasury interest rates were relatively stable during August, and the yield curve remains relatively flat. As of the end of the month, the spread between 30-year and 3-month U.S. Treasury yields was 0.91%, a level not seen since 2008.
- Non-U.S. Developed and Emerging Markets equity valuations are currently in-line with long-term averages, but they remain modestly cheap relative to U.S. levels.
- A prevailing market theme at the moment is the divergence of U.S. fiscal and monetary policies. Whereas fiscal policy is currently stimulative, monetary policy is generally tightening as economic growth, inflation, and unemployment are approaching late-cycle levels. PCA expects this to remain a topic of interest/concern over the near- and intermediate-terms.
- The global economic system is in the early stages of a transition. This change is from an environment of easy monetary policy, strong asset returns, and robust growth to a period of tighter monetary policy, lower asset returns, and more disparate and challenging growth. Monitoring this transition will be crucial to institutional portfolio management.

¹See Appendix for the rationale for selection and calculation methodology used for the risk metrics.

Risk Overview



Market Sentiment



Information Behind Current Sentiment Reading

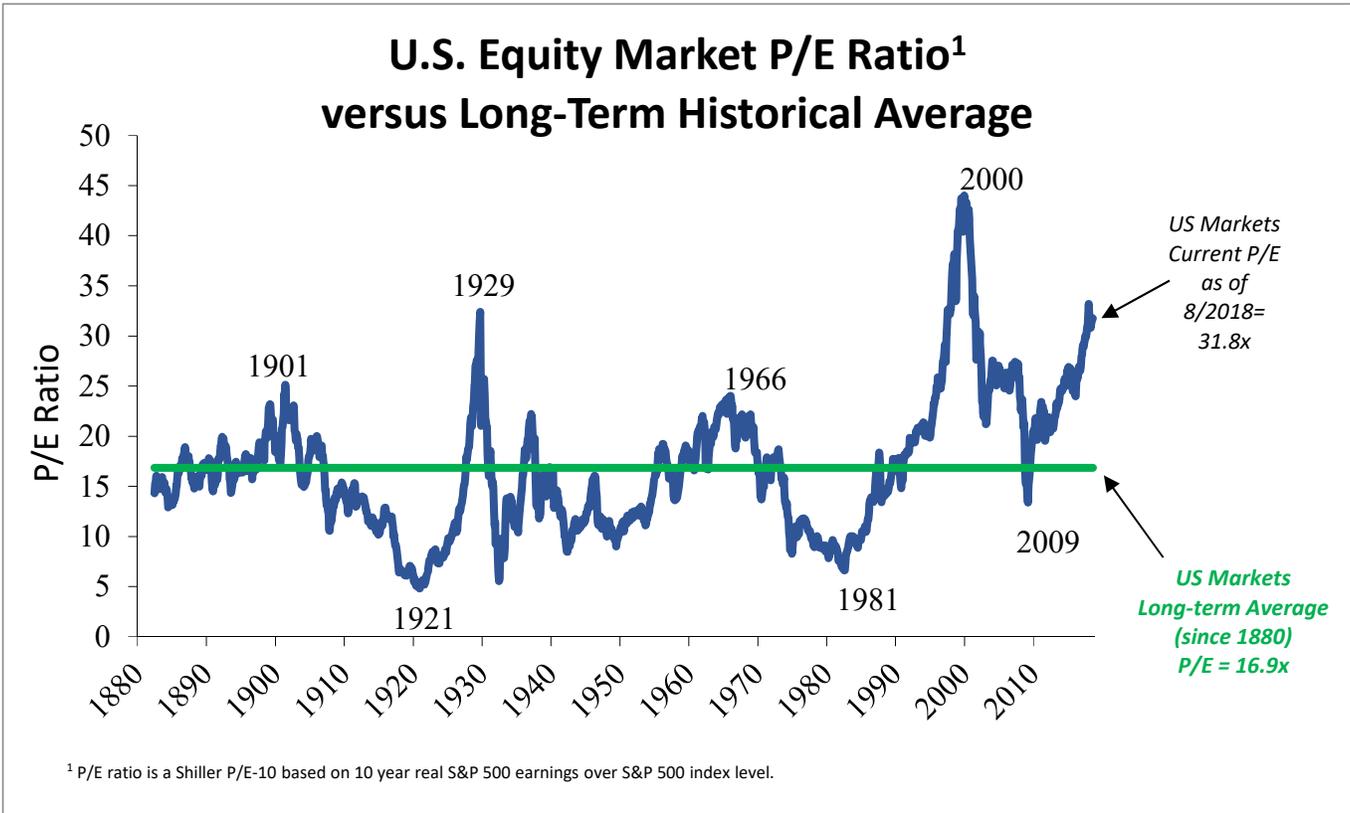
Bond Spread Momentum Trailing-Twelve Months
 Equity Return Momentum Trailing-Twelve Months
 Agreement Between Bond Spread and Equity Spread Momentum Measures?

Positive	■
Positive	■
Agree	■

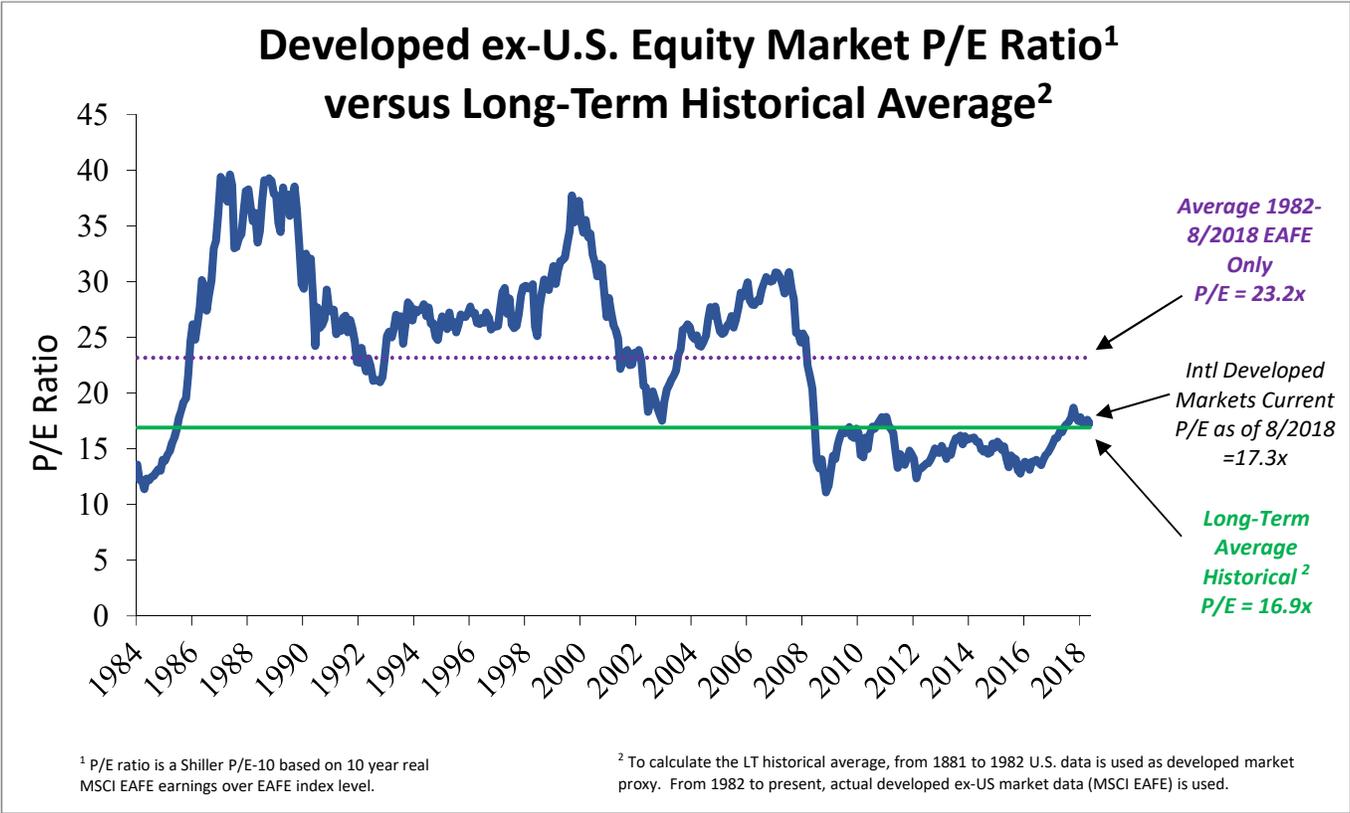
Growth Risk Visibility (Current Overall Sentiment)

Positive	■
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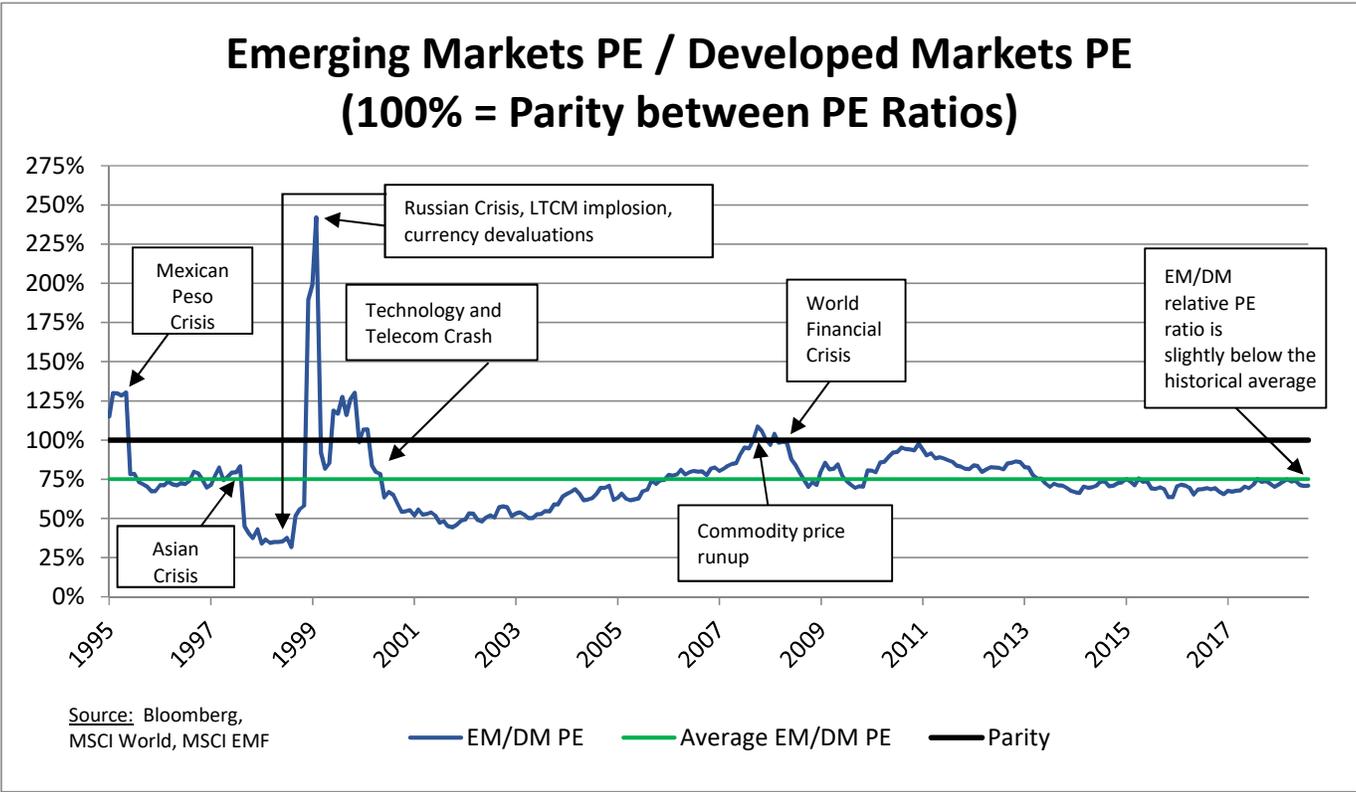
Developed Public Equity Markets



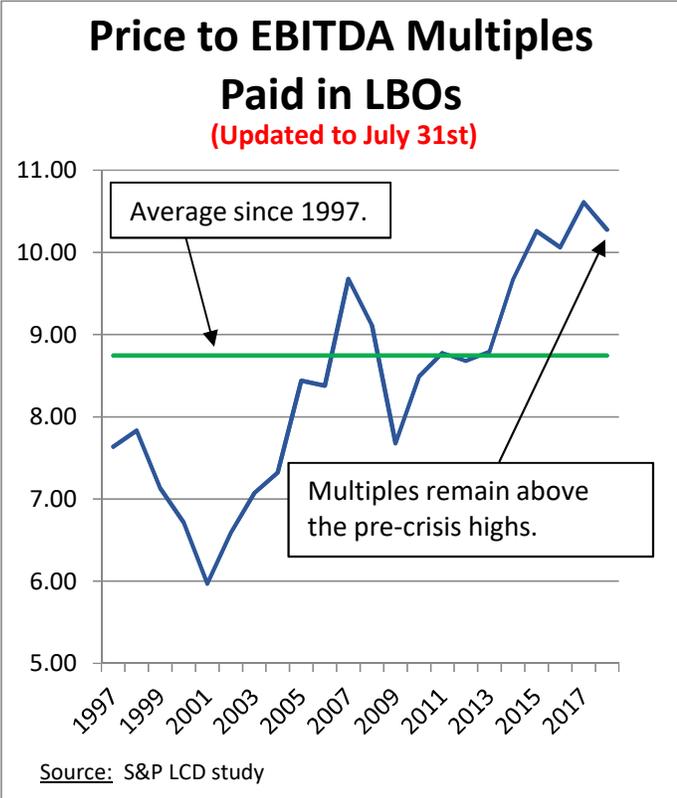
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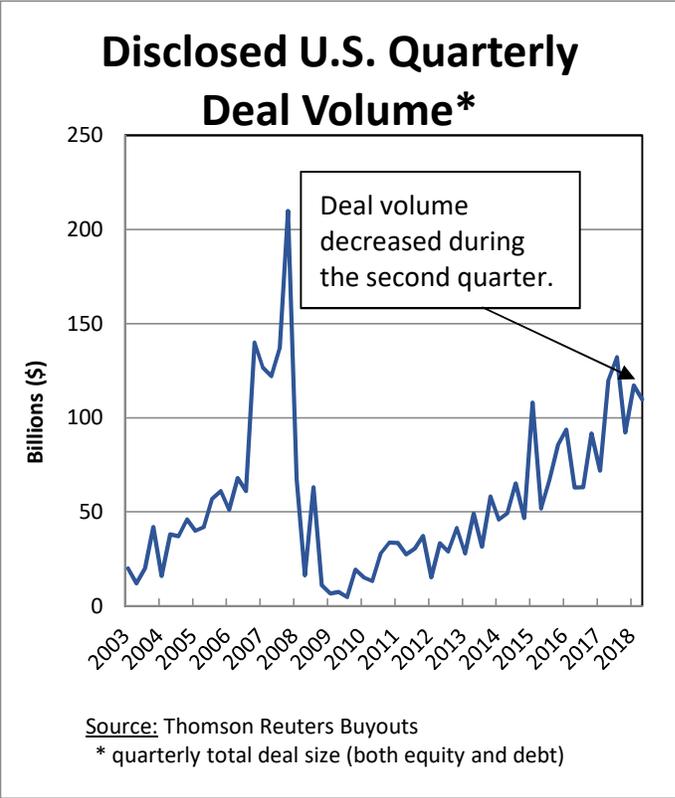
Emerging Market Public Equity Markets



US Private Equity

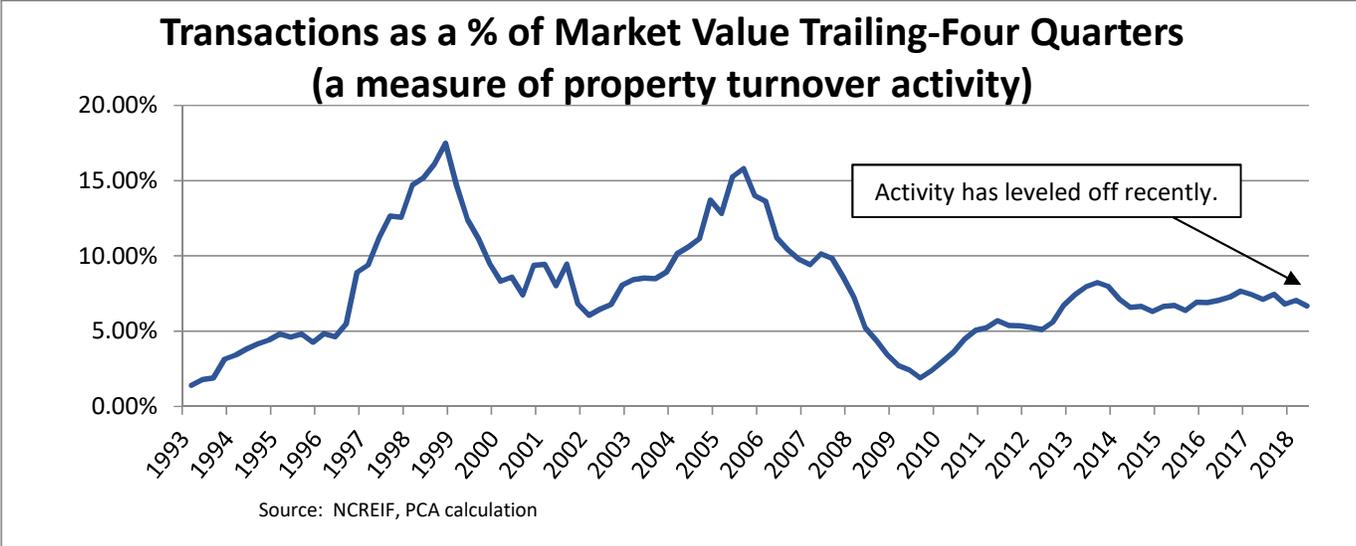
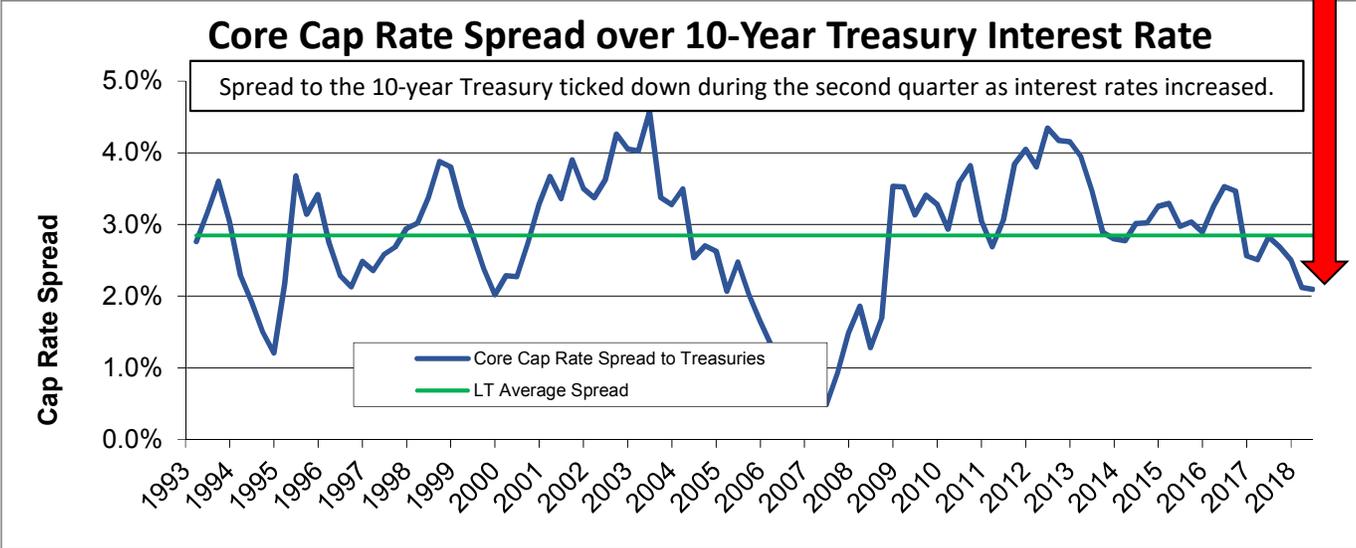
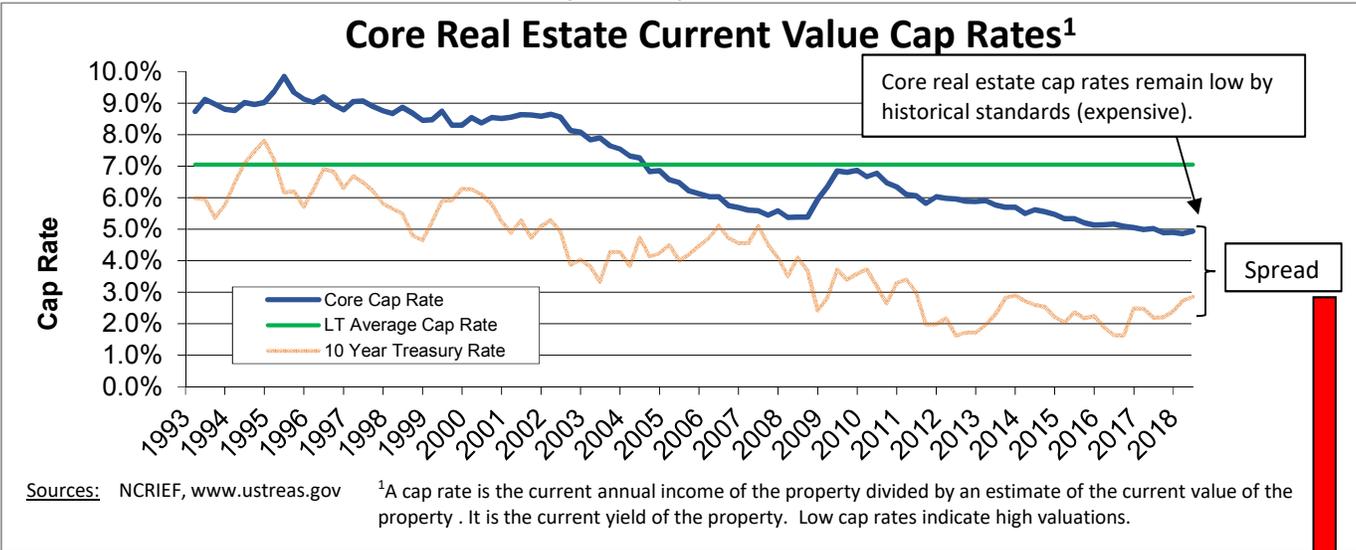


Quarterly Data, Updated to June 30th

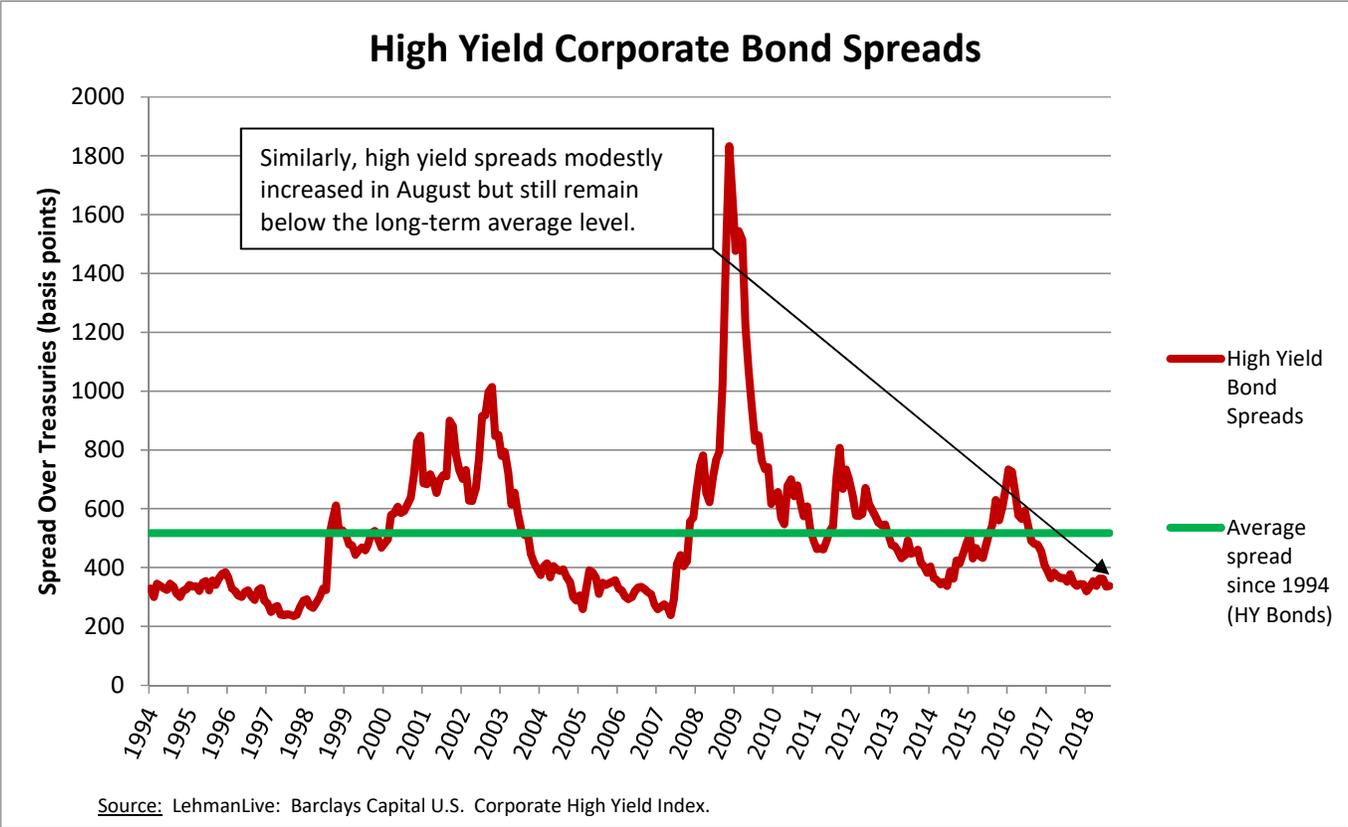
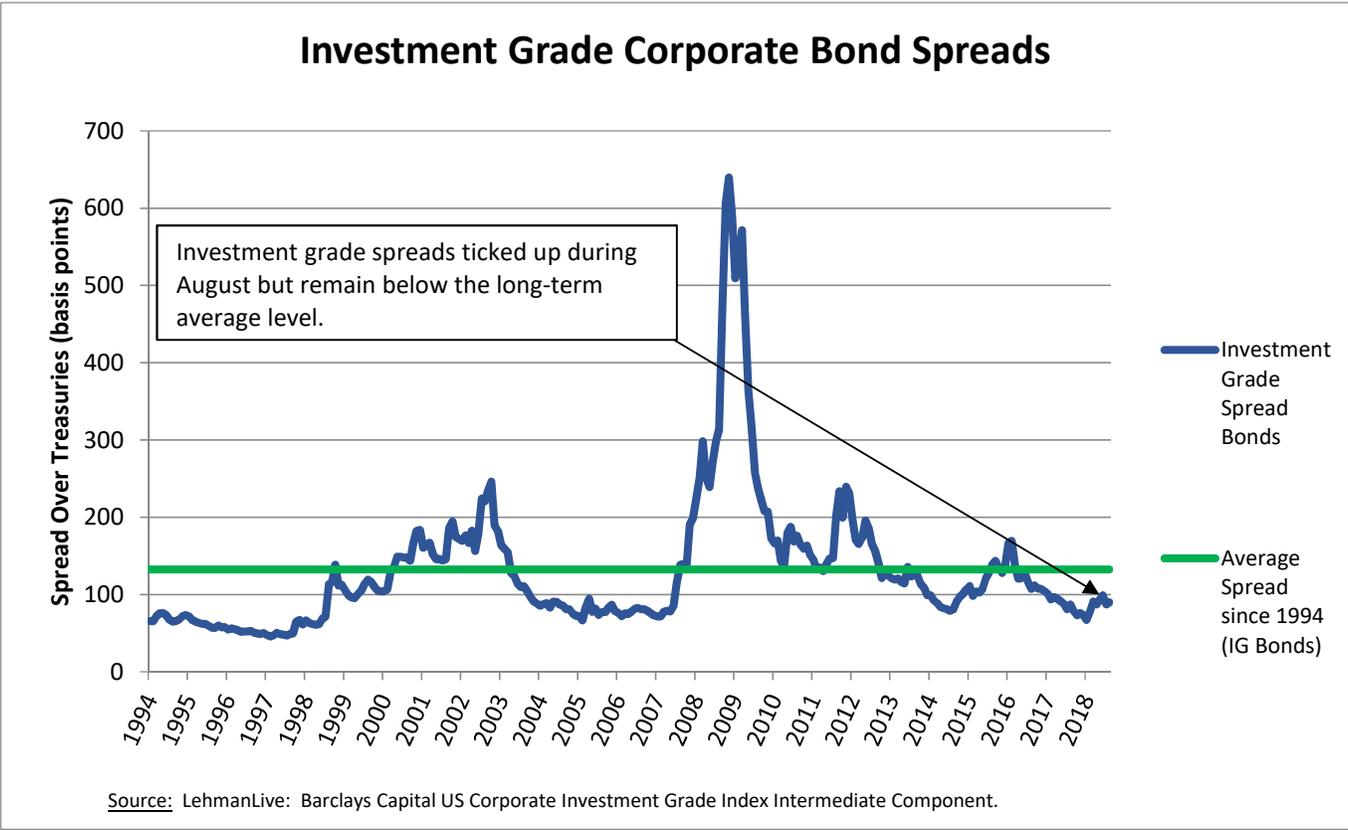


Private Real Estate

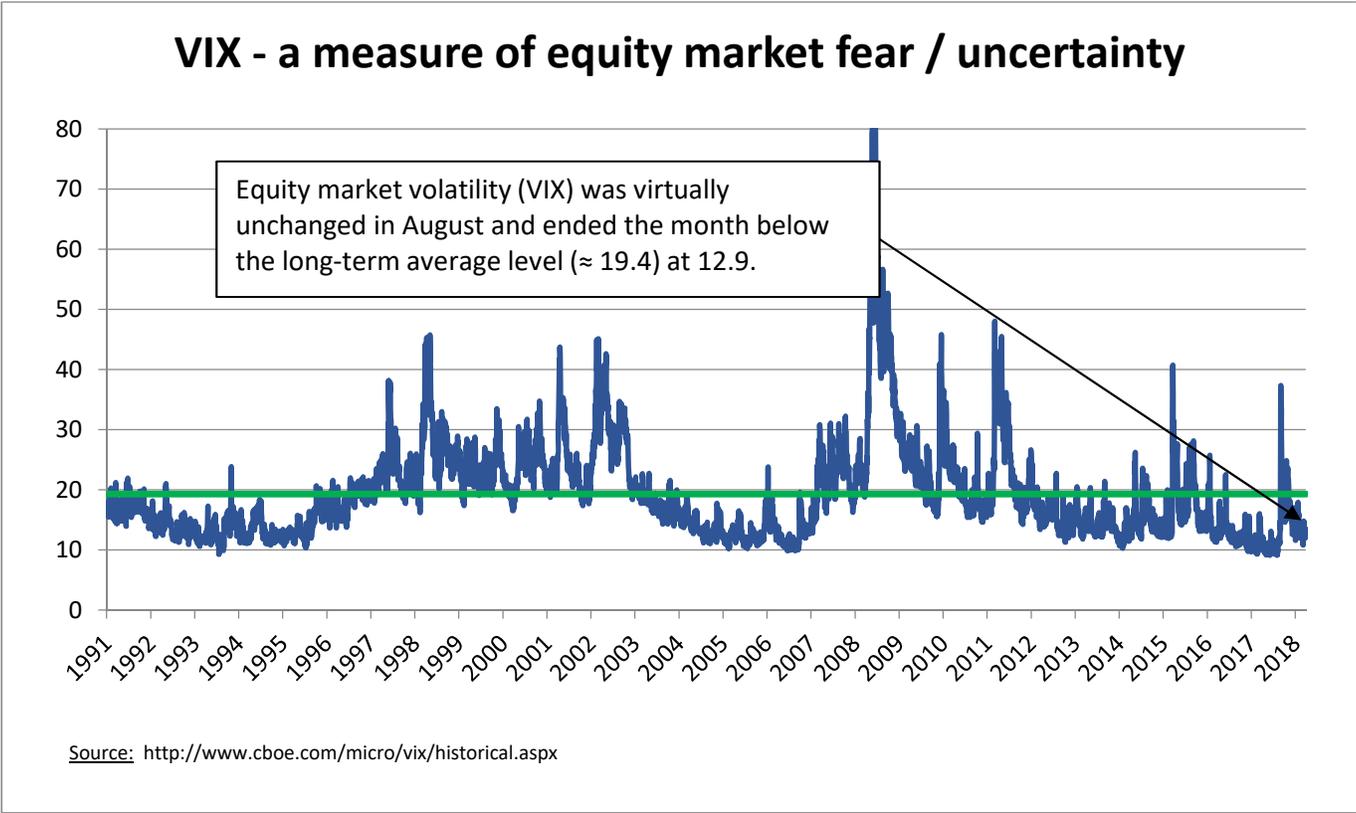
Quarterly Data, Updated to June 30th.



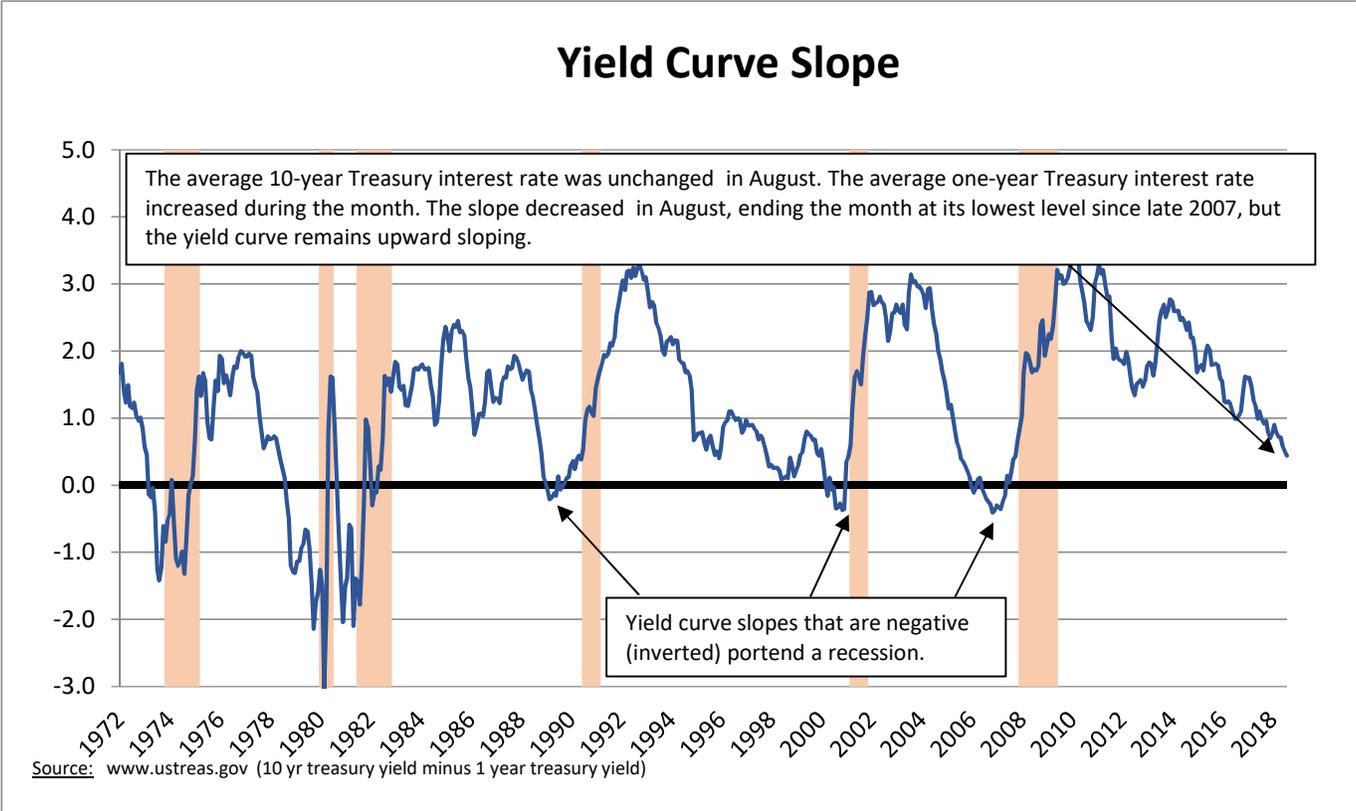
Credit Market US Fixed Income



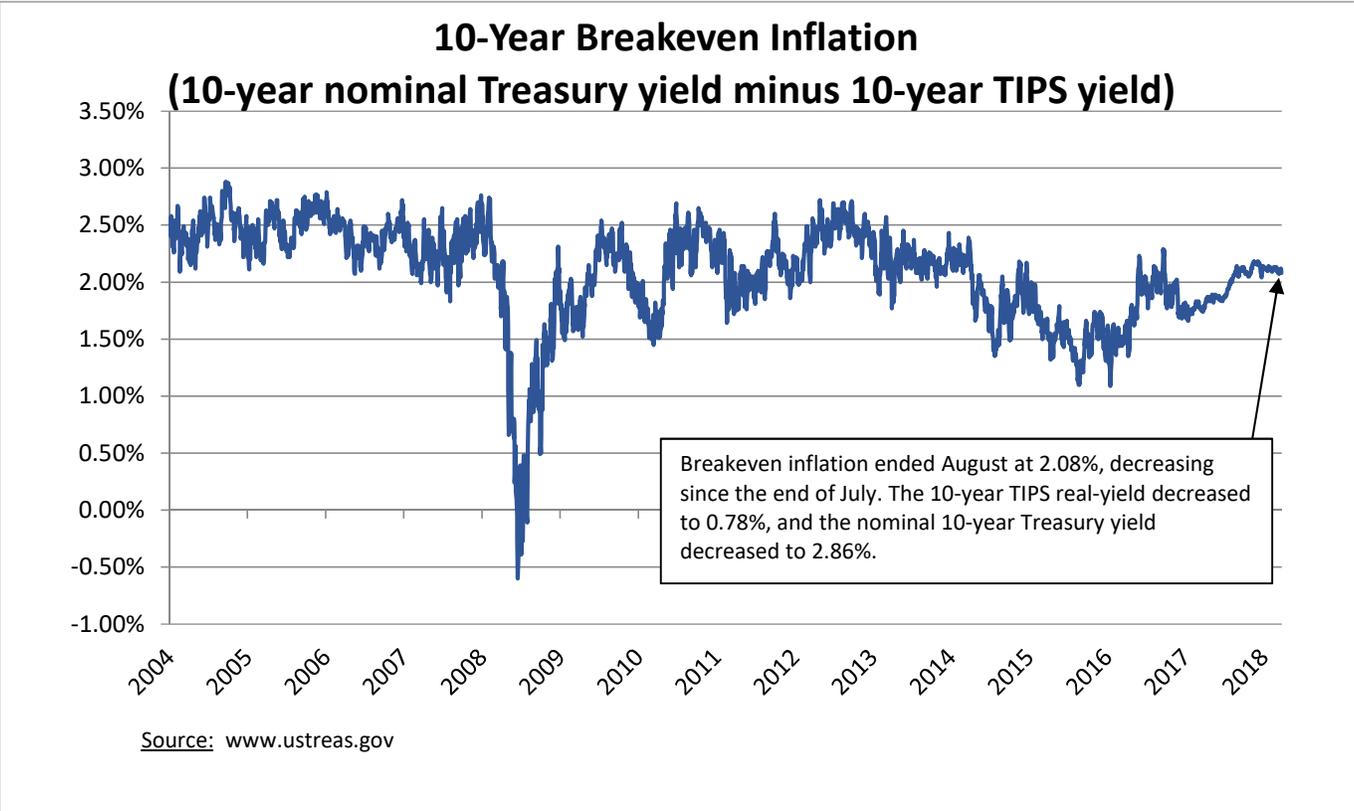
Other Market Metrics



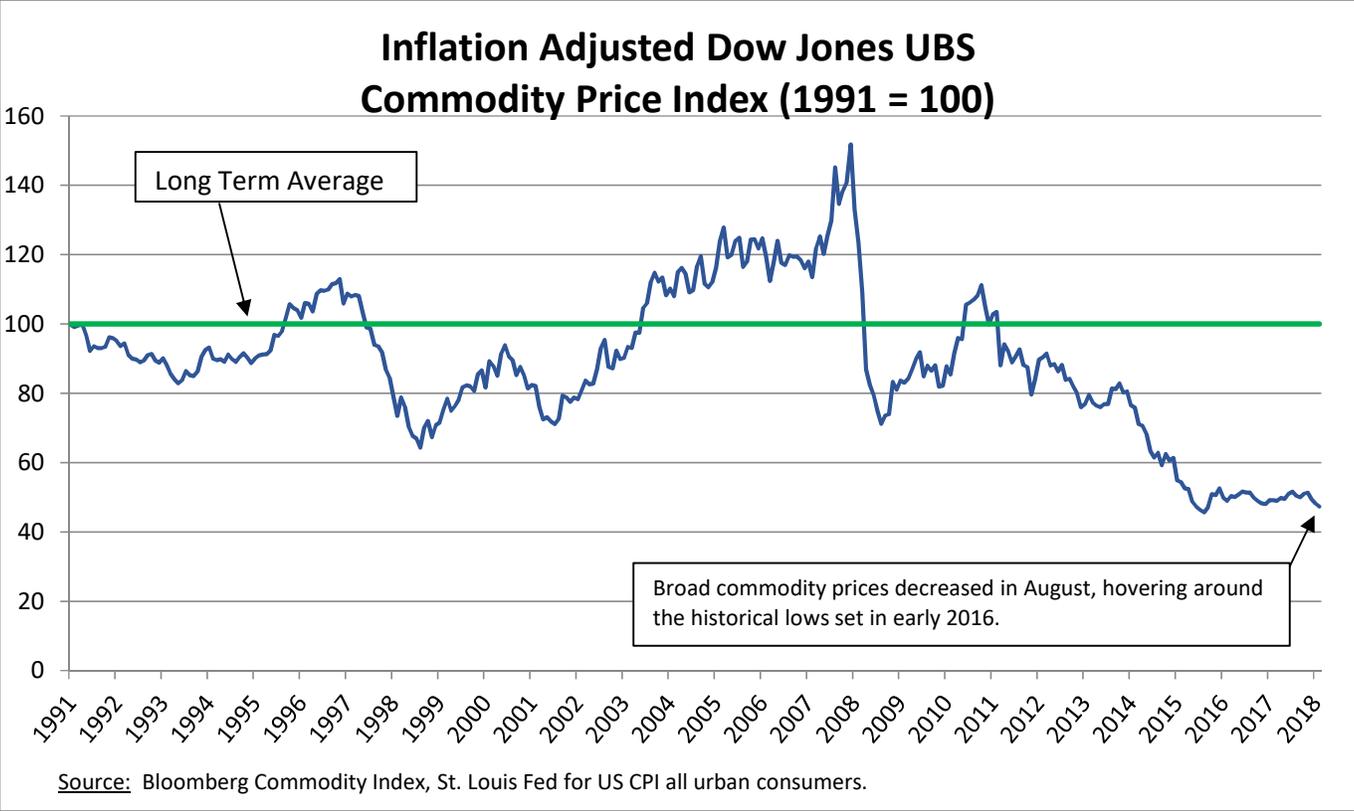
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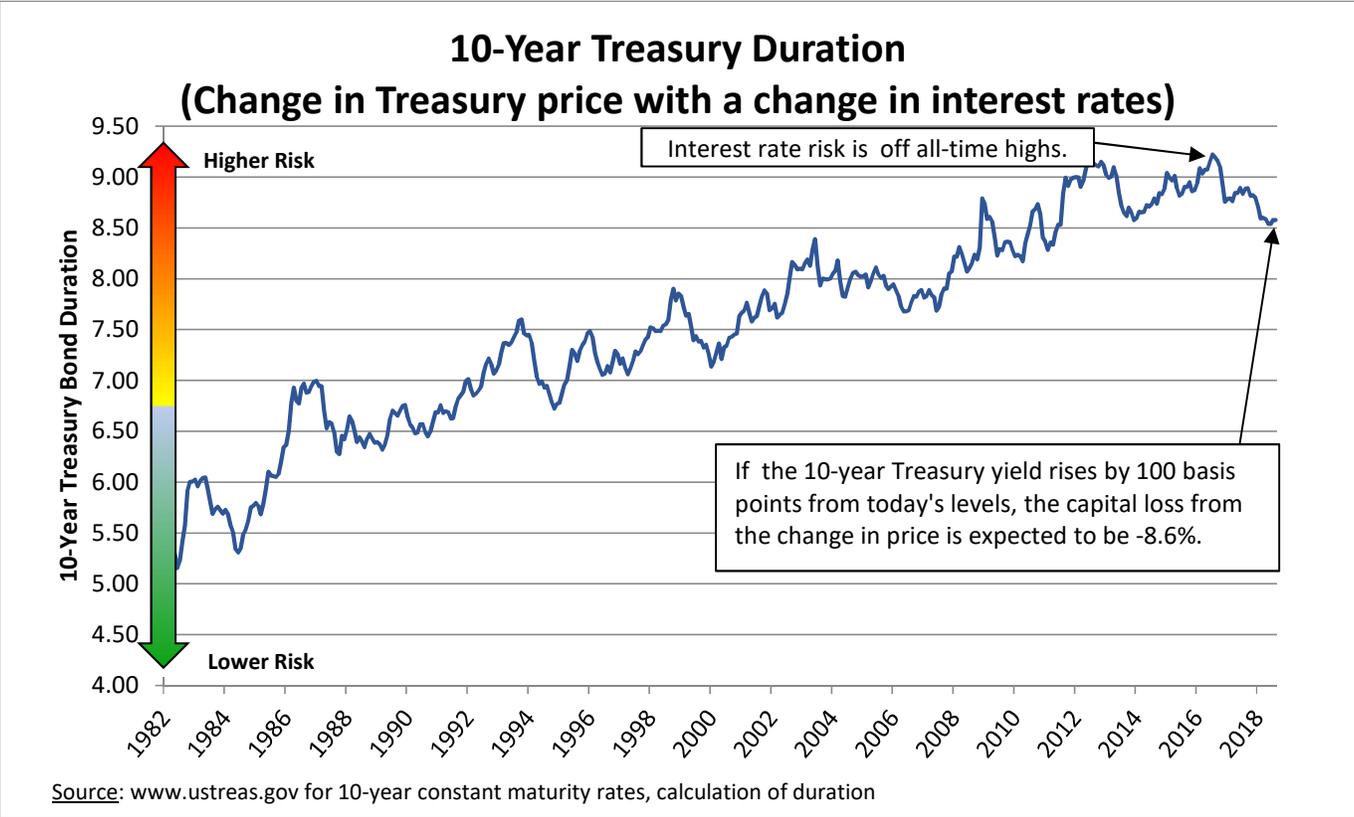
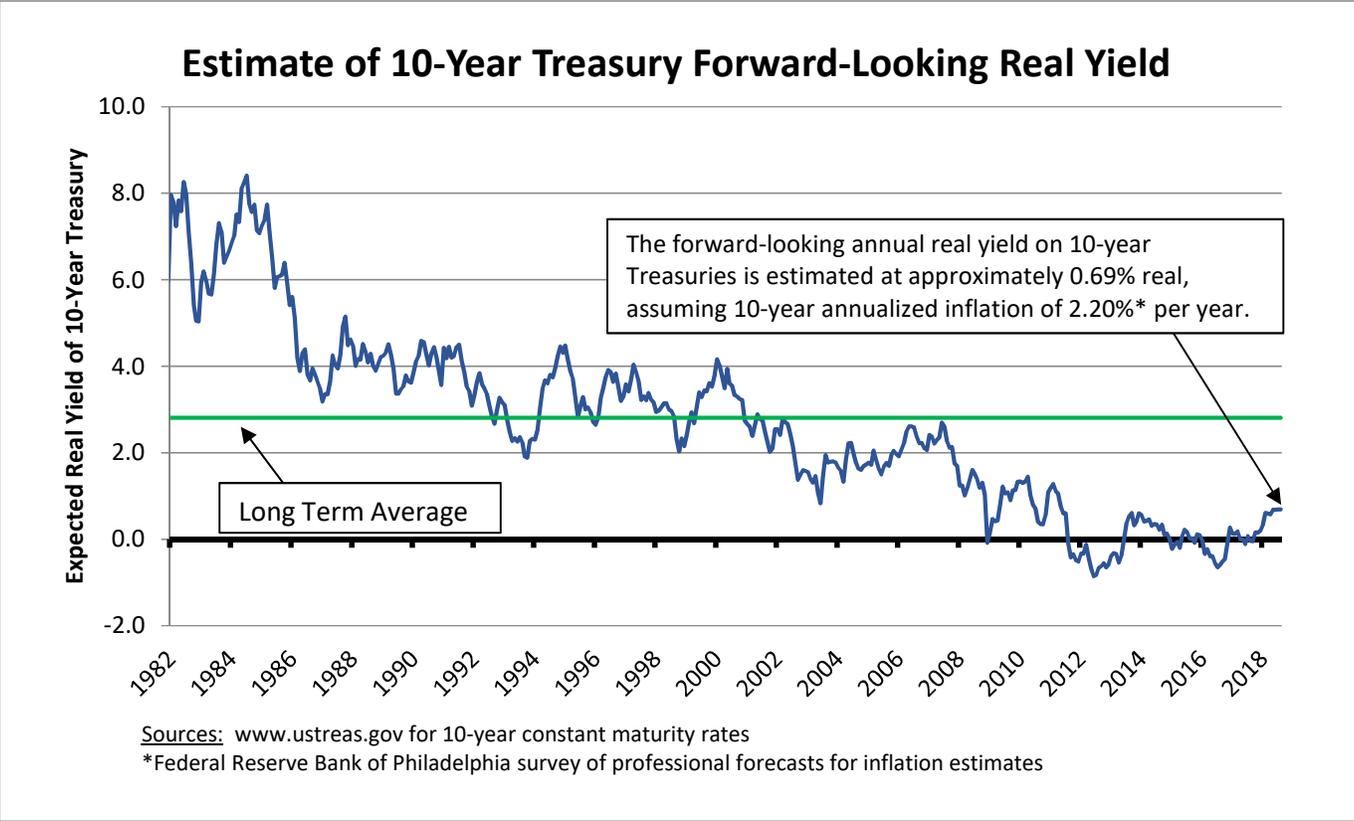
Measures of Inflation Expectations



(Please note the difference in time scales)



Measures of U.S. Treasury Interest Rate Risk



Appendix

Appendix

METRIC DESCRIPTION, RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

US Equity Markets:

Metric: P/E ratio = Price / "Normalized" earnings for the S&P 500 Index

To represent the price of US equity markets, we have chosen the S&P 500 index. This index has the longest published history of price, is well known, and also has reliable, long-term, published quarterly earnings. The price= P of the P/E ratio is the current price of the market index (the average daily price of the most recent full month for the S&P 500 index). Equity markets are very volatile. Prices fluctuate significantly during normal times and extremely during periods of market stress or euphoria. Therefore, developing a measure of earnings power (E) which is stable is vitally important, if the measure is to provide insight. While equity prices can and do double, or get cut in half, real earnings power does not change nearly as much. Therefore, we have selected a well known measure of real, stable earnings power developed by Yale Professor Robert Shiller known as the Shiller E-10. The calculation of E-10 is simply the average real annual earnings over the past 10 years. Over 10 years, the earnings shenanigans and boom and bust levels of earnings tend to even out (and often times get restated). Therefore, this earnings statistic gives a reasonably stable, slow-to-change estimate of average real earnings power for the index. Professor Shiller's data and calculation of the E-10 are available on his website at <http://www.econ.yale.edu/~shiller/data.htm>. We have used his data as the base for our calculations. Details of the theoretical justification behind the measure can be found in his book *Irrational Exuberance* [Princeton University Press 2000, Broadway Books 2001, 2nd ed., 2005].

Developed Equity Markets Excluding the US:

Metric: P/E ratio = Price / "Normalized" earnings for the MSCI EAFE Index

To represent the price of non-US developed equity markets, we have chosen the MSCI EAFE index. This index has the longest published history of price for non-US developed equities. The price= P of the P/E ratio is the current price of the market index (the average daily price of the most recent full month for the MSCI EAFE index). The price level of this index is available starting in December 1969. Again, for the reasons described above, we elected to use the Shiller E-10 as our measure of earnings (E). Since 12/1972, a monthly price earnings ratio is available from MSCI. Using this quoted ratio, we have backed out the implied trailing-twelve month earnings of the EAFE index for each month from 12/1972 to the present. These annualized earnings are then inflation adjusted using CPI-U to represent real earnings in US dollar terms for each time period. The Shiller E-10 for the EAFE index (10 year average real earnings) is calculated in the same manner as detailed above.

However, we do not believe that the pricing and earnings history of the EAFE markets are long enough to be a reliable representation of pricing history for developed market equities outside of the US. Therefore, in constructing the Long-Term Average Historical P/E for developed ex-US equities for comparison purposes, we have elected to use the US equity market as a developed market proxy, from 1881 to 1982. This lowers the Long-Term Average Historical P/E considerably. We believe this methodology provides a more realistic historical comparison for a market with a relatively short history.

Appendix

METRIC DESCRIPTION, RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

Emerging Market Equity Markets:

Metric: Ratio of Emerging Market P/E Ratio to Developed Market P/E Ratio

To represent the Emerging Markets P/E Ratio, we have chosen the MSCI Emerging Market Free Index, which has P/E data back to January 1995 on Bloomberg. To represent the Developed Markets PE Ratio, we have chosen the MSCI World Index, which also has data back to January 1995 on Bloomberg. Although there are issues with published, single time period P/E ratios, in which the denominator effect can cause large movements, we feel that the information contained in such movements will alert investors to market activity that they will want to interpret.

US Private Equity Markets:

Metrics: S&P LCD Average EBITDA Multiples Paid in LBOs and US Quarterly Deal Volume

The Average Purchase Price to EBITDA multiples paid in LBOs is published quarterly by S&P in their LCD study. This is the total price paid (both equity and debt) over the trailing-twelve month EBITDA (earnings before interest, taxes, depreciation and amortization) as calculated by S&P LCD. This is the relevant, high-level pricing metric that private equity managers use in assessing deals. Data is published monthly.

US quarterly deal volume for private equity is the total deal volume in \$ billions (both equity and debt) reported in the quarter by Thomson Reuters Buyouts. This metric gives a measure of the level of activity in the market. Data is published quarterly.

U.S Private Real Estate Markets:

Metrics: US Cap Rates, Cap Rate Spreads, and Transactions as a % of Market Value

Real estate cap rates are a measure of the price paid in the market to acquire properties versus their annualized income generation before financing costs (NOI=net operating income). The data, published by NCREIF, describes completed and leased properties (core) on an unleveraged basis. We chose to use current value cap rates. These are capitalization rates from properties that were revalued during the quarter. This data relies on estimates of value and therefore tends to be lagging (estimated prices are slower to rise and slower to fall than transaction prices). The data is published quarterly.

Spreads between the cap rate (described above) and the 10-year nominal Treasury yield, indicate a measure of the cost of properties versus a current measure of the cost of financing.

Transactions as a % of Market Value Trailing-Four Quarters is a measure of property turnover activity in the NCREIF Universe. This quarterly metric is a measure of activity in the market.

Credit Markets US Fixed Income:

Metric: Spreads

The absolute level of spreads over treasuries and spread trends (widening / narrowing) are good indicators of credit risk in the fixed income markets. Spreads incorporate estimates of future default, but can also be driven by technical dislocations in the fixed income markets. Abnormally narrow spreads (relative to historical levels) indicate higher levels of valuation risk, wide spreads indicate lower levels of valuation risk and / or elevated default fears. Investment grade bond spreads are represented by the Barclays Capital US Corporate Investment Grade Index Intermediate Component. The high yield corporate bond spreads are represented by the Barclays Capital US Corporate High Yield Index.

Appendix

METRIC DESCRIPTION, RATIONALE FOR SELECTION AND CALCULATION METHODOLOGY

Measure of Equity Market Fear / Uncertainty

Metric: VIX – Measure of implied option volatility for U.S. equity markets

The VIX is a key measure of near-term volatility conveyed by implied volatility of S&P 500 index option prices. VIX increases with uncertainty and fear. Stocks and the VIX are negatively correlated. Volatility tends to spike when equity markets fall.

Measure of Monetary Policy

Metric: Yield Curve Slope

We calculate the yield curve slope as the 10 year treasury yield minus the 1 year treasury yield. When the yield curve slope is zero or negative, this is a signal to pay attention. A negative yield curve slope signals lower rates in the future, caused by a contraction in economic activity. Recessions are typically preceded by an inverted (negatively sloped) yield curve. A very steep yield curve (2 or greater) indicates a large difference between shorter-term interest rates (the 1 year rate) and longer-term rates (the 10 year rate). This can signal expansion in economic activity in the future, or merely higher future interest rates.

Measures of US Inflation Expectations

Metrics: Breakeven Inflation and Inflation Adjusted Commodity Prices

Inflation is a very important indicator impacting all assets and financial instruments. Breakeven inflation is calculated as the 10 year nominal treasury yield minus the 10 year real yield on US TIPS (treasury inflation protected securities). Abnormally low long-term inflation expectations are indicative of deflationary fears. A rapid rise in breakeven inflation indicates an acceleration in inflationary expectations as market participants sell nominal treasuries and buy TIPS. If breakeven inflation continues to rise quarter over quarter, this is a signal of inflationary worries rising, which may cause Fed action and / or dollar decline.

Commodity price movement (above the rate of inflation) is an indication of anticipated inflation caused by real global economic activity putting pressure on resource prices. We calculate this metric by adjusted in the Dow Jones UBS Commodity Index (formerly Dow Jones AIG Commodity Index) by US CPI-U. While rising commodity prices will not necessarily translate to higher US inflation, higher US inflation will likely show up in higher commodity prices, particularly if world economic activity is robust.

These two measures of anticipated inflation can, and often are, conflicting.

Measures of US Treasury Bond Interest Rate Risk

Metrics: 10-Year Treasury Forward-Looking Real Yield and 10-Year Treasury Duration

The expected annualized real yield of the 10 year U.S. Treasury Bond is a measure of valuation risk for U.S. Treasuries. A low real yield means investors will accept a low rate of expected return for the certainty of receiving their nominal cash flows. PCA estimates the expected annualized real yield by subtracting an estimate of expected 10 year inflation (produced by the Survey of Professional Forecasters as collected by the Federal Reserve Bank of Philadelphia), from the 10 year Treasury constant maturity interest rate.

Duration for the 10-Year Treasury Bond is calculated based on the current yield and a price of 100. This is a measure of expected percentage movements in the price of the bond based on small movements in percentage yield. We make no attempt to account for convexity.

Definition of “extreme” metric readings

A metric reading is defined as “extreme” if the metric reading is in the top or bottom decile of its historical readings. These “extreme” reading should cause the reader to pay attention. These metrics have reverted toward their mean values in the past.

PCA Market Sentiment Indicator

Explanation, Construction and Q&A

By:

Pension Consulting Alliance, LLC.

PCA has created the PCA Market Sentiment Indicator (PMSI) to complement our valuation-focused PCA Investment Market Risk Metrics. This measure of sentiment is meant to capture significant and persistent shifts in long-lived market trends of economic growth risk, either towards a risk-seeking trend or a risk-aversion trend.

This paper explores:

- What is the PCA Market Sentiment Indicator (PMSI)?
- How do I read the indicator graph?
- How is the PCA Market Sentiment Indicator (PMSI) constructed?
- What do changes in the indicator mean?



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PCA Market Sentiment Indicator

PCA has created a market sentiment indicator for monthly publication (the PMSI – see below) to complement PCA's Investment Market Risk Metrics.

PCA's Investment Market Risk Metrics, which rely significantly on standard market measures of relative valuation, often provide valid early signals of increasing long-term risk levels in the global investment markets. However, as is the case with numerous valuation measures, the Risk Metrics may convey such risk concerns long before a market corrections take place. The PMSI helps to address this early-warning bias by measuring whether the markets are beginning to acknowledge key Risk Metrics trends, and / or indicating non-valuation based concerns. Once the PMSI indicates that the market sentiment has shifted, it is our belief that investors should consider significant action, particularly if confirmed by the Risk Metrics. Importantly, PCA believes the Risk Metrics and PMSI should always be used in conjunction with one another and never in isolation. The questions and answers below highlight and discuss the basic underpinnings of the PCA PMSI:

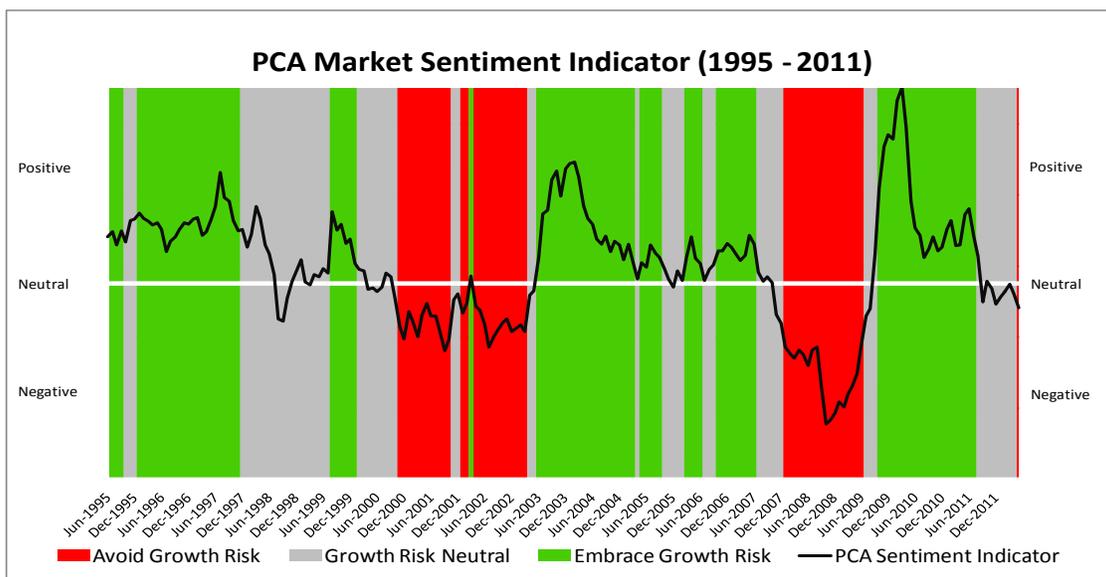
What is the PCA Market Sentiment Indicator (PMSI)?

The PMSI is a measure meant to gauge the market's sentiment regarding economic growth risk. Growth risk cuts across most financial assets, and is the largest risk exposure that most portfolios bear. The PMSI takes into account the momentum (trend over time, positive or negative) of the economic growth risk exposure of publicly traded stocks and bonds, as a signal of the future direction of growth risk returns; either positive (risk seeking market sentiment), or negative (risk averse market sentiment).

How do I read the PCA Market Sentiment Indicator (PMSI) graph?

Simply put, the PMSI is a color coded indicator that signals the market's sentiment regarding economic growth risk. It is read left to right chronologically. A green indicator on the PMSI indicates that the market's sentiment towards growth risk is positive. A gray indicator indicates that the market's sentiment towards growth risk is neutral or inconclusive. A red indicator indicates that the market's sentiment towards growth risk is negative. The black line on the graph is the level of the PMSI. The degree of the signal above or below the neutral reading is an indication the signal's current strength.

Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.



PCA Market Sentiment Indicator

How is the PCA Market Sentiment Indicator (PMSI) Constructed?

The PMSI is constructed from two sub-elements representing investor sentiment in stocks and bonds:

1. Stock return momentum: Return momentum for the S&P 500 Equity Index (trailing 12-months)
2. Bond yield spread momentum: Momentum of bond yield spreads (excess of the measured bond yield over the identical duration U.S. Treasury bond yield) for corporate bonds (trailing 12-months) for both investment grade bonds (75% weight) and high yield bonds (25% weight). The scale of this measure is adjusted to match that of the stock return momentum measure.

The black line reading on the graph is calculated as the average of the stock return momentum measure and the bonds spread momentum measure. The color reading on the graph is determined as follows:

1. If both stock return momentum and bond spread momentum are positive = GREEN (positive)
2. If one of the momentum indicators is positive, and the other negative = GRAY (inconclusive)
3. If both stock return momentum and bond spread momentum are negative = RED (negative)

What does the PCA Market Sentiment Indicator (PMSI) mean? Why might it be useful?

There is strong evidence that time series momentum is significant and persistent. In particular, across an extensive array of asset classes, the sign of the trailing 12-month return (positive or negative) is indicative of future returns (positive or negative) over the next 12 month period. The PMSI is constructed to measure this momentum in stocks and corporate bond spreads. A reading of green or red is agreement of both the equity and bond measures, indicating that it is likely that this trend (positive or negative) will continue over the next 12 months. When the measures disagree, the indicator turns gray. A gray reading does not necessarily mean a new trend is occurring, as the indicator may move back to green, or into the red from there. The level of the reading (black line) and the number of months at the red or green reading, gives the user additional information on which to form an opinion, and potentially take action.

ⁱ Momentum as we are defining it is the use of the past behavior of a series as a predictor of its future behavior.

ⁱⁱ "Time Series Momentum" Moskowitz, Ooi, Pedersen, August 2010
<http://pages.stern.nyu.edu/~lpederse/papers/TimeSeriesMomentum.pdf>

**City of Oakland Police and Fire Retirement System
Cash Flow Recommendation Summary**

Asset Class / Manager / Liquidity October-December 2018 Report		
		Tier
Domestic Equity	Northern Trust	1
Domestic Equity	R1000 Growth (SSgA)	3
Domestic Equity	R1000 Value (SSgA)	3
Domestic Equity	EARNEST Partners	3
Domestic Equity	NWQ	3
Domestic Equity	Rice Hall James	3
	<i>Total Domestic Equity</i>	
International Equity	Passive/Enhanced (SSgA)	3
International Equity	Fisher	3
International Equity	Hansberger	3
	<i>Total International Equity</i>	
	<i>Total Public Equity</i>	
Covered Calls	Parametric	2
	<i>Total Covered Calls</i>	
Crisis Risk Offset	New/Current Manager	3
Crisis Risk Offset	Parametric Risk Premia	3
	<i>Total Crisis Risk Offset</i>	
Domestic Fixed Income	Reams	2
Domestic Fixed Income	DDJ	2
Domestic Fixed Income	Ramirez	2
	<i>Total Public Fixed</i>	
Cash	Cash	1
	<i>Total Stable</i>	
	<i>Total Portfolio</i>	

Description of Liquidity Tiers

<u>Tier</u>	<u>Description</u>	<u>Amount</u>	<u>in Months</u>
Tier 1	Public, Scheduled Withdrawal Allowances	\$91.8	15.3
Tier 2	Public, Accommodating of Withdrawals	148.8	24.8
Tier 3	Public, Must Plan Withdrawals	125.9	21.0
Tier 4	Closely Held	0.0	-
		\$366.5	

City of Oakland Police and Fire Retirement System Cash Flow Recommendation Summary

PFRS Asset Allocation (August 31st Market Values)*					Actual Cash Flows (For July - Sept Benefits) Payable the 1st of each month				Suggested Cash Flows (For Oct - Dec Benefits) Payable the 1st of each month			
	Market Value (\$mm)	Market Value (%)	Target (%)	\$ Variance (from basic target)	Inflow	(\$mm)	Outflow	(\$mm)	Inflow	\$mm	Outflow	(\$mm)
Northern Trust	84.3	23.0%	26.0%	(11,013,046)								
R1000 Growth (SSgA)	11.9	3.2%	0.0%	11,893,000				(1.50)				
R1000 Value (SSgA)	9.3	2.5%	0.0%	9,257,000				(1.50)				
EARNEST Partners	31.8	8.7%	8.0%	2,513,832								(1.5)
NWQ	10.8	3.0%	3.0%	(152,313)								
Rice Hall James	14.4	3.9%	3.0%	3,402,687								
Total Domestic Equity	162.5	44.3%	40.0%	15,901,160								
Passive/Enhanced (SSgA)	14.7	4.0%	3.6%	1,480,224								(1.5)
Fisher	16.5	4.5%	4.2%	1,055,762								
Hansberger	16.5	4.5%	4.2%	1,103,862								
Total International Equity	47.6	13.0%	12.0%	3,639,848								
Total Public Equity	210.2	57.3%	52.0%	19,541,008								
Parametric	50.2	13.7%	5.0%	31,918,145								
Total Covered Calls	50.2	13.7%	5.0%	31,918,145								
Long Duration Manager	0.0	0.0%	3.3%	(12,219,224)								
Parametric Risk Premia	0.0	0.0%	6.7%	(24,438,229)								
Crisis Risk Offset	0.0	0.0%	10.0%	(36,657,453)								
Reams	22.6	6.2%	12.0%	(21,414,252)								
DDJ	7.8	2.1%	2.0%	509,458								
Ramirez	68.1	18.6%	19.0%	(1,550,649)								
Total Public Fixed	98.5	26.9%	33.0%	(22,455,443)								
Cash with Custodian	0.1	0.0%	0.0%	127,000								
Cash in Treasury**	7.5	2.1%	0.0%	7,527,000		11.20		(11.20)		11.20		(11.20)
Total Stable	106.2	29.0%	33.0%	(14,928,443)								
Total Portfolio	366.6	100.0%	100.0%	---		11.20		(14.20)		11.20		(14.20)

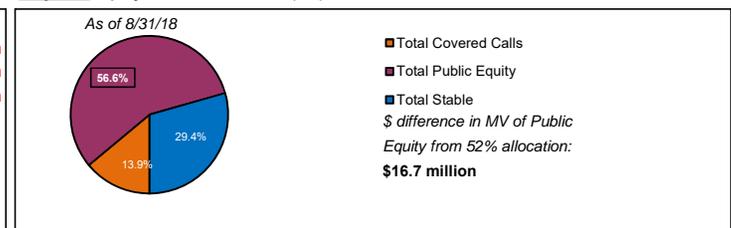
February 28th Market Values by Portfolio Segment

Portfolio Segment	MV (\$mm)
Total Domestic Equity	162.5
Total International Equity	47.6
Total Public Equity	210.2
Total Covered Calls	50.2
Total Crisis Risk Offset	0.0
Total Public Fixed	98.5
Total Stable	106.2
Total Portfolio	366.6

Suggested Cash Withdrawals

Manager	Amount
Cash in Treasury	\$11.20 Million
SSgA Intl Passive	\$1.5 Million
EARNEST	\$1.5 Million

Projected Equity to Fixed Allocation (MV)



* Estimated based on PFRS August 31, 2018 Northern Trust statement.

** Preliminary value as of August 31, 2018 per OPFRS staff.

**City of Oakland Police and Fire Retirement System
Cash Flow Recommendation Summary**

Projected PFRS Asset Allocation (As of December 31st)					
	Est Mkt Value (\$mm)	Est Mkt Value (%)	Target (%)	Projected % Variance <i>(from target)</i>	Projected \$ Variance <i>(from target)</i>
Northern Trust	84.3	23.4%	26.0%	-2.6%	(9,420,026)
R1000 Growth (SSgA)	10.4	2.9%	0.0%	2.9%	10,393,000
R1000 Value (SSgA)	7.8	2.2%	0.0%	2.2%	7,757,000
EARNEST Partners	30.3	8.4%	8.0%	0.4%	1,503,992
NWQ	10.8	3.0%	3.0%	0.0%	31,497
Rice Hall James	14.4	4.0%	3.0%	1.0%	3,586,497
Total Domestic Equity	158.0	43.8%	40.0%	3.8%	13,851,960
Passive/Enhanced (SSgA)	13.2	3.7%	3.6%	0.1%	200,796
Fisher	16.5	4.6%	4.2%	0.4%	1,313,096
Hansberger	16.5	4.6%	4.2%	0.4%	1,361,196
Total International Equity	46.1	12.8%	12.0%	0.8%	2,875,088
Total Public Equity	204.2	56.6%	52.0%	4.6%	16,727,048
Parametric	50.2	13.9%	5.0%	8.9%	32,224,495
Total Covered Calls	50.2	13.9%	5.0%	8.9%	32,224,495
New/Current Manager	0.0	0.0%	3.3%	-3.3%	(12,014,991)
Parametric Risk Premia	0.0	0.0%	6.7%	-6.7%	(24,029,766)
Total Crisis Risk Offset	0.0	0.0%	10.0%	-10.0%	(36,044,758)
Reams	22.6	6.3%	12.0%	-5.7%	(20,679,012)
DDJ	7.8	2.2%	2.0%	0.2%	631,998
Ramirez	68.1	18.9%	19.0%	-0.1%	(386,519)
Total Public Fixed	98.5	27.3%	33.0%	-5.7%	(20,433,533)
Cash with Custodian	0.1	0.0%	0.0%	0.0%	127,000
Cash in Treasury**	7.5	2.1%	0.0%	2.1%	7,527,000
Total Stable	106.0	29.4%	33.0%	-3.6%	(12,906,533)
Total Portfolio	360.5	100.0%	100.0%	---	---

Notes

- August 31st market values are those listed by Northern Trust.
- Report reflects change in asset allocation and beneficiary payments of rebalancing on a quarterly basis. (Estimated at \$14.2 million per OPFRS).
- Report reflects monthly City of Oakland contributions of approximately \$3.74 million.
- As of August 31st, the projected public equity portfolio represents 52% of the portfolio (\$16.7 million more than the target allocation of 52.0%).
- Target Policy Allocations represent interim-target allocations approved in June 2017.
- Funding of Parametric Risk Premia (CRO) portfolio completed in September and is not reflected in this report.

Date: September 26, 2018

To: Oakland Police and Fire Retirement System (OPFRS)

From: Pension Consulting Alliance, LLC (PCA)

CC: David Sancewich – PCA
Sean Copus, CFA – PCA
Teir Jenkins – OPFRS
Katano Kasaine - OPFRS

RE: **Fossil Fuels – Thermal Coal Divestment List Update**

Summary:

On May 25, 2016, the OPFRS Board approved a recommendation to divest the portfolio from thermal coal producing companies. In July 2016, PCA provided an initial list of 26 thermal coal companies (defined as a company whose primary use of coal is in the generation of heat to produce electricity) that receive more than 50% of their revenue from coal production. OPFRS formally implemented the divestment policy on August 1, 2016.

As part of the ongoing thermal coal divesture policy, PCA is to provide OPFRS staff with an updated list of thermal coal companies that should not be held in any separate account mandates within the OPFRS portfolio. The table on the following page represents an updated list of 37 thermal coal companies that meet the 50% revenue from coal production criteria as of June 30, 2018.

Thermal Coal Companies as of 6/30/2018

ISSUER NAME	ISSUER ID	ISSUER TICKER	ISSUER SEDOL	ISSUER ISIN	ISSUER COUNTRY
AGRITRADE RESOURCES LIMITED	IID000000002124346	1131	BFWMB94	BMG0130N1130	HK
ALLIANCE RESOURCE OPERATING PARTNERS, L.P.	IID000000002764255	ALARP	BD2M5N2	US01879NAA37	US
ARCH COAL, INC.	IID000000002132043	ARCH	BYYHNV6	US0393804077	US
Banpu Power Public Company Limited	IID000000002404296	BPP	BD5NFC1	TH7462010003	TH
Banpu Public Company Limited	IID000000002159164	BANPU	B3RJVNO	TH0148036401	TH
Bukit Asam (Persero) Tbk PT	IID000000002186146	PTBA	6565127	ID1000094006	ID
CLOUD PEAK ENERGY INC.	IID000000002386343	CLD	B57LN89	US18911Q1022	US
COAL INDIA LTD	IID000000002235890	COALINDIA	B4Z9XF5	INE522F01014	IN
CONSOL ENERGY INC.	IID000000002820324	C9X	BDFD769	US20854L1089	US
EXXARO RESOURCES LIMITED	IID000000002126148	EXX	6418801	ZAE000084992	ZA
FORESIGHT ENERGY LLC	IID000000002597538	FELP	BF1B879	US345525AE90	US
GEO COAL INTERNATIONAL PTE. LTD.	IID000000002861777	GECLN	BF25319	US37255AAB70	SG
GEO ENERGY RESOURCES LIMITED	IID000000002653872	7GE	B8G3G55	SG2F24986083	SG
GUJARAT MINERAL DEVELOPMENT CORPORATION LIMITED	IID000000002141069	532181	6101639	INE131A01031	IN
Hallador Energy Company	IID000000002126834	HNRG	2404978	US40609P1057	US
INNER MONGOLIA YITAI COAL CO., LTD	IID000000002170666	3948	B4PPPY6	CNE100001FW6	CN
Indo Tambangraya Megah Tbk PT	IID000000002133986	3IB	B2NBLH7	ID1000108509	ID
Lubelski Wegiel Bogdanka SA	IID000000002402375	UXX	B8J56X6	PLLWBGD00016	PL
MURRAY ENERGY CORPORATION	IID000000002284479	MURRE	BWT6K35	US62704PAE34	US
NACCO INDUSTRIES, INC.	IID000000002152662	NA6A	B3FH039	US6295791031	US
NEW HOPE CORPORATION LIMITED	IID000000002149750	NHC	6681960	AU000000NHC7	AU
PEABODY ENERGY CORPORATION	IID000000002179181	BTU	BDVPZV0	US7045511000	US
PT Adaro Energy Tbk	IID000000002355568	A64	B3BQG54	ID1000111305	ID
PT Bukit Makmur Mandiri Utama	IID000000002361398	DOID	BYP2536	US74445NAA54	ID
PT Bumi Resources Minerals Tbk	IID000000002605865	BRMS	B3R5893	ID1000117609	ID
PT Bumi Resources Tbk	IID000000002160294	BUMI	BDC3JK0	IDC000013409	ID
PT Delta Dunia Makmur Tbk	IID000000002163859	D5A	B5W7GK5	ID1000110505	ID
PT Harum Energy Tbk	IID000000002573419	44H	B4VN2Q5	ID1000116601	ID
SHANGHAI DATUN ENERGY RESOURCES CO., LTD.	IID000000002183325	600508	6397524	CNE000001915	CN
Semirara Mining and Power Corporation	IID000000002183138	SCC	BQ13Z04	PHY7628G1124	PH
WASHINGTON H. SOUL PATINSON AND COMPANY LIMITED	IID000000002150028	SOL	6821807	AU000000SOL3	AU
WESTMORELAND COAL COMPANY	IID000000002189509	WLBA	2954956	US9608781061	US
WESTMORELAND RESOURCE PARTNERS, LP	IID000000002594997	2OR1	BV1VRK7	US96108P1030	US
WHITEHAVEN COAL LIMITED	IID000000002133460	WC2	B1Y1556	AU000000WHC8	AU
YANCOAL AUSTRALIA LTD	IID000000002570123	YA1	B8GH992	AU000000YAL0	AU
Yancoal International Resources Development Co., Limited	IID000000002646180	YZCLM	B8BTZR3	US984745AB51	HK
Yanzhou Coal Mining Company Limited	IID000000002190075	YZCA	B07LWN2	CNE1000004Q8	CN

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Date: September 26, 2018

To: Oakland Police and Fire Retirement System (OPFRS)

From: Pension Consulting Alliance, LLC. (PCA)

CC: David Sancewich - PCA
 Sean Copus, CFA – PCA
 Teir Jenkins – OPFRS
 Katano Kasaine - OPFRS

RE: 2018 Monthly Strategic Investment Agenda

On an ongoing basis, PCA and OPFRS staff will be updating the investment agenda for the remaining calendar year (see table below). In an attempt to coordinate the scheduling of these tasks, this memo details a Preliminary Investment Project Agenda by calendaring and prioritizing the expected tasks and deliverables that would be required to fulfill the Agenda.

Ongoing 2018 Preliminary Investment Project Agenda

Expected Completion Date	Task
October 2018	<ul style="list-style-type: none"> Flash Performance Report (3Q 2018) Asset Class Review: Domestic Equity International Equity – Discussion memo Custodian RFP Review
November 2018	<ul style="list-style-type: none"> PCA Performance report (3Q2018) Potential International Equity Interviews Investment Policy: Update and review Manager Update: Ramirez
December 2018	<ul style="list-style-type: none"> Cash Flow Report (1Q2019) TBD: Depends on meeting schedule

Bold are priority strategic items.

This agenda includes only major strategic items. PCA also expects to work with the Staff and Board to complete more routine tasks and projects, as expected.

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Retirement Systems
150 Frank H. Ogawa Plaza
Oakland, California 94612

AGENDA

REVISED

RETIREMENT BOARD MEMBERS

Walter L. Johnson, Sr.
President

Jaime T. Godfrey
Vice President

Robert J. Muszar
Member

Steven Wilkinson
Member

Martin J. Melia
Member

John C. Speakman
Member

Vacant
Member

**REGULAR MEETING of the BOARD OF ADMINISTRATION
of the OAKLAND POLICE AND FIRE RETIREMENT SYSTEM ("PFRS")**

Wednesday, September 26, 2018 – 12:00 pm
One Frank H. Ogawa Plaza, Hearing Room 3
Oakland, California 94612

- - - ORDER OF BUSINESS - - -

1. CLOSED SESSION

2. Report of PFRS Board Action from Closed Session (if any).

A. Subject: PFRS Board Meeting Minutes
From: Staff of the PFRS Board

Recommendation: APPROVE August 29, 2018 PFRS Board meeting minutes.

B. Subject: Election of Board President and Vice President
From: Staff of the PFRS Board

Recommendation: CONDUCT PFRS Board elections for Board President and Vice President pursuant to PFRS Rules and Regulations Section 7.1.

C. AUDIT AND OPERATIONS COMMITTEE AGENDA – SEPTEMBER 26, 2018

C1. Subject: Administrative Expenses Report
From: Staff of the PFRS Board

Recommendation: ACCEPT an informational report regarding PFRS Administrative Expenses from July 1, 2018 through July 31, 2018.

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
REGULAR BOARD MEETING
SEPTEMBER 26, 2018

ORDER OF BUSINESS, continued

- C2. Subject:** Resolution No. 7023 – Travel authorization for PFRS Board Member R. Steven Wilkinson to travel to and attend the 2018 GCM Grosvenor Small + Emerging Managers Conference (“2018 GCM SEM Conference”) from October 9, 2018 through October 10, 2018 in Chicago, IL with an estimated budget of One Thousand Nine Hundred Dollars (\$1,900.00)
- From:** Staff of the PFRS Board
-
- Recommendation:** **APPROVE RESOLUTION NO. 7023** – Travel authorization for PFRS Board Member R. Steven Wilkinson to travel to and attend the 2018 GCM Grosvenor Small + Emerging Managers Conference (“2018 GCM SEM Conference”) from October 9, 2018 through October 10, 2018 in Chicago, IL with an estimated budget of One Thousand Nine Hundred Dollars (\$1,900.00).
- C3. Subject:** Resolution No. 7024 – Travel authorization for PFRS Legal Counsel Pelayo Llamas for travel to and attendance at the 2018 CALAPRS Attorneys' Roundtable Conference (“2018 CALAPRS Conference”) on September 21, 2018 in Glendale, CA with an estimated budget of Seven Hundred dollars (\$700.00)
- From:** Staff of the PFRS Board
-
- Recommendation:** **APPROVE RESOLUTION NO. 7024** – Travel authorization for PFRS Legal Counsel Pelayo Llamas for travel to and attendance at the 2018 CALAPRS Attorneys' Roundtable Conference (“2018 CALAPRS Conference”) on September 21, 2018 in Glendale, CA with an estimated budget of Seven Hundred dollars (\$700.00).
- C4. Subject:** PFRS Policy Governing the Overpayment or Underpayment of Member Benefits
- From:** Staff of the PFRS Board
-
- Recommendation:** **DISCUSSION** regarding PFRS Policy Governing the Overpayment or Underpayment of Member Benefits.

OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
REGULAR BOARD MEETING
SEPTEMBER 26, 2018

ORDER OF BUSINESS, continued

**D. INVESTMENT & FINANCIAL MATTERS COMMITTEE AGENDA –
SEPTEMBER 26, 2018**

- D1. Subject:** Investment Manager Interviews – Candidates for
Defensive Equity Asset Class Investment Manager
From: Pension Consulting Alliance and Staff of the PFRS Board
-
- Recommendation:** **ACCEPT** Informational Reports from PCA and
Candidates for Investment Managers (1) AQR Capital
Management, (2) Intech Investment Management, and (3)
SPI Strategies LLC regarding hiring as PFRS Defensive
Equity Asset Class Investment Manager.
- D2. Subject:** Investment Market Overview
From: Pension Consulting Alliance
-
- Recommendation:** **ACCEPT** an informational report on the global investment
markets through September 2018.
- D3. Subject:** \$14.2 million 4th Quarter 2018 Member Benefits
Drawdown
From: Staff of the PFRS Board & Pension Consulting Alliance
-
- Recommendation:** **APPROVE** the PCA recommendation of a \$14.2 million
drawdown, which includes an \$11.2 million contribution
from the City of Oakland and a \$3.0 million contribution
from the PFRS Investment Fund, to be used to pay for
member retirement benefits from October 2018 through
December 2018.
- D4. Subject:** Updated List of Thermal Coal Companies Prohibited
from the PFRS Investment Portfolio
From: Staff of the PFRS Board and PCA
-
- Recommendation:** **APPROVE** an updated list from PCA of thermal coal
companies prohibited from the PFRS Investment portfolio.

**OAKLAND POLICE AND FIRE RETIREMENT SYSTEM
REGULAR BOARD MEETING
SEPTEMBER 26, 2018**

ORDER OF BUSINESS, continued

E. Subject: Member Resolution(s) No. 7025 – 7026
From: Staff of the PFRS Board

Recommendation: APPROVE Member Resolution(s) No. 7025 – 7026

**E1. Resolution
No. 7025**

Resolution fixing the monthly allowance of Virginia M. Wolfe, spouse of Kenneth Wolfe; and Rebecca E. Stewart, spouse of Murry M. Stewart retired members of the Police and Fire Retirement System

**E2. Resolution
No. 7026**

Resolution approving death benefit payments and directing warrants thereunder in the total sum of \$1,000.00 payable to the beneficiaries of deceased members as follows: (1) Suzanne M. Anderson, and (2) Judith E. Massetti

F. NEW BUSINESS – No Report.

G. OPEN FORUM

H. FUTURE SCHEDULING

A BOARD MEETING of the Oakland Police and Fire Retirement System (“PFRS”) was held on August 29, 2018 in Hearing Room 3, One Frank Ogawa Plaza, Oakland, California.

Board Members Present:

- Walter L. Johnson, President
- Jaime T. Godfrey, Vice President
- R. Steven Wilkinson, Member
- John C. Speakman, Member
- Robert J. Muszar, Member
- Christine Daniel, Member

Board Members Absent:

- Martin J. Melia, Member

Additional Attendees:

- Pelayo Llamas, Jr., PFRS Legal Counsel
- Katano Kasaine, Plan Administrator
- David Low & Teir Jenkins, Staff Member
- David Sancewich, Kristen Chase & Sean Copus, Pension Consulting Alliance

The meeting was called to order at 11:50 am.

A. Closed Session – Peter Peterson, President of the Retired Oakland Police Officers Association (ROPOA) reviewed the recent history of communications between the ROPOA and PFRS staff and legal counsel. Mr. Peterson stated that the ROPOA will not engage in settlement discussion as long as Mr. Muszar’s conflict of interest is being pursued. He stated his opinion of the conflict of interest law, and questioned if all elected fire representative board members could be conflicted out of future decisions.

The PFRS Board entered closed session at 12:02 pm.

B. Report of Board Actions from Closed Session – The PFRS Board reconvened the PFRS Board meeting following the conclusion of Closed Session at 12:40 pm. No reportable action by the Board was announced.

C. Approval of PFRS Board Meeting Minutes – Member Muszar asserted that the June 27, 2018 Draft Board meeting minutes did not clearly reflect the events for Agenda Item A – Closed Session.

Member Muszar said the draft meeting minutes do not reflect that, following Member Muszar’s decision not to recuse himself from the Closed Session matter, PFRS Legal Counsel Mr. Llamas stated the Board would convene in closed session to exclusively discuss Member Muszar’s conflict. Member Muszar asked that June 27, 2018 meeting minutes be amended to reflect Mr. Llamas’ statement. President Johnson asked staff to review the recording of Member Muszar’s request.

MOTION: Member Speakman made a motion to approve the June 27, 2018 PFRS Board meeting minutes following staff review and correction, second by Member Daniel. Motion Passed.

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

D. PFRS AUDIT COMMITTEE MEETING – AUGUST 29, 2018

D1. Scope of Services and initiation of the Financial Audit of the PFRS fund for the Fiscal Year Ending June 30, 2018 – Member Speakman reported that the Financial Audit of the PFRS Fund for the Fiscal Year ended June 30, 2018 would be conducted and completed by the end of October 2018. Member Speakman said the report would be ready for presentation at the November 2018 Board meeting. Member Speakman made a motion to approve the scope of services report and initiation of the financial audit of the PFRS fund for the fiscal year ending June 30, 2018, second by member Daniel. Motion passed.

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

D2. Administrative Expenses Report – Investment Officer Teir Jenkins presented the administrative expenses report from July 1, 2017 through June 30, 2018. Member Speakman made a motion to accept the administrative expenses report, second by member Muszar. Motion passed.

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

D3. Resolution No. 7020 – Resolution to approve a two-year extension of the professional service agreement between PFRS Board and Cheiron Inc. – Member Speakman made a motion approve Resolution No. 7020 – A resolution to approve a two-year extension of the professional service agreement between the City of Oakland Police and Fire Retirement System Board and Cheiron, Inc. through June 30, 2020 at fees not to exceed \$45,500 for FY2018-2019 and \$46,500 for FY2019-2020, second by member Muszar. Motion passed

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

D4. PFRS Policy Governing the Overpayment or Underpayment of Member Benefits – Member Speakman reported this matter would be brought back at the next PFRS Audit Committee for further discussion.

D5. Discussion of the 2006 Management Audit of the PFRS System – Member Daniel reported the Audit Committee discussed options toward conducting a new management audit. Member Daniel reported that the Audit Committee made a motion to ask that PFRS Board to discuss whether further discussion and consideration of conducting a new management audit should continue. The Board discussed the merits and logistics of conducting a new management audit.

MOTION: Following discussion between the Board and Staff, Member Speakman made a motion continue discussion of this matter at the March 2019 Board meeting, second by member Godfrey. Motion passed.

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

E. PFRS INVESTMENT COMMITTEE MEETING – AUGUST 29, 2018

E1. Investment Manager Overview – Earnest Partners – Sean Copus of Pension Consulting Alliance (PCA) reported that representatives from Earnest Partners presented their report of the Investment performance of PFRS funds managed by their firm. Member Godfrey made a motion accept the informational report, second by member Wilkinson. Motion passed.

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

E2. Investment Manager Overview – Earnest Partners – Member Godfrey made a motion to accept the information report from PCA regarding their investment management overview of Earnest Partners, second by member Wilkinson. Motion passed.

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

E3. Investment Market Overview – Mr. Copus reported on the global economic factors affecting the PFRS Fund. Member Godfrey made a motion to accept the informational report from PCA regarding the Investment Market Overview, second by member Wilkinson. Motion passed.

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

E4. Investment Fund Performance Report for the Quarter Ending June 30, 2018 – Sean Copus presented the PFRS Investment Fund Performance Report for the quarter ending June 30, 2018. Member Godfrey made a motion to approve the investment performance report for the quarter ending June 30, 2018, second by member Speakman. Motion passed.

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

E5. Investment Manager Search – Defensive Equity Asset Class Investment Manager – Kristen Chase from PCA reported on the details of the conclusion of the PCA Request for Proposal process regarding the Defensive Equity Asset Class investment manager search and recommended invitations for interviews by the Investment Committee be made to AQR Capital Management, Intech Investment Management, and SPI Strategies LLC.

MOTION: Member Godfrey made a motion to recommend Board approval of PCAs recommendation to invite AQR Capital Management, Intech Investment Management, and SPI Strategies LLC to interview with the Investment Committee at their September 2018 Committee meeting to be the new Defensive Equity Asset Class Investment Manager, second by member Speakman. Motion passed

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

E6. Hansberger Growth Investors Organizational Update – Sean Copus from PCA reported the request by Hansberger Growth Investors regarding the signing of Hansberger Growth Investor’s Consent to Assignment of Advisory Agreement regarding its organizational update. Following Board discussion, Chairman Godfrey made a motion to approve the signing of Hansberger Growth Investor’s Consent to Assignment of Advisory Agreement, second by member Wilkinson. Motion passed.

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

F. Announcement of Robert J. Muszar’s election to the 5-year Police Member Position on the PFRS Board – Member Godfrey made a motion to accept the information report of Robert J. Muszar’s election to the 5-year Police Member Position on the PFRS Board, second by member Daniel. Motion passed.

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

G. Resolution No. 7021 – Resolution Changing the Retirement Status for Jack C. Huth, a Member of the Police and Fire Retirement System, from Service to Service-Connected Disability – Plan Administrator Katano Kasaine presented the details regarding PFRS Member Jack C. Huth’s request to convert his service retirement to a service-connected disability retirement. Following Board discussion, member Godfrey made a motion to approve PFRS Resolution No. 7021 - Resolution Changing the Retirement Status for Jack C. Huth, a Member of the Police and Fire Retirement System, from Service to Service-Connected Disability, second by member Speakman. Motion passed (member Muszar abstained from the vote on this matter).

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – ABSTAIN / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 5 / NOES: 0 / ABSTAIN: 1)

H. Resolutions No. 7022 – The PFRS Board reviewed and approved Resolution No. 7022.

H1. Approval of Resolutions No. 7022 – Member Muszar made a motion to approve the resolution approving death benefit payments and directing warrants thereunder in the total sum of \$1,000.00 payable to the beneficiaries of deceased member Thomas Kastanos as follows: Timothy J. Kastanos, Russell S. Kastanos and Robin A. Cassalia, second by member Speakman. Motion passed.

[DANIEL – Y / GODFREY – Y / JOHNSON – Y / MELIA – ABSENT / MUSZAR – Y / SPEAKMAN – Y / WILKINSON – Y]
(AYES: 6 / NOES: 0 / ABSTAIN: 0)

I. NEW BUSINESS – No Report.

J. OPEN FORUM – PFRS Retiree Ned Ubben addressed the PFRS Board regarding the difficulty of the audience to the PFRS Board meeting to hear speakers during the PFRS Board meeting in Hearing Room 3. Staff was instructed to review solutions to improve the acoustics in Hearing Room 3 or possibly move the meetings to hearing room 1.

Member Christine Daniel announced her departure from the PFRS Board following this meeting. The PFRS Board expressed their appreciation and gratitude to Member Daniel for her service to the PFRS Board and its members.

K. FUTURE SCHEDULING – The next PFRS Board meeting was scheduled for Wednesday, September 26, 2018.

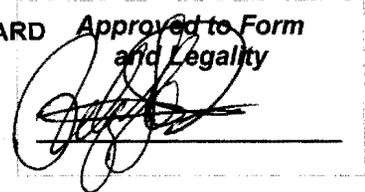
The meeting adjourned at 1:28 pm.

KATANO KASAINÉ, BOARD SECRETARY

DATE

OAKLAND POLICE AND FIRE RETIREMENT BOARD
CITY OF OAKLAND, CALIFORNIA

Approved to Form
and Legality



RESOLUTION No. 7025

ON MOTION OF MEMBER _____ SECONDED BY MEMBER _____

RESOLUTION FIXING THE MONTHLY ALLOWANCE OF VIRGINIA M. WOLFE, SPOUSE OF KENNETH WOLFE; AND REBECCA E. STEWART, SPOUSE OF MURRY M. STEWART RETIRED MEMBERS OF THE POLICE AND FIRE RETIREMENT SYSTEM

WHEREAS, the retired members of the Police and Fire Retirement System, whose names appears below (1), died on the dates shown below (2); and

WHEREAS, the surviving spouses, whose names appear below (3), do not claim that each of such deaths were by reason of an injury received in, or illness caused by or arising out of the performance of duty; and

WHEREAS, there is now presented to this Board, the monthly allowance shown below (7) and as calculated by the Actuary in accordance with Article XXVI of the Charter of the City of Oakland; now, therefore, be it

RESOLVED: That the Police and Fire Retirement Board fixes, and it does hereby fix, the amount in Column (7), as the monthly allowance to which said surviving spouses are entitled, effective on the date shown in Column (4):

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Name of Deceased Member	Date of Death	Name of Surviving Spouse	Effective Date of Allowance	Form of Retirement	% of Compensation Attached to Avg. Rank Held	Monthly Allowance
Murry M. Stewart (P)	06/05/2018	Rebecca E. Stewart	06/06/2018	Service	26.6747%	\$3,976.63
Kenneth Wolfe (F)	07/25/2018	Virginia M. Wolfe	07/26/2018	Service	35.558%	\$3,757.69

IN BOARD MEETING, CITY HALL, OAKLAND, CA SEPTEMBER 26, 2018

PASSED BY THE FOLLOWING VOTE:

AYES: GODFREY, MELIA, MUSZAR, SPEAKMAN, WILKINSON,
AND PRESIDENT JOHNSON

NOES:

ABSTAIN:

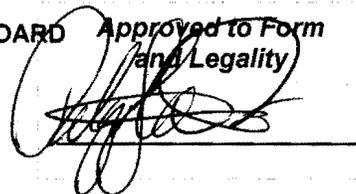
ABSENT: ONE BOARD VACANCY

ATTEST: _____
PRESIDENT

ATTEST: _____
SECRETARY

OAKLAND POLICE AND FIRE RETIREMENT BOARD *Approved to Form and Legality*
 CITY OF OAKLAND, CALIFORNIA

RESOLUTION No. 7026



ON MOTION OF MEMBER _____ SECONDED BY MEMBER _____

RESOLUTION APPROVING DEATH BENEFIT PAYMENTS AND DIRECTING WARRANTS THEREUNDER IN THE TOTAL SUM OF \$1,000.00 PAYABLE TO THE BENEFICIARIES OF DECEASED MEMBERS AS FOLLOWS: (1) SUZANNE M. ANDERSON, AND (2) JUDITH E. MASSETTI

WHEREAS, due proof having been received of the death of the persons named in Column (1) below, retired members of the Oakland Police or Fire Department, under Article XXVI of the Charter of the City of Oakland; and

WHEREAS, the beneficiaries to whom the death benefit provided in Charter Section 2612 are payable, are the persons whose names are stated in Column (2) opposite the respective names of the deceased retired member; and

WHEREAS, the amount of said death benefit is stated in Column (4) opposite said respective names; now, therefore, be it

RESOLVED: That the Retirement Board does hereby approve the Death Benefit payment to the persons named in Column (5); and be it

FURTHER RESOLVED: That the Director of Finance, be and is hereby directed to draw and sign warrants for the amount in Column (4) payable to the respective persons whose name(s) appear(s) in Column (2):

(1) Name of Deceased Member	(2) Name of Beneficiary(ies)	(3) Relationship of Beneficiary(ies)	(4) Death Benefit Amount
James N. Anderson (P)	Suzanne M. Anderson	Daughter	\$1,000.00
George Massetti (F)	Judith E. Massetti	Non-qualified Spouse	\$1,000.00

IN BOARD MEETING, CITY HALL, OAKLAND, CA SEPTEMBER 26, 2018

PASSED BY THE FOLLOWING VOTE:

AYES: GODFREY, MELIA, MUSZAR, SPEAKMAN, WILKINSON, AND PRESIDENT JOHNSON

NOES:

ABSENT: (ONE BOARD VACANCY)

ATTEST: _____
 PRESIDENT

ATTEST: _____
 SECRETARY

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Oakland, California 94612

AGENDA

RETIREMENT BOARD MEMBERS

Walter L. Johnson, Sr.
President

Jaime T. Godfrey
Vice President

Robert J. Muszar
Member

R. Steven Wilkinson
Member

Martin J. Melia
Member

John C. Speakman
Member

Vacant
Member

**CLOSED SESSION of the BOARD OF ADMINISTRATION
of the OAKLAND POLICE AND FIRE RETIREMENT SYSTEM ("PFRS")**

Wednesday, September 26, 2018—during regular meeting starting at 12:00 pm
One Frank H. Ogawa Plaza, Hearing Room 3
Oakland, California 94612

- - - ORDER OF BUSINESS - - -

THE PFRS BOARD WILL MEET IN CLOSED SESSION DURING ITS SCHEDULED BOARD MEETING

Please see the meeting agenda for open session items. The board will convene in open session prior to the closed session. Speakers may address the items of business on the closed session agenda prior to closed session. All speakers must fill out a speaker's card and submit it to the Secretary to the Board. The Board will reconvene in open session following the closed session to report any final decisions that the board makes in closed session.

Pursuant to California Government Code Section 54956.9(a) and 54956.9(d)(1):

1. CONFERENCE WITH LEGAL COUNSEL – PENDING LITIGATION

Retired Oakland Police Officers Association v. Oakland Police and Fire Retirement System, et al., Alameda County Superior Court Action No. RG16838274