



AGENDA

RETIREMENT BOARD MEETING

SECOND MONTHLY MEETING
January 25, 2017
9:00 a.m.

Retirement Board Conference Room
The Willows Office Park
1355 Willow Way, Suite 221
Concord, California

THE RETIREMENT BOARD MAY DISCUSS AND TAKE ACTION ON THE FOLLOWING:

1. Pledge of Allegiance.
2. Accept comments from the public.
3. Presentation on recommended structure and manager lineup for emerging market equity mandate.
4. Presentation from proposed emerging market equity managers:
 - a. TT International
 - b. PIMCO
5. Consider and take possible action to retain TT International for emerging market equity strategy.
6. Consider and take possible action to retain PIMCO for emerging market equity strategy.
7. Presentation on recommended structure and management of passive US equity mandate.
8. Presentation from BlackRock on proposed passively-managed Russell 1000 Index strategy.
9. Consider and take possible action to retain BlackRock for passively-managed Russell 1000 Index strategy.
10. Consider authorizing the attendance of Board and/or staff:
 - a. Artisan Partners Investment Forum, Artisan Partners, June 13-14, 2017, Milwaukee, WI
 - b. Artisan Partners Investment Forum, Artisan Partners, June 15-16, 2017, Milwaukee, WI
 - c. Commonfund Forum, Commonfund, March 4-7, 2017, San Antonio, TX (Note: 2 Board members and 2 staff previously approved)
 - d. The Pension Bridge Annual Conference, The Pension Bridge, April 18-19, 2017, San Francisco, CA

The Retirement Board will provide reasonable accommodations for persons with disabilities planning to attend Board meetings who contact the Retirement Office at least 24 hours before a meeting.

11. Miscellaneous
 - a. Staff Report
 - b. Outside Professionals' Report
 - c. Trustees' comments

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Meeting Date
01/25/17
Agenda Item
#3



MEMORANDUM

Date: January 25, 2017
To: CCCERA Board of Retirement
From: Timothy Price, Chief Investment Officer
Subject: Emerging Market Equity Search

Overview and Recommendation

At the October 26, 2016 meeting, the Board approved an emerging market equity search intended to fulfill a portion of the Phase 2 asset allocation targets. The search was assigned to Verus. Notably, this is the first search conducted by Verus for CCCERA utilizing the approved lists generated by the firm's Manager Research Group (MRG). The Verus research process is described later in this memo.

Verus is presenting their final recommendation for structure and manager lineup and is asking for the Board to approve the managers as vetted and selected by Verus. For the emerging market equity search, the recommendation is to use two managers, TT International and PIMCO, in equal allocations. Please note that staff has a strong preference for investing in emerging markets via commingled fund structures due to the operational difficulties of directly owning equities in many of the target countries.

The CCCERA Investment Staff has conducted an independent review of each manager as well as the proposed combination and is comfortable with the structure. The internal review launched with a vetting each strategy's track record and risk profile. We then reviewed the clarity of each firm's investment philosophy and process, as well as the continuity of staff who were responsible for the strategy. Finally, we looked at the ability of firm to remain a going concern and alignment of interests between the firm and the portfolio management team. The review encompassed our access to the eVestment Alliance manager database, discussions with Verus and direct interviews with the portfolio managers of each strategy under consideration. If the Board approves of the proposed solution, staff will conduct on-site reviews and negotiate appropriate investment agreements.

Phase 2 Asset Allocation Targets

The Board approved the Phase 2 Targets late last year. Phase 2 largely addresses the restructuring of the Growth sub-portfolio (Phase 1 addressed the implementation of the Liquidity sub-portfolio and Phase 3 deals with the build out of the Diversifying sub-portfolio). We made a concerted effort to implement the new asset allocation with a minimum of turnover in the manager roster. The long-term public markets exposure of the new asset allocation calls for 6% US Equity, 10% International (Developed) Equity and 10% Emerging Market Equity. The table below outlines the long-term target allocations to public markets. However, there will be several years of larger allocations to public equities as we build out the new private markets allocations. The structure of these “parking place” allocations will be addressed during the Phase 3 implementation later this year.

Our current roster of managers included several managers who already invest across several of these asset classes, as shown below:

Manager	US Equity	International Equity	EM Equity	Target Allocation
TBD Passive US Equity	100%	0%	0%	\$70 mm
Artisan Global Opportunities	60	35	5	\$300 mm
First Eagle Global Value	60	35	5	\$300 mm
William Blair Intl Growth	0	80	20	\$300 mm
Pyrford Intl Value	0	90	10	\$300 mm
TBD EM Equity Manager 1	0	0	100	\$300 mm
TBD EM Equity Manager 2	0	0	100	\$300 mm
Total Public Equities	23.0%	38.5%	38.5%	\$1.87 bb

Verus Manager Research Group Methodology

Verus conducts investment manager research through their Manager Research Group (MRG). The MRG screens each asset class in order to fully review that asset class and ultimately compile the firm’s “focus list” managers. For traditional mandates, such as the two searches under consideration today, they primarily utilize the eVestment Alliance database which has over 2,600 investment management firms and over 11,700 products.

The database screens typically entail firm/product assets under management, product availability (open versus closed), mandate characteristics such as market capitalization or style, and track record length (which varies based on asset class, in particular if an asset class is prone to capacity

constraints). The MRG then applies two levels of subjective review. First for organizational concerns, in which they identify firms known to have had troubles with management, ownership or personnel departures. Second for excess returns relative to the benchmark – this is done subjectively so that the returns on a 5-, 7-, and/or 10-year returns can be assessed. The focus of the performance assessment is on whether there has been added value over a longer-term market cycle. The final subjective screen is more difficult, and requires reviewing all facets including investment vehicles (minimums and vehicle types), retail versus institutional focus, “asset gatherer” versus “asset manager”, relative fees, professional depth and turnover statistics, strategy purity, client diversification, reliability of composite, and additional performance analytics.

MRG meets with hundreds of managers throughout the year across every asset class, and the screening process is used to help prioritize their time, but not necessarily to limit the range of managers interviewed. If a manager is identified through either personal interaction or the screening process, they will be interviewed more thoroughly and if they’re a strong candidate, an on-site visit is conducted. After the MRG thoroughly vets the manager and it passes all concerns regarding organizational stability, investment professional depth and experience, philosophical soundness, investment process consistency, operational depth and historical return attribution analysis, the MRG will formally recommend to the Verus Investment Committee that it be added to the firm’s “focus list”. At this juncture a full written report is issued on the manager. Focus list managers receive a higher level of on-going scrutiny and monitoring by the MRG and analyst team. The ongoing efforts focus on style consistency and assuring that performance is in line with the style characteristics identified for each manager.

In selecting strategies, Verus evaluates the role of the new strategy within the context of the client’s total plan, specifically:

- Understand the specific need in the client portfolio: the risk factor exposures and market beta exposures needed, along with appropriate fee and cost levels
- Review Focus List strategies that will best meet the identified needs
- Understand the strategy’s expected contributions to total and active risk
- Understand the assessment regime through which the strategy will be viewed and ensuring time frame and approach are appropriate
- Set clear expectations and expected outcomes on multiple dimensions for both client and investment manager

Both the TT International Emerging Market and PIMCO/Research Affiliates Emerging Market strategies are included on the Verus Focus List for Emerging Market Equity.



PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS



JANUARY 25, 2017

Emerging Markets Equity Search

Contra Costa County Employees' Retirement Association

Table of Contents



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Emerging Markets Search	TAB I
Executive summary	3
Search process	5
Manager discussion	9
Portfolio structure	15
Manager write-ups	22
Next steps	34

Appendix I: Search Book	TAB II
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Executive summary

Executive summary

- With the Board’s adoption of the “FFP 4-yr” asset allocation, approximately 10% of Plan assets are to be allocated to emerging markets (EM) equity. Given the EM exposure in the current strategies, an incremental \$600mm needs to be allocated to dedicated emerging market equity strategies to reach the targeted allocation.
- At the October Board meeting, the Board approved a search for dedicated emerging markets managers in order to attain the emerging markets exposure required in the asset allocation.
- Following the October meeting, the search was launched and culminates in this presentation which includes:
 - Discussion & analysis of six emerging markets equity managers with varying approaches and styles;
 - Portfolio structure and characteristics achieved through pairing multiple managers; and
 - Fee comparison

The presentation concludes with the recommendation to:

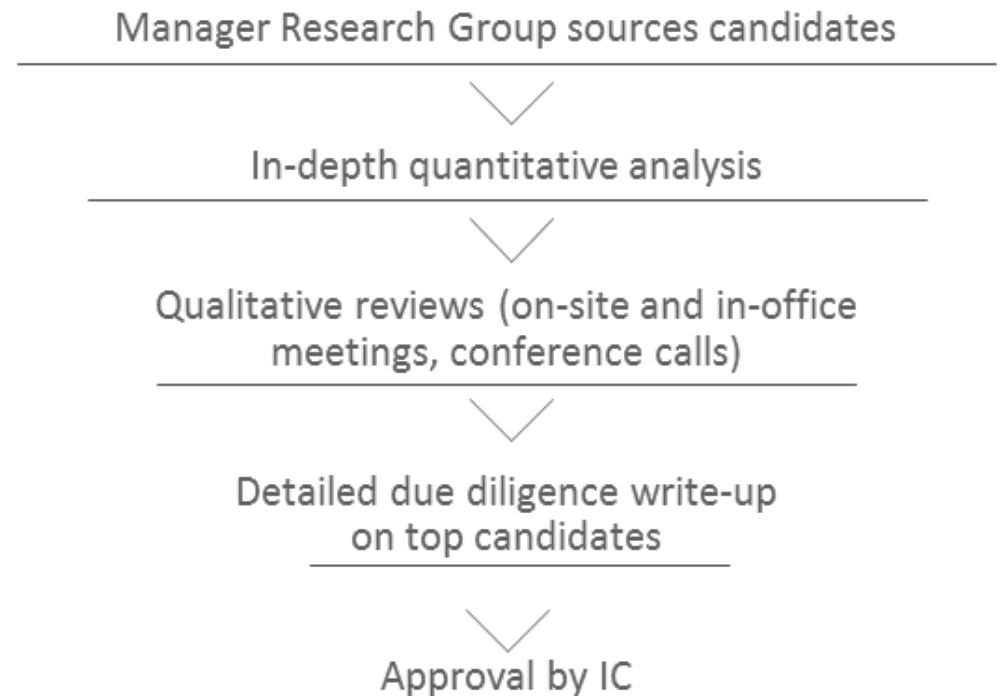
1. Allocate \$300mm to the PIMCO and \$300mm to the TT strategies; and
2. Authorize Staff to negotiate and the CEO to execute a contract with these investment managers.

Manager search process

General manager search process overview

— Verus' due diligence and manager search process follows a disciplined approach in assessing and selecting managers. In our assessment of managers, we employ quantitative and qualitative criteria in order to achieve the following goals:

- Understand the firm, process, people and product set;
- Understand the asset class investment and competitive environment;
- Understand appropriate balance between fee structures and opportunity set over the long term and in current market conditions; and
- Understand risk, style, size and other factor exposures, and the effect of different market environments on expected outcomes.



Emerging markets equity manager search process

- Verus maintains focus lists for each major asset class, consisting of the strategies in which we have high conviction and continuously perform operational and investment due diligence.
- Our focus list of managers is continuously reviewed, and each asset class and strategies in the asset class are reviewed annually, with additional work being done as needed.



* Focus list strategies not presented to CCCERA were excluded due to strategies being closed, on “watch”, or due to the Plan’s manager concentration guidelines.

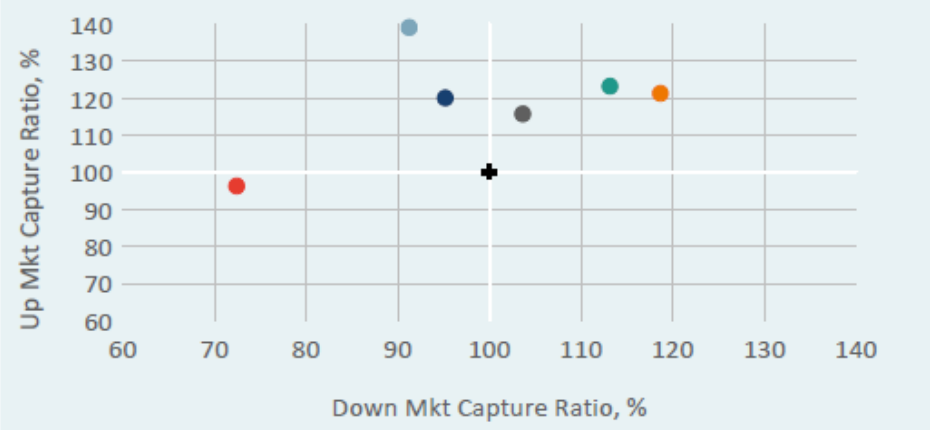
Emerging markets equity manager search process

- If a manager is identified through the screening process, it will be interviewed more thoroughly including on-site due diligence.
- After a strategy is thoroughly vetted and the manager passes our evaluation regarding organizational stability, investment professional depth and experience, philosophical soundness, investment process consistency, operational depth and historical return attribution analysis, it will formally be recommend to Verus' Investment Committee for inclusion on the "focus list."
- Focus list strategies receive a higher level of on-going scrutiny and monitoring by MRG.
- Client requested strategies that are not included on the focus list may also be reviewed & vetted during the search process.

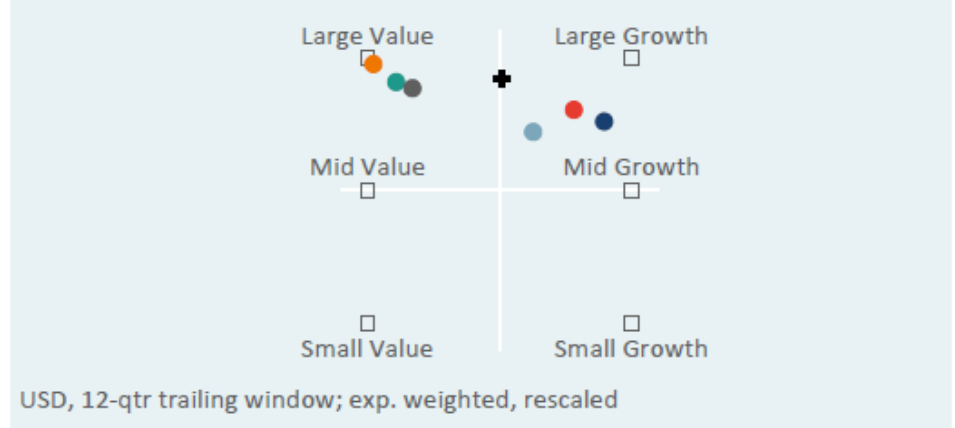
Manager discussion

EM Equity search – manager summary

UP/DOWN MARKET CAPTURE, OCT-11 TO SEP-16



MSCI EM MAP, JAN-14 TO SEP-16



- Baillie Gifford
- Brandes
- Lazard
- PIMCO RAE
- TT International
- William Blair
- + MSCI EM Index

Value

- Lazard EM Equity - Fundamental, bottom-up, large/mid cap focus, low turnover, focus on valuation & ROE, 70-90 stocks, high quality
- PIMCO RAE Fundamental EM - Fundamental indexing approach, diversified, low turnover, underperforms in momentum driven markets
- Brandes EM Equity - High tracking error, deep value, 3-5 year holds, large country tilts, bottom-up, focus on margin of safety, moderate diversification, potential for prolonged periods of underperformance

Growth

- Baillie Gifford EM All Cap Equity - High tracking error, fundamental, long term views, 60-12 stocks, underperforms in value-driven markets, strong down-market, potential for prolonged periods of underperformance
- William Blair EM Leaders - 12-18 month views, high turnover, large/mid cap focus, top-down + bottom-up, high quality growth, strong down market
- TT EM Equity - Concentrated, growth/core, SMID cap bias, active FX hedging, top down + bottom up, high turnover, catalyst driven approach

Manager comparison

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair
FIRM OWNERSHIP	100% employee owned	100% employee owned	Public Company (NYSE: LAZ)	Wholly owned subsidiary of Allianz Global	100% employee owned	100% employee owned
FIRM NAME	Baillie Gifford & Co	Brandes Investment Partners, L.P.	Lazard Asset Management LLC	PIMCO	TT International	William Blair Investment Management, LLC
PRODUCT NAME	Emerging Markets All Cap Equities	Emerging Markets Equity	Emerging Markets Equity	PIMCO RAE Fundamental Emerging Markets	TT Emerging Markets Equity	Emerging Markets Leaders
FIRM TOTAL AUM (\$MM)	\$191,634	\$27,643	\$186,519	\$1,548,115	\$6,174	\$67,014
STRATEGY AUM (\$MM)	\$7,030	\$2,422	\$31,087	\$4,631	\$465	\$4,788
INCEPTION DATE	Sep-94	Dec-94	Jul-94	May-06	Mar-11	Apr-08
PREFERRED BENCHMARK	MSCI EM-GD	MSCI EFM-ND	MSCI EM-ND	MSCI EM-ND	MSCI EM-GD	MSCI EM-ND
INVESTMENT APPROACH	Fundamental	Fundamental	Fundamental	Quantitative	Fundamental	Fundamental
SCREENING APPROACH	Bottom-Up	Bottom-Up	Bottom-Up	Bottom-Up	Top-Down Bottom-Up	Bottom-Up
KEY ATTRIBUTES	Benchmark agnostic Growth bias 3-5 yr time horizon	Team approach High TE Deep value Country tilts	Diversified Low turnover High quality	Quantitative approach Very diversified Value tilt	Active currency All cap portfolio Core to growth	Growth tilt 12-18 month investment horizon

Manager performance - as of 3Q16

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair	MSCI EM Index
PERFORMANCE ANALYSIS - (5 Years)							
Alpha %	3.0	1.4	1.4	0.4	5.5	2.6	0.0
Beta	1.0	1.1	1.1	1.2	1.1	0.9	1.0
R-squared %	82.2	83.7	94.4	93.7	90.1	92.8	100.0
Sharpe Ratio	0.4	0.2	0.3	0.2	0.5	0.4	0.2
Treynor Ratio	0.1	0.0	0.0	0.0	0.1	0.1	0.0
Tracking Error %	7.0	7.5	4.1	5.1	5.1	3.9	0.0
Annualized Std Dev %	16.6	17.8	16.2	17.6	16.1	13.5	14.4
Information Ratio	0.5	0.2	0.4	0.1	1.1	0.6	---
Max Drawdown %	-20.7	-35.2	-28.9	-29.4	-20.9	-17.3	-22.1
Calmar Ratio	0.3	0.1	0.2	0.1	0.4	0.3	0.1
Excess Ann. Return %	3.0	1.4	1.5	0.6	5.7	2.4	0.0
1 Year	19.7	30.5	25.3	25.7	30.5	14.7	16.8
3 Year	3.7	-0.9	-0.1	0.2	5.0	1.7	-0.6
5 Year	6.0	4.5	4.6	3.6	8.7	5.4	3.0
7 Year	3.9	3.6	4.1	3.2	---	5.1	2.3
10 Year	6.1	6.2	5.9	6.2	---	---	3.9
Common Inception (Apr-11)	0.0	-1.4	0.1	-1.7	2.5	1.0	-2.1
CALENDAR YEAR RETURNS							
2015	-7.7	-19.6	-19.3	-22.9	-9.9	-13.9	-14.9
2014	1.5	-7.1	-2.8	-1.0	0.0	4.7	-2.2
2013	5.2	7.7	0.7	-3.7	8.0	1.4	-2.6
2012	14.2	16.7	23.1	20.1	19.7	21.5	18.2
2011	-19.7	-19.5	-17.2	-18.6	---	-17.7	-18.4
2010	19.7	19.3	24.1	21.1	---	24.6	18.9
2009	100.8	112.9	74.3	93.9	---	82.6	78.5
2008	-56.2	-46.5	-47.6	-53.3	---	---	-53.3
2007	47.1	19.8	34.7	45.9	---	---	39.4
2006	37.3	31.2	32.4	---	---	---	32.1

Source: eVestment, gross of fees

Excess return correlations - as of 3Q16

3 Years

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair	MSCI EM Index
Baillie Gifford	1.00	-0.16	-0.21	-0.52	0.49	0.35	0.59
Brandes	-0.16	1.00	0.84	0.63	0.31	-0.49	0.09
Lazard	-0.21	0.84	1.00	0.77	0.53	-0.25	0.13
PIMCO RAE	-0.52	0.63	0.77	1.00	0.08	-0.47	0.14
TT International	0.49	0.31	0.53	0.08	1.00	0.34	0.53
William Blair	0.35	-0.49	-0.25	-0.47	0.34	1.00	0.19

5 Years

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair	MSCI EM Index
Baillie Gifford	1.00	-0.13	-0.13	-0.45	0.42	0.33	0.07
Brandes	-0.13	1.00	0.77	0.53	0.36	-0.31	-0.08
Lazard	-0.13	0.77	1.00	0.64	0.41	-0.06	-0.07
PIMCO RAE	-0.45	0.53	0.64	1.00	0.02	-0.46	0.10
TT International	0.42	0.36	0.41	0.02	1.00	0.39	0.01
William Blair	0.33	-0.31	-0.06	-0.46	0.39	1.00	-0.14

7 Years

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair	MSCI EM Index
Baillie Gifford	1.00	-0.12	-0.10	-0.42		0.33	0.09
Brandes	-0.12	1.00	0.39	0.53		-0.32	0.12
Lazard	-0.10	0.39	1.00	0.47		0.18	-0.26
PIMCO RAE	-0.42	0.53	0.47	1.00		-0.32	0.13
TT International					1.00		
William Blair	0.33	-0.32	0.18	-0.32		1.00	-0.16

Source: eVestment, gross of fees

Fee comparison

The following fee calculations assume a \$300 mm allocation to the manager:

Baillie Gifford

Separate Account (\$250 mm min.)

0 - 50	0.80%
50 - 100	0.70%
100 +	0.60%
excludes custody 0.65%	

Brandes

Separate Account & Commingled **

0 - 25	0.95%
25 - 50	0.90%
50 - 150	0.80%
150 +	0.70%
excludes custody for S.A. 0.77%	

Lazard

Separate Account

0 - 200	0.75%
200 +	0.65%
excludes custody 0.72%	

Commingled Trust

0 - 100	0.75%
100 - 200	0.70%
200 +	0.65%
0.70%	
plus 9 bps operating expense	

PIMCO

Separate Account

0 - 50	0.50%
50 - 100	0.45%
100 - 200	0.40%
200 - 500	0.325%
excludes custody 0.40%	

Private Fund (LLC)

0 - 50	0.75%
50 - 100	0.675%
100 - 200	0.50%
200 +	0.45%
all in 0.55%	

Fund of One

0 - 50	0.50%
50 - 100	0.45%
100 - 200	0.40%
200 - 500	0.325%
plus 20 bps admin & one-time vehicle set-up costs (~\$50,000) 0.40%	

TT

Separate Account

0 - 100	0.75%
100 - 200	0.70%
200 +	0.65%
excludes custody 0.70%	

Commingled

0 - 100	0.70%
100 - 200	0.65%
200 +	0.60%
0.65%	
plus 12 - 15 bps operating expenses*	

Commingled Fund of One

0 - 100	0.70%
100 - 200	0.65%
200 - 300	0.60%
0.65%	
plus 11.5 - 14 bps operating expenses	

William Blair

Separate Account

0-20	0.90%
20-50	0.70%
50-100	0.60%
100-150	0.55%
150-200	0.50%
200-400	0.40%
excludes custody 0.54%	

Commingled Trust

0-20	0.90%
20-50	0.70%
50-100	0.60%
100-150	0.55%
150-200	0.50%
200-400	0.40%
0.54%	
plus 10 bps operating expenses (cap)	

* TT's commingled fund operating expenses are currently 33 bps and capped at 50 bps. TT estimates that an additional \$300 mm in assets will decrease operating expenses to 12 - 15 bps.

** Brandes' proposal includes the above stated fee for the first four years, a 30 bps reduction in year five, and a discounted fee of ~69 bps on \$300 mm in year 6 and beyond.

Portfolio structure

Portfolio mixes & recommendation

- Verus performed quantitative analysis on numerous potential portfolio mixes in order to determine how pairings of two or three managers interact from a risk/return perspective (see appendix).
- Mixes were created by combining value managers (Lazard, PIMCO, and Brandes) with growth managers (William Blair, Baillie Gifford, and TT International).
- Based on the results of both this quantitative analysis coupled with qualitative analysis of the managers and strategies, Verus recommends the following portfolio:
 - 50% PIMCO RAE Fundamental EM
 - 50% TT International EM Equity

Recommendation rationale

- This portfolio mix demonstrated strong quantitative metrics including:
 - Outperformance relative to the MSCI Emerging Markets Index;
 - Strong risk-adjusted performance (Sharpe & Information Ratios);
 - Very low correlation of excess returns between the two strategies; and
 - Balance of up market participation & down market protection

- Pairing managers with complementary styles:
 - Concentration: TT – concentrated (40-60 stocks), PIMCO – highly diversified (~500 stocks);
 - Turnover: TT – high (153%), PIMCO – low (30%);
 - Growth vs. Value: TT – growth/core, PIMCO - value
 - Market Cap: TT – small/mid cap tilt, PIMCO – large cap tilt
 - Fundamental (TT) vs. Quantitative (PIMCO)

Recommended portfolio characteristics

- The tables below show the characteristics of a combined PIMCO / TT portfolio.
- Relative to the benchmark:
 - The combined portfolio's sector and regional allocations are roughly in line with the index;
 - The combined portfolio is overweight the smaller end of the market cap spectrum.

	<u>Sector</u>										
	Consumer Disc.	Consumer Staples	Energy	Financials	Healthcare	Industrials	Info Tech	Materials	Real Estate	Telecom	Utilities
50% PIMCO / 50% TT	11%	6%	10%	24%	1%	7%	15%	10%	5%	5%	6%
MSCI EM Index	11%	8%	7%	24%	3%	6%	24%	6%	3%	6%	3%

	<u>Region</u>					
	Latin America	Africa / Middle East	Eastern Europe	Far East ex-China	China	Other (incl. DM)
50% PIMCO / 50% TT	19%	10%	11%	36%	20%	4%
MSCI EM Index	13%	10%	6%	44%	27%	0%

	<u>Market Cap</u>			
	Small Cap (<\$1.5 bn)	Mid Cap (\$1.5 - \$7.5)	Large Cap (\$7.5 - \$50)	Mega Cap (>\$ 50)
50% PIMCO / 50% TT	11%	24%	24%	41%
MSCI EM Index	0%	9%	31%	60%

Source: eVestment as of 9/30/16.

Manager and combined portfolio fees

The analysis below assumes the following:

- \$600 mm total allocation to dedicated EM equity managers; and
- \$300 mm allocated to each manager.

The combined portfolio's all-in expense ratio is 67 bps.

- This fee (including expenses) ranks in the 24th percentile amongst all EM equity managers' commingled funds (excluding expenses) at \$600 mm.
- PIMCO & TT's fees (including expenses) rank in the 12th & 39th percentile, respectively, amongst all EM equity managers' commingled funds (excluding expenses) at \$300 mm.

Manager Fee Schedules				Combined Portfolio	
PIMCO		TT		Manager	All-in Fee
Private Fund (LLC)		Commingled Fund of One		PIMCO	0.55%
0 - 50	0.75%	0 - 100	0.70%	TT International	0.79%
50 - 100	0.68%	100 - 200	0.65%	Blended	0.67%
100 - 200	0.50%	200+	0.60%		
200 +	0.45%		0.65%		
	all in 0.55%		plus 11.5 - 14 bps operating expenses		

* Source: eVestment

Considerations - PIMCO

PIMCO / Research Affiliates:

- **New PIMCO CEO:** On July 20th, PIMCO announced that the firm had hired a new CEO, Emmanuel “Manny” Roman, from Man Group, a London-based alternative asset manager. Mr. Roman joined the firm on November 1st, and while it will take time to see what his ultimate impact will be on the firm, Mr. Roman has stated his intention to diversify PIMCO’s product line. While this change will be closely monitored by Verus, it is important to note that the PIMCO RAE Fundamental Emerging Markets strategy is a partnership between PIMCO and Research Affiliates with PIMCO fulfilling operational, administrative, and client service related roles and Research Affiliates serving as a “full discretion sub-advisor”.
- **Key man risk (Rob Arnott):** Mr. Arnott is the founder and majority shareholder of the firm, and the primary architect of the strategy. However, Mr. Arnott does share final decision responsibilities on the investment process with Chris Brightman and has a research staff of over 40 professionals that implement the day to day asset management decisions.

Considerations – TT

TT International:

- **Key man risk (Niall Paul):** Mr. Paul is architect of the strategy and key decision maker. Co-PMs Robert James and Sebastian de Bont both have significant industry experience and could potentially assume responsibility in Mr. Paul's absence, although we do not see them as complete substitutes for him. We would need to evaluate any team change critically.
- **Spinning out of one of the firm's hedge funds:** In June, TT announced that the firm's European mid-cap long/short equity hedge fund strategy, the TT Focus fund, along with its 4 person team would be spinning out. This strategy accounts for roughly \$400 mm of the firm's \$6.2 bn and the team functioned independently of the emerging markets team. As such, this development is unlikely to have a material effect on TT's EM equity strategy.

EM equity manager write-ups

Manager Evaluation

PIMCO RAE Fundamental Emerging Markets

LAST UPDATED: SEPTEMBER 2016

STRATEGY BASICS

Asset Class:	Emerging Markets
Investment Style:	Value
Firm Inception:	2002
Firm Assets:	\$1,548 Billion
Strategy Inception:	2006
Strategy Assets:	\$4.6 Billion
Min. Acct. Size, S.A.:	\$100 Million
Fee, Separate Acct.:	0.50% First \$50 Million 0.45% Next \$50 Million 0.40% Balance Remaining
Min. Size, Private Account LLC*:	\$50 Million
Fee, Private Account LLC:	0.75% First \$50 Million 0.675% Next \$50 Million 0.60% Balance Remaining
Min. Size, MF (PEIFX):	\$1 Million
Fee, MF:	0.75%

*The Private Account LLC is available for ERISA and non-ERISA clients and provides monthly liquidity.

Firm Background and History

Research Affiliates, LLC was founded in 2002 by Robert D. Arnott to offer proprietary solutions in the areas of active asset allocation, optimal portfolio construction, equity indexing, and enhanced equity indexing. The sole line of business is investment management services for institutional and retail clients. The company is an investment adviser registered under the Investment Advisers Act of 1940 with the U.S. Securities and Exchange Commission.

Research Affiliates Global Holdings, LLC (RA Global Holdings) is the sole owner of Research Affiliates, LLC. RA Global Holdings is approximately 95% employee and family member owned. The remaining 5% is owned by a non-

affiliated, institutional owner. Research Affiliates is headquartered in Newport Beach, CA, and employs over 40 investment professionals.

Whereas Research Affiliates has historically focused on the research and portfolio implementation design, they have relied on affiliate partners to establish products for distribution to investors. Pacific Investment Management Company (PIMCO) and Research Affiliates have collaborated since 2002. PIMCO was founded in Newport Beach, California in 1971 as a subsidiary of Pacific Life Insurance Company. The firm was acquired by Allianz in 2000 and now operates as an autonomous majority owned subsidiary of Allianz Global Investors of America.

In January 2014, in an effort to concentrate on its core mission, which emphasizes investment research and product design, Research Affiliates announced a new partnership with PIMCO. Within the new partnership structure, PIMCO provides administrative, operational oversight and supervisory services and serves as advisor to Research Affiliates' equity portfolios. Research Affiliates serves as a full discretion sub-advisor for PIMCO and continues to manage its equity strategies. Research Affiliates has full investment discretion to manage the portfolios, subject to PIMCO's fiduciary duty and responsibility to provide oversight and supervision.

Strategy Background

The RAFI (Research Affiliates Fundamental Index methodology) was developed by Mr. Arnott and Jason Hsu in an attempt to address the structural return drag that Research Affiliates contends is created by traditional capitalization-based indexing strategies systematically overweighting overpriced securities and underweighting underpriced securities. The RAFI approach aims to break the link between a stock's price and its portfolio weight.

The fundamentally weighted methodology that underlies RAE weights companies based on their economic footprints (as measured by accounting variables) rather than their market footprints (as measured by market capitalization). By removing price from the index construction process, RAE attempts to outperform the cap-weighted MSCI Emerging Markets Index by eliminating the performance drag caused by the systematic overweighting of overpriced stocks and underweighting of underpriced stocks that occurs in cap-weighted indexes.

The Enhanced Fundamental Index methodology is a quantitative bottom-up process which builds fundamental weights based on four factors – book value, sales, cash flow and dividends – through a simple quantitative averaging process. Proprietary enhancements are then applied on top of this four-factor portfolio to build the PIMCO RAE Fundamental Emerging Markets strategy.

Any buys and sells are done as part of the annual reconstitution and quarterly rebalancing to the desired fundamental weightings, contra-trading against recent price movements.

Key Investment Professionals

Research Affiliates has a team of over 40 investment professionals. The Investment Committee is responsible for making investment decisions and reviewing research findings. The committee is comprised of Rob Arnott, RAE portfolio manager and Research Affiliates chairman; Chris Brightman, RAE portfolio manager and CIO; and senior investment professionals across Research Affiliates. In addition, Vitali Kalesnik, one of the committee members, leads a four-member equity research team.

ROBERT ARNOTT, CHAIRMAN/FOUNDER, PORTFOLIO MANAGER

Mr. Arnott has more than 30 years of experience in quantitative investing. He is the chairman of Research Affiliates. He previously served as chairman of First Quadrant, as president of TSA Capital Management (now part of Analytic Investors), and as vice president at The Boston Company. He also was global equity strategist at Salomon Brothers. He has published more than 100 articles in journals such as the Journal of Portfolio Management, the Harvard Business Review and the Financial Analysts Journal, where he also served as editor in chief from 2002 through 2006. He graduated summa

cum laude from the University of California, Santa Barbara, in 1977 in economics, applied mathematics and computer science.

CHRISOPHER BRIGHTMAN, CIO, PORTFOLIO MANAGER

Mr. Brightman is managing director and head of investment management at Research Affiliates. He supervises portfolio construction and trading, as well as managing the product development process. He also contributes to research and client support activities. Mr. Brightman has more than 30 years of investment experience, including as board chair of The Investment Fund for Foundations, chief executive officer of the University of Virginia Investment Management Company, chief investment officer of Strategic Investment Group, director of global equity strategy at UBS Asset Management, and senior portfolio manager at Brinson Partners. He is a board and investment committee member of the Virginia Tech Foundation. Mr. Brightman holds a bachelor's degree in finance from Virginia Tech and an MBA from Loyola University, Maryland.

VITALI KALESNIK, DIRECTOR, HEAD OF EQUITY RESEARCH

Vitali Kalesnik is responsible for quantitative research used to enhance Research Affiliates products—in particular, RAFI Fundamental Index strategies and global tactical asset allocation products. Prior to joining Research Affiliates, Mr. Kalesnik conducted research in economics at the University of California, Los Angeles, where he studied international trade and macroeconomics. He also worked as a researcher at the Ministry of Economics in Belarus and at Priorbank. Mr. Kalesnik published research papers in such journals as the Financial Analysts Journal, Journal of Portfolio Management, and Journal of Index Investing. He earned his Ph.D. in economics from the University of California, Los Angeles.

Process

The foundation of the PIMCO Research Affiliates Equity (RAE) Fundamental Emerging Markets strategy is the RAFI Emerging Markets Index. The index is constructed by selecting 800-1,000 stocks from all publicly traded stocks in the emerging markets universe with the highest value of the RAFI fundamental score calculated as the equal-weighted average of non-price fundamental scores of book value, sales, free cash flow, and gross dividends. To smooth the seasonality effect, the fundamental scores for sales, cash flow and dividends are calculated on five-year

annual trailing data. The book value score is the most recent officially reported number. If a company does not pay dividends, its dividends are excluded from the average and the other three measures get one-third of the weight. Aggregate fundamental scores are converted into index weights by dividing each company score by the sum of the scores of the stocks in the index.

The construction of the PIMCO Research Affiliates Equity (RAE) Fundamental Emerging Markets strategy begins with the stocks in the RAFI Emerging Markets Index. The original universe comprises the top 89% of the RAFI Emerging Markets index portfolio. The RAFI Emerging Markets weights are further refined through a series of active insights, including financial health/quality and momentum adjustments as well as style and size diversification.

(1) Quality / Financial health

Seeking to avoid value traps, the RA investment team incorporates three quality channels that focus on distress risk, accounting principles, and growth prospects of each company. Firms are penalized for excessive leverage, employing aggressive accounting measures, or lack of growth prospects.

Debt coverage ratio, external financing, payout ratio, and volatility of stock returns come together in a model to generate an estimate of each company's distress level. The conservativeness of adopted accounting principles is estimated based on the company's level of net operating assets, accruals and changes in accruals as well as deviations of earnings from cash flows. Historical margins and profitability, stability and growth of earnings and cash flows, and inventory management are used to assess growth prospects.

(2) Momentum

Rebalancing strategies, such as RAE portfolios, exhibit a negative exposure to momentum in an attempt to take advantage of mean reversion by buying low and selling high. RA attempts to eliminate this negative momentum exposure in RAE portfolios by delaying rebalancing when a company stock trades against positive/negative twelve-month momentum. RA employs this approach in an attempt to avoid catching a falling knife or taking profits too early.

(3) Style Diversification

In an attempt to reduce the portfolio's reliance on the value factor for excess returns and increase upside potential when prices mean revert, RA increases exposure to "cheap" stocks with the low value factor and decreases exposure to "expensive" stocks with high value factor.

(4) Size Diversification

RAE seeks to redistribute active weights from large cap stocks to smaller cap stocks that are more likely to be mispriced.

Applying proprietary enhancements might reduce the fundamental weight of certain stocks to zero or negative value. In these instances, the stocks are removed from RAE portfolio. In addition, stocks with immaterially small weights of less than two basis points are excluded. The final portfolio will hold 300-400 holdings.

RESEARCH

RA research process is collaborative and potential enhancements are continually researched by Rob Arnott, Chris Brightman, Vitali Kalesnik and the investment team. The team also continuously reviews industry and academic research. Potential investment ideas or enhancements to the process are crafted into tradable strategies and tested using historical data. If positive indications exist, a formal theory is proposed to explain the phenomenon and additional testing is performed and scrutinized by the senior research team members. All insights should be value creating across all geographic regions.

New enhancements are typically approved every two to four years and become an automated part of the construction process. The first two enhancements, the inclusion of debt coverage ratio and net operating assets, were incorporated in 2006, the year the strategy was launched. The size diversification methodology was implemented in 2009. In 2012, the team added two new measures of company size, sales adjusted by cost margin and dividends adjusted by net repurchases. In the same year, the team implemented a new improved trading methodology, quarterly staggering rebalancing. In 2013, the style diversification and delayed rebalancing/momentum were implemented. In 2014, the investment process was reconstructed to make contributions of the four insights/enhancements additive. The same year additional factors were added to the financial health insight.

BUY/SELL DISCIPLINE

Due to the nature of the construction process, Research Affiliates does not make discretionary decisions about individual stocks. Any buys, sells, and size adjustments are done as part of the annual reconstitution and quarterly rebalancing to the desired fundamental weightings. The portfolio utilizes an enhanced rebalancing process by staggering the investments into four equal amounts spread evenly throughout the year. This is done to increase trading capacity, lower market impact and minimize entry point risk.

Risk Management

The PIMCO RAE Fundamental Emerging Markets strategy stock selection process – based on underlying fundamentals and enhancements – determines individual security positions, sector and country weights, and market capitalization distribution. The RA research team has performed extensive back tests and is comfortable with the risk controls embedded in the strategy construction process and, therefore, has chosen not to add sector, country, market-cap, or risk-factor specific constraints. To spread out the active stock bets to limit idiosyncratic risk, maximum position size is limited to the greater of 2% absolute or RAFI EM index weight + 1%.

Given a dynamic rebalancing approach of buying more of what has been out of favor, the strategy will tend to be overweight stocks, sectors, and countries that have sold off significantly in the previous several years. For example, in 2015, the strategy had 10% and 7% absolute overweights to Russia and Brazil, respectively, as both countries suffered dramatic currency depreciations resulting in large negative dollar denominated returns. The MSCI Russia index (USD) delivered a (-46%) return in 2014 while the MSCI Brazil Index (USD) declined by more than 60% over 2013-15, delivering a (-41%) return in 2015 alone.

Potential Concerns

In 2014, Research Affiliates announced a new partnership with PIMCO. Within the new partnership structure, PIMCO provides administrative, operational oversight and supervisory services and serves as advisor to Research Affiliates' equity portfolios. Research Affiliates serves as a full discretion sub-advisor for PIMCO and continues to manage its equity strategies. The partnership increased reliance of Research Affiliates on PIMCO and the

integration between the two firms. We do not have any concerns about this development at the moment.

The strategy has no country or industry exposure limits. However, diversification is achieved based on the large number of holdings and sector allocations that are included in the underlying index.

A large number of enhancements have been implemented since the strategy's inception in 2006. Therefore, we believe the track record in recent years is more representative of what could be expected in the future.

In January 2016, Jason Hsu, vice chairman, co-founder and former CIO of Research Affiliates, became chairman, CEO, and majority owner of Rayliant Global Advisors (formerly Research Affiliates Global Advisors), an Asian-focused investment firm based in Hong Kong. Research Affiliates retains a substantial minority interest in Rayliant. Dr. Hsu remains a partner and owner of Research Affiliates. He continues to operate in a non-executive capacity and collaborate in research projects. While research contributions of Dr. Hsu were very important for original design and continuous product enhancement, a capable team of investment professionals was assembled over time to continue research efforts. Considering enhanced research capabilities and ongoing collaboration between Dr. Hsu and the RA research team, we do not have concerns about this transition at the moment.

Key man risk does exist with Rob Arnott as the founder and majority shareholder of the firm. He is the primary architect of the strategy and provides final input on product innovation and business strategy. However, he does share final decision responsibilities on the investment process with Chris Brightman and has a research staff of over 40 professionals that implement the day to day asset management decisions.

Performance

The strategy will typically underperform in strong momentum markets, and when the value style significantly underperforms growth. Dynamic value exposure (i. e., the value bias) is greatest when value is the cheapest, which was the main contributor to underperformance in 2015 when the strategy had large overweights in Brazil, Russia, and the Energy sector. In 2015, the strategy underperformed by 8%.

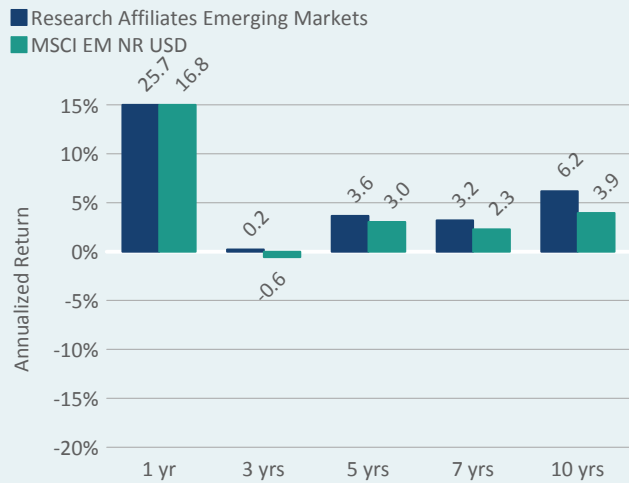
The strategy should perform well in the early stages of recovery. This was most evident in 2009, following the rebound from the global financial crisis, when the strategy outperformed the index by 15%. The strategy tends to generate moderate positive excess returns during less extreme markets that favor value style.

Recommendation

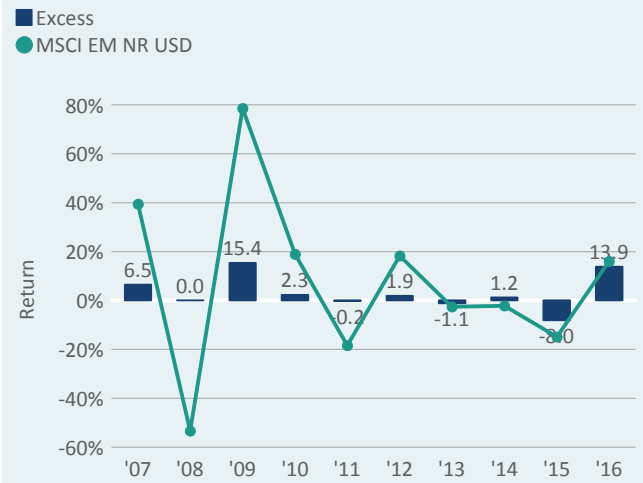
Verus recommends the PIMCO RAE Fundamental Emerging Markets Equity strategy as a compelling quantitative approach. The strategy is designed to operate with moderate tracking error. We favor the product for the following reasons:

- Independence and sole focus on quantitative strategies should help ensure dedicated attention to research and serving existing clientele;
- Consistently repeatable process should help mitigate behavioral biases.

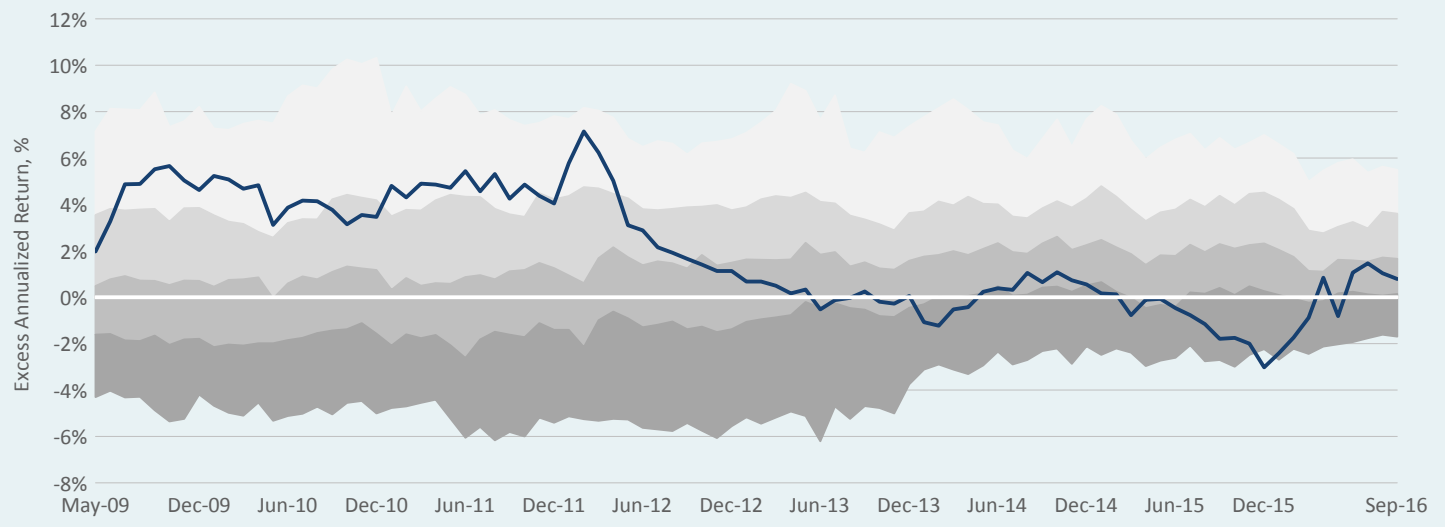
PERFORMANCE TO DATE AS OF SEP-16



ANNUAL PERFORMANCE



36 MONTH ROLLING EXCESS ANNUALIZED PERFORMANCE VS. EA EMERGING MKTS ALL CAP EQUITY



	3 years	5 years	7 years	10 years
Excess Annualized Return, %	0.8	0.6	0.9	2.2
Alpha, %	1.4	0.6	1.0	2.2
Beta	1.2	1.1	1.1	1.1
Annualized StdDev, %	20.5	20.0	20.3	26.0
Tracking Error, %	7.0	5.6	4.9	5.3
Information Ratio	0.0	0.2	0.2	0.2
Sharpe Ratio	0.1	0.3	0.3	0.3
Up Mkt Capture Ratio, %	132.0	120.5	116.2	116.5
Down Mkt Capture Ratio, %	120.5	115.4	110.1	107.0
Batting Average	0.4	0.5	0.5	0.5

Index: MSCI EM NR USD Returns: Gross of Fees
 Data Source: eVestment Alliance Universe: eA Emerging Mkts All Cap Equity

This report is provided for informational purposes only and nothing herein constitutes investment, legal, accounting or tax advice, or a recommendation to buy, sell or hold a security or pursue a particular investment strategy. The information in this report reflects prevailing market conditions and our judgment as of this date, which are subject to change. This information is obtained from sources deemed reliable, but there is no representation or warranty as to its accuracy, completeness or reliability. The material may include estimates, outlooks, projections and other "forward-looking statements." Due to a variety of factors, actual events may differ significantly from those presented. Investing entails risks, including possible loss of principal. **Past performance is no guarantee of future results.**

Manager Evaluation

TT International Emerging Markets Equity

UPDATED THROUGH: SEPTEMBER 2016

STRATEGY BASICS

Asset Class:	Emerging Markets Equity
Firm Inception:	1988
Firm Assets:	\$6.2 Billion
Strategy Inception:	March 2011
Strategy Assets:	\$465 Million
Min. Size, Sep. Account:	\$30 Million*
Fee, Sep. Account:	
First \$50 Million	0.85%
Next \$50 Million	0.80%
Next \$200 Million	0.75%
Remaining Balance	0.70%
Min. Size, Cayman* pooled fund:	\$3 Million
Fee, Pooled Fund:	
First \$50 Million	0.80%
Next \$50 Million	0.75%
Next \$200 Million	0.70%
Remaining Balance	0.65%

* The fund charges operating expense of 0.31% (max 0.50%) as well as entry and exit fees that vary based on size of investment and market conditions. The fund provides monthly liquidity.

Firm Background and History

Founded in 1988, TT International (TT) is a London-based, employee owned investment firm managing mainly institutional assets and offering an array of equity strategies, the largest being international equity, representing nearly a third of firm AUM. The firm also offers a range of high conviction macro and equity long/short strategies which are managed by a dedicated hedge fund team. Tim Tacchi, firm founder, is the largest shareholder owning slightly less than 50% of the firm. The

remainder is shared among more than 15 investment and business professionals. Ownership is granted, and new partners pay a nominal percentage of regulatory capital which is also the mechanism for any exiting partners. This system is analogous to buying in/out at book value ensuring partners participate in economic value only while at the firm.

During its early history, TT's assets were heavily weighted to EAFE mandates, a top-down oriented product managed in a regional silo structure by Tim Tacchi. The firm endured a period of underperformance and subsequent redemptions in 2008 and again in 2011. Since then, the firm has bolstered risk management in terms of systems and personnel and added new strategies to diversify its business.

Strategy Background

The TT Emerging Markets product can be distinguished by its well-integrated use of top-down and bottom-up analysis in constructing portfolios. The team is diligent in understanding sources of risk in the portfolio, evaluating off-benchmark exposures both in percentage terms as well as in terms of contribution to tracking error. We see this explicit recognition of varying volatility within emerging markets as a differentiator. Active currency management, while limited to a 10% contribution to tracking error, allows the team to conduct local market-based stock analysis without being forced to make the implicit currency evaluation.

Key Investment Professionals

The core Global Emerging Markets team consists of four portfolio managers, three analysts and an investment strategist. Although these individuals specialize in emerging markets, they are considered part of TT's "Ideas Factory" of 20 professionals supporting the firm's global, international and emerging markets equity products. Two of the four portfolio managers are partners in the firm.

Partnership share and incentive compensation are determined qualitatively based on performance relative to objectives. All members of the team co-invest in the emerging markets strategy.

Niall Paul, Lead Portfolio Manager, was recruited by founder Tim Tacchi to take a more holistic view of the firm's international equity strategy and to build a dedicated emerging markets strategy. The firm credits Mr. Paul with moving the international portfolio away from regional to centralized portfolio construction and also enhancing integration of top-down and bottom up work.

NIALL PAUL, HEAD OF EMERGING MARKETS, LEAD PORTFOLIO MANAGER

Mr. Paul is head of global emerging markets at TT International and also a partner with the third largest ownership share in the firm. He joined TT in 2010 to build and manage a dedicated global emerging market capability. He oversees stock-picking within emerging markets but also contributes to developing top-down investment strategy and works with Tim Tacchi to implement regional allocations and portfolio construction for active international strategies. Before joining TT, Mr. Paul spent 10 years with Aviva Investors, where he was most recently CIO of Equities, having been Head of Emerging Markets and Asia. Prior to that he worked for Foreign & Colonial for six years. Mr. Paul graduated from the University of Liverpool with a BEng in 1993.

ROBERT JAMES, CO-PORTFOLIO - MANAGER EMERGING MARKETS

Robert James is a member of the emerging markets team and a partner in the firm. He joined the firm in 2011, and acts as co-fund manager on the global emerging markets fund and lead portfolio manager for the Horizon Strategy which invests in the smallest 25% of countries excluding Brazil, China, India, and Russia from the universe of MSCI Emerging Markets Index countries. Before joining TT, Mr. James spent five years with Pictet Asset Management, where he was most recently Head of Latin America, having been Senior Portfolio Manager for Emerging Markets. Mr. James graduated with a BA (Hons) from Oxford University in 1999 and from the University of East Anglia an MA (Distinction) in 2000 and a PhD in 2004.

SEBASTIAAN DE BONT, FUND MANAGER – EMERGING MARKETS

Sebastiaan de Bont joined TT in 2010 as an emerging markets portfolio manager based in Hong Kong. As well as having some direct stock selection responsibility in emerging Asia, Mr. de Bont works with Niall Paul in managing TT's Global Emerging Markets strategy. Mr. de Bont joined TT from Fideuram Asset Management where he was head of emerging markets and prior to that he worked at Robeco Asset Management where he was a senior portfolio manager covering emerging markets.

Process

The team follows an investment philosophy centered on the idea of inefficient markets. They believe that there is insufficient analysis on emerging markets as well as the interaction between macro and microeconomic factors. This, combined with the idea that persistent behavioral biases exist among investors, leads TT to believe that many emerging market securities are mispriced. TT makes use of broad macroeconomic views combined with fundamental analysis in analyzing securities for investment. The firm employs fundamental analysis with a bottom-up and top-down approach. The approach tends to favor GARP stocks but is opportunistic in terms of style and market capitalization. The team focuses on companies with long-term growth opportunities at exceptional value relative to their peers.

The team meets monthly to do top-down analysis based on objective factors (price momentum, valuation, earnings revision) and subjective factors (liquidity, politics & reform), ranking countries as a framework for bottom-up analysis. The price momentum ranking reflects 1-month and 12-month timeframes. The earnings revision ranking reflects ROE, 3-month earnings revision and 12-month EPS growth. The valuation ranking reflects price/book, 12-month forward P/E and valuation relative to history. The liquidity ranking reflects GDP growth, real rates, the current account and fiscal balances. Top down ranking of countries does not build the portfolio, but does inform the team which markets to avoid and also identifies themes. The result of top-down analysis is a ranking for each country in the emerging markets on price momentum, earnings revisions, valuation and liquidity. The team also ranks the developed markets of Europe, Japan, UK and US as part of this analysis. This ranking serves as a guide for stock analysis, and the team tends to focus on stocks in

countries ranking in the top half of the model and avoid those in the bottom half.

Separate from top-down analysis, bottom-up analysis includes a quantitative ranking of stocks in the universe on price momentum, valuation and earnings revision. Price momentum is assessed on 1-month and 9-month timeframes. Earnings Revision is assessed on a 1-month and 3-month basis for the current year and the year ahead. Valuation is ranked based on P/E (current and year ahead), P/B, EV/EBITDA, ROE and dividend yield. These stock rankings are used to verify existing holdings for a catalyst coming through in earnings as well as to prompt for new ideas.

The ranking is supplemented with visits to companies to determine where the consensus is wrong and to identify a catalyst (valuation-verification-catalyst). For valuation, the team applies the most appropriate valuation method for each company/sector. A price target is determined that reflects fair value and conducts free cash flow analysis on all non-financials. The team uses a stock verification template to record information from company visits and other information sources and to prompt challenge within the team. Critical to the analysis is identification of a catalyst that will release value as well as a timeframe for that catalyst. Catalysts may be driven by change in earnings outlook, market sentiment, management action, restructuring or regulatory change.

While the top-down ranking informs the bottom-up work, it does not drive stock selection. If a stock is particularly attractive on a bottom-up basis, the team examines the disaggregation of the country's top-down ranking to determine what is driving the country ranking and to examine their comfort in the stock given the country risks highlighted by the top-down work. Niall Paul has ultimate authority for stock selection, and Robert James acts as his right-hand man.

Stocks may be sold if they reach their price target, if the investment thesis changes or if the catalyst fails to materialize. The team conducts a weekly winners and losers meeting as a formal review of stocks that are contributing negatively to performance. In each case, the position is cut if they conclude the investment case is weakened, but the position is increased if they conclude the investment case is strong and recent price action is unwarranted.

Initial position size is typically 1%, but will vary depending on conviction, scoring on valuation-verification-catalyst, capitalization and liquidity. A typical portfolio holds 40-60 stocks and tracking error is in the 4-8% range.

TT actively manages currency, and Niall Paul has ultimate responsibility for the currency decision which is implemented by a team of FX strategists and traders dedicated to that function. Currency views are assessed as part of the portfolio construction process incorporating assessment of macro and technical factors. The firm's default position is to neutralize unintended currency bets arising from their equity allocation. Less frequently, the team may implement a policy hedge running an intentional over- or underweight to the currency.

Risk Management

Portfolio limits relative to benchmark are broad and defined in terms of contribution to tracking error. A single sector or country can contribute no more than 50% of tracking error, a single stock no more than 10%. In percentage terms, country or sector active weight has rarely exceeded 10%. The portfolio can allocate to developed markets. Historically, the allocation has varied between 0% and 15%.

The team may take an active currency position in excess of that implied by the stock position, but will never take a short currency position that exceeds the currency exposure due to the stock position. Active currency positions cannot contribute more than 10% of tracking error.

When measuring stock risk, TT disaggregates tracking error into its component parts (market, region, sector, style, and stock specific) to ensure that a portfolio's risk budget is deployed in the areas where it is intended. The portfolio management team is responsible for monitoring position size relative to downside risk and for ensuring that risk is in line with conviction and the alpha target.

There is a formal weekly meeting of the risk management team with the portfolio management team to discuss portfolio construction and risk distribution. The Risk, Legal and Compliance team comprises over 10 professionals and reports to the chief operating officer. The team produces detailed analytics and also conducts scenario analysis. The investment team does not target a particular level of tracking error. Thus, conversations with the risk team

involve risk contribution and breakdown of tracking error rather than the level itself.

Observations/Potential Concerns

Niall Paul is architect of the strategy and key decision maker. Robert James and Sebastian de Bont have significant industry experience and could potentially assume responsibility in Mr. Paul's absence, although we do not see them as complete substitutes for him. We would need to evaluate any team change critically.

In addition to Mr. Paul, TT also recruited Sebastiaan de Bont in 2010. The inception of the TT Emerging Markets strategy is in 2011. However, the firm shows Mr. Paul's track record from Aviva (2001-2006) and Mr. de Bont's track record from Fideuram Asset Management (2007-2010) as supplemental information. The firm acknowledges the differences in many features of these funds, and the return series are not linked to that of the TT product

The firm estimates it has approximately \$3 billion total capacity in the product. We should revisit the allocation to midcap stocks as assets under management grow to ensure that liquidity issues do not result in capitalization drift.

Performance

The EM product targets 3-4% annualized alpha over its benchmark (MSCI Emerging Markets Index) over a rolling 3-year period.

By virtue of its higher allocation to midcap, the portfolio may struggle in environments characterized by large flows into ETFs which boost returns of large cap stocks. The TT investment approach is longer-term oriented and based in fundamentals; markets characterized by multiple re-rating of companies reflecting changes in shorter term sentiment will not favor the portfolio.

TT tracks contribution to return by currency management and reports that it has added over 20 basis points per year since inception.

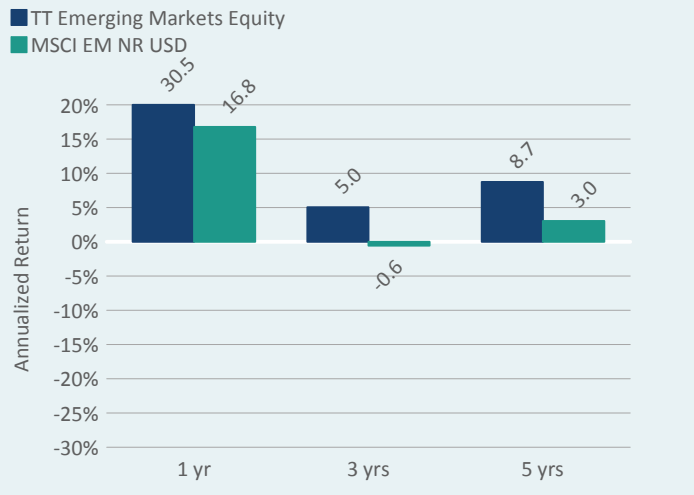
Recommendation

TT Investment's emerging markets product can be distinguished by a high alpha approach delivered by portfolios significantly different from the benchmark. Tracking error will tend to be high, ranging from 4% to 8%.

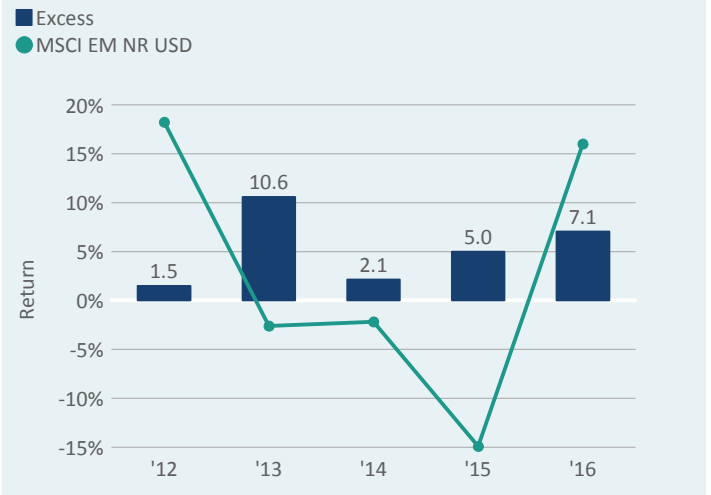
The firm has the resource to actively hedge currency, which allows the team to select stocks on a pure local-market basis and to hedge associated currency risk. For instance, this allows the portfolio to express an active position in an exporter despite it being domiciled in a country with a deteriorating currency. Currency is never allowed to contribute more than 10% of active risk.

Verus recommends the TT International Emerging Markets Equity products for clients seeking a high active share, growth oriented emerging markets product. This product may not be appropriate for clients uncomfortable with higher tracking error.

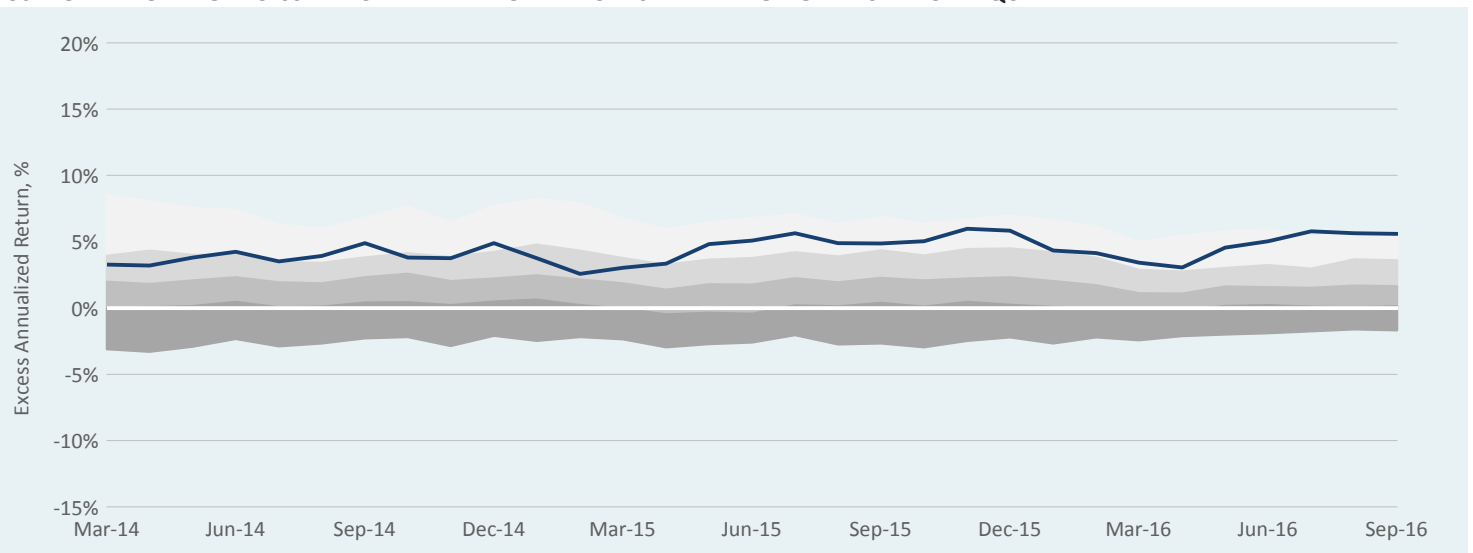
PERFORMANCE TO DATE AS OF SEP-16



ANNUAL PERFORMANCE



36 MONTH ROLLING EXCESS ANNUALIZED PERFORMANCE VS. EA EMERGING MKTS ALL CAP EQUITY



	1 year	3 years	5 years
Excess Annualized Return,%	13.7	5.6	5.7
Alpha, %	13.0	5.5	5.6
Beta	0.9	0.9	1.0
Annualized StdDev,%	17.6	16.0	17.5
Tracking Error, %	5.8	5.3	4.8
Information Ratio	1.7	0.3	0.5
Sharpe Ratio	1.6	0.4	0.6
Up Mkt Capture Ratio, %	110.3	96.1	102.4
Down Mkt Capture Ratio, %	53.0	74.6	79.2
Batting Average	0.8	0.6	0.7

Index: MSCI EM NR USD Returns: Gross of Fees
 Data Source: eVestment Alliance Universe: eA Emerging Mkts All Cap Equity


This report is provided for informational purposes only and nothing herein constitutes investment, legal, accounting or tax advice, or a recommendation to buy, sell or hold a security or pursue a particular investment strategy. The information in this report reflects prevailing market conditions and our judgment as of this date, which are subject to change. This information is obtained from sources deemed reliable, but there is no representation or warranty as to its accuracy, completeness or reliability. The material may include estimates, outlooks, projections and other "forward-looking statements." Due to a variety of factors, actual events may differ significantly from those presented. Investing entails risks, including possible loss of principal. **Past performance is no guarantee of future results.**

Next steps

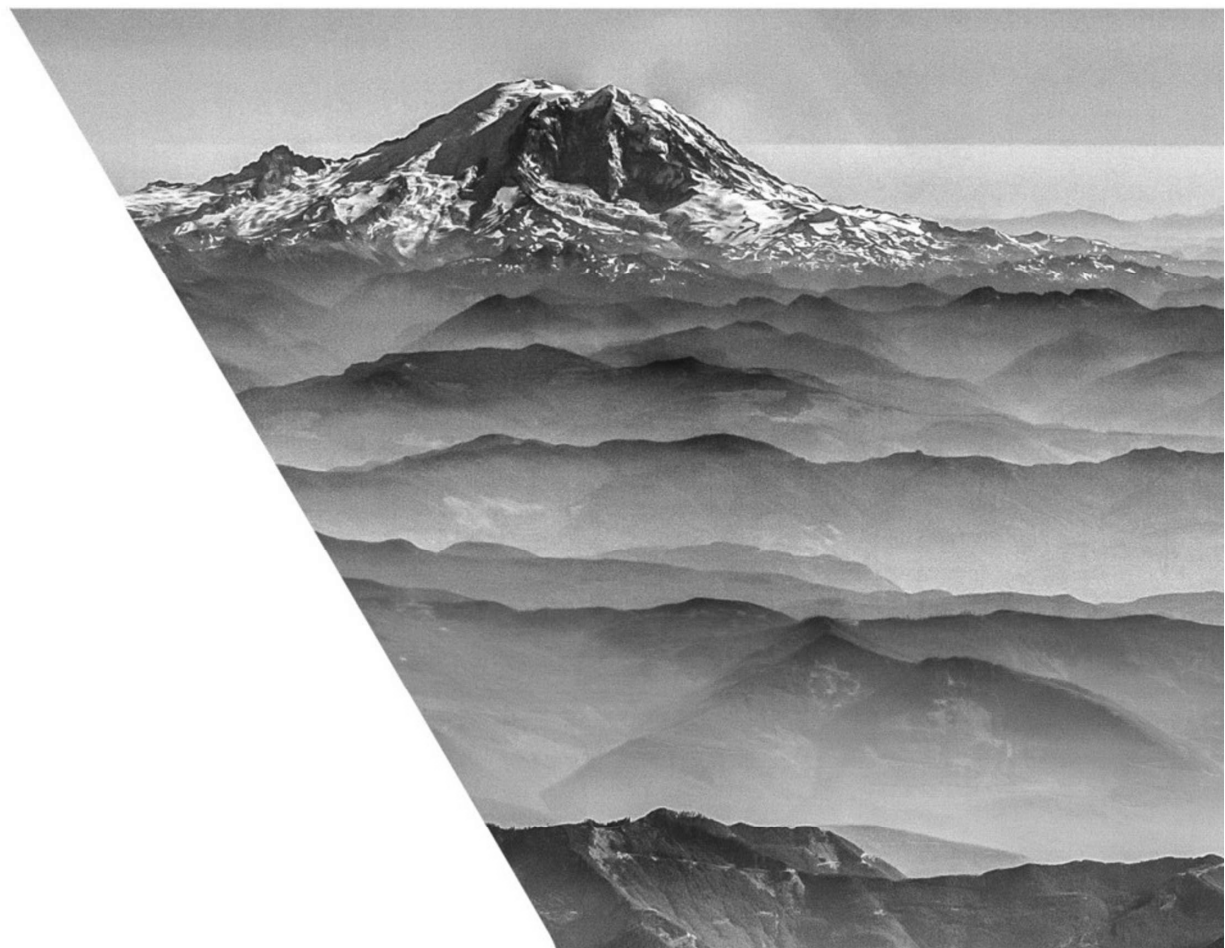
Next steps

- Finalists to present to the Board immediately following this presentation;
- Allocate \$300mm to the PIMCO and \$300mm to the TT strategies; and
- Authorize Staff to negotiate and the CEO to execute a contract with these investment managers

Appendix I: Search Book



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



January 2017

Emerging Markets Equity Search

Contra Costa County Employees' Retirement Association

I. Manager overview

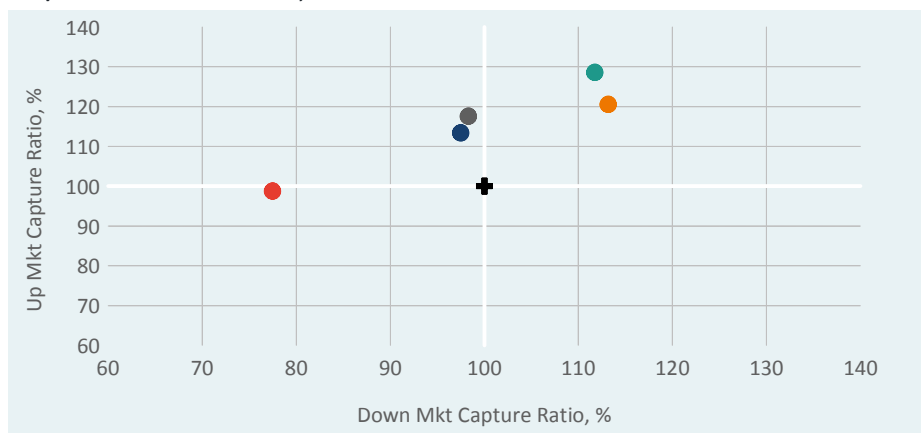
Manager comparison

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair
FIRM OWNERSHIP	100% employee owned	100% employee owned	Public Company (NYSE: LAZ)	Wholly owned subsidiary of Allianz Global	100% employee owned	100% employee owned
FIRM NAME	Baillie Gifford & Co	Brandes Investment Partners, L.P.	Lazard Asset Management LLC	PIMCO	TT International	William Blair Investment Management, LLC
PRODUCT NAME	Emerging Markets All Cap Equities	Emerging Markets Equity	Emerging Markets Equity	PIMCO RAE Fundamental Emerging Markets	TT Emerging Markets Equity	Emerging Markets Leaders
FIRM TOTAL AUM (\$MM)	\$191,634	\$27,643	\$186,519	\$1,548,115	\$6,174	\$67,014
STRATEGY AUM (\$MM)	\$7,030	\$2,422	\$31,087	\$4,631	\$465	\$4,788
INCEPTION DATE	Sep-94	Dec-94	Jul-94	May-06	Mar-11	Apr-08
PREFERRED BENCHMARK	MSCI EM-GD	MSCI EM-GD	MSCI EM-ND	MSCI EM-ND	MSCI EM-GD	MSCI EM-ND
INVESTMENT APPROACH	Fundamental	Fundamental	Fundamental	Quantitative	Fundamental	Fundamental
SCREENING APPROACH	Bottom-Up	Bottom-Up	Bottom-Up	Bottom-Up	Top-Down Bottom-Up	Bottom-Up
KEY ATTRIBUTES	Benchmark agnostic Growth bias 3-5 yr time horizon	Team approach High TE Deep value Country tilts	Diversified Low turnover High quality Value tilt	Quantitative approach Very diversified Value tilt	Active currency All cap portfolio Core to growth	Growth tilt 12-18 month investment horizon

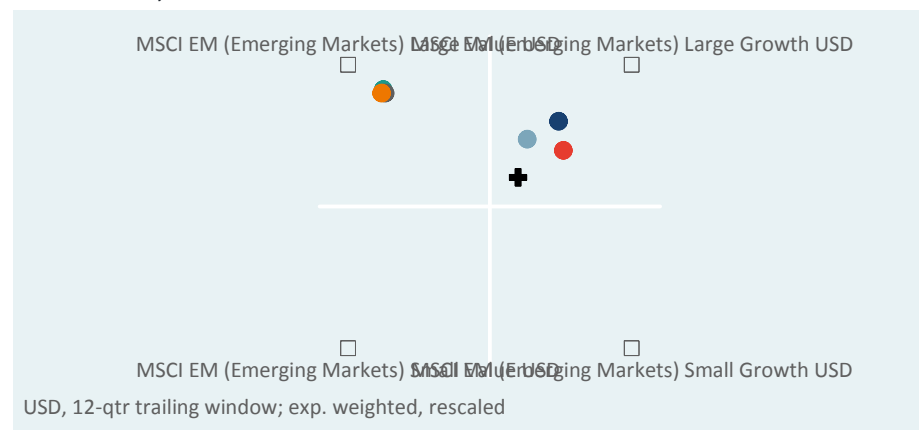
Style and portfolio comparison

● Baillie Gifford ● Brandes ● Lazard ● PIMCO RAE ● TT International
● William Blair + MSCI EM Index

UP/DOWN MARKET CAPTURE, JUL-11 TO JUN-16



MSCI EM MAP, JAN-14 TO JUN-16

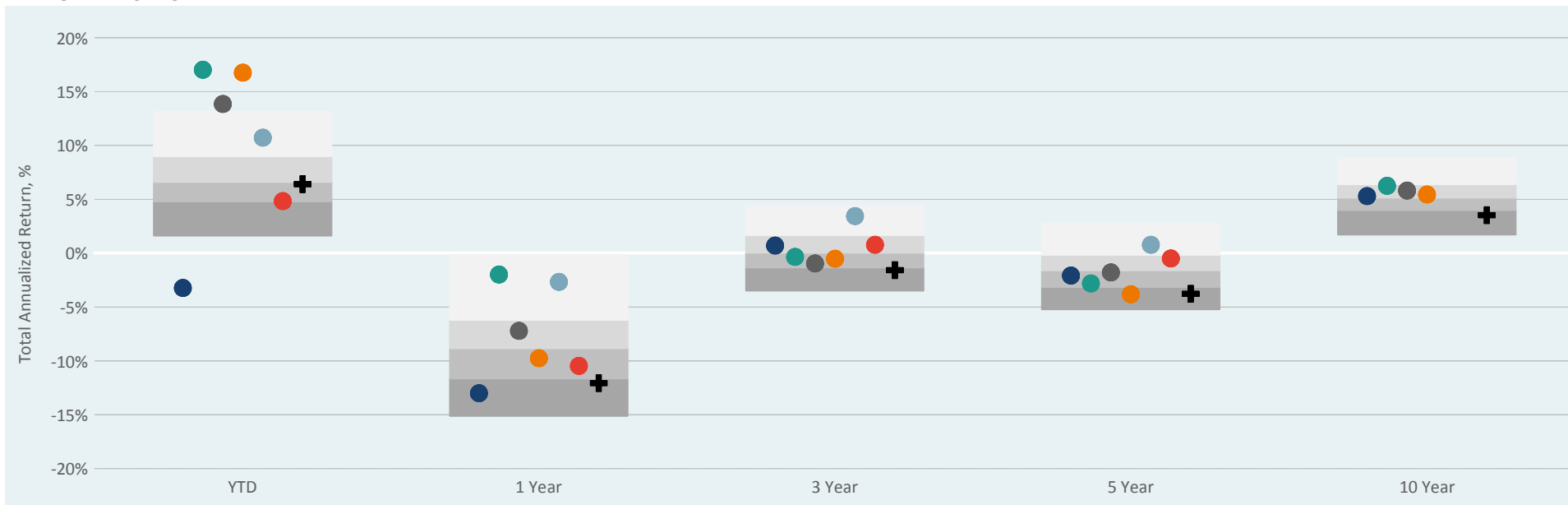


	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair
% HOLDINGS IN 10 LARGEST STOCKS	40.9%	25.2%	32.5%	24.3%	36.2%	33.2%
ANNUAL TURNOVER	18.8%	31.2%	9.2%	30.0%	153.0%	100.1%
CASH	1.6%	1.6%	3.0%	0.6%	3.6%	2.7%
CURRENT DIVIDEND YIELD	1.6%	3.2%	3.1%	3.2%	2.2%	1.9%
CURRENT P/E	18.9	10.1	12.4	9.5	13.0	17.9
CURRENT P/B	2.3	0.9	1.5	0.8	1.4	3.2
PORTFOLIO HOLDINGS	66	80	76	500	58	69
WGTD. AVG. MKT. CAP	\$ 72,588	\$ 20,132	\$ 49,186	\$ 21,084	\$ 42,753	\$ 44,081
MAX CASH POSITION	10.0	15.0	10.0	2.0	10.0	10.0
MAX POSITION SIZE	5.0	5.0	7.0	2.0	10.0	6.0
FRONTIER MARKETS %	0.0%	2.2%	0.0%	0.0%	9.1%	0.0%

Performance comparison - as of June 2016

● Baillie Gifford ● Brandes ● Lazard ● PIMCO RAE ● TT International
● William Blair + MSCI EM Index

PERFORMANCE TO DATE

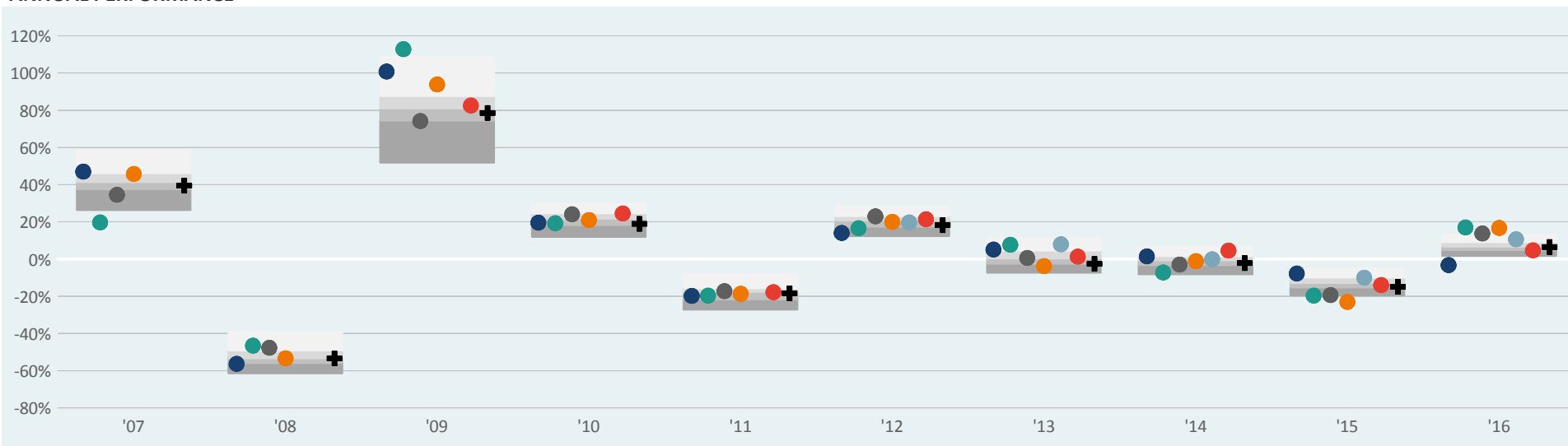


EXCESS ANNUALIZED RETURN TO DATE, %	YTD	1 Year	3 Year	5 Year	10 Year
Baillie Gifford	-9.6	-0.9	2.3	1.7	1.8
Brandes	10.6	10.1	1.2	1.0	2.7
Lazard	7.5	4.9	0.6	2.0	2.3
PIMCO RAE	10.4	2.3	1.1	0.0	1.9
TT International	4.3	9.4	5.0	4.6	---
William Blair	-1.6	1.6	2.4	3.3	---

Calendar year performance

● Baillie Gifford ● Brandes ● Lazard ● PIMCO RAE ● TT International
● William Blair + MSCI EM Index

ANNUAL PERFORMANCE



ANNUAL PERFORMANCE AND RANKING	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Baillie Gifford	47.1	-56.2	100.8	19.7	-19.7	14.2	5.2	1.5	-7.7	-3.2
Rank	22	76	10	63	61	92	22	25	14	99
Brandes	19.8	-46.5	112.9	19.3	-19.5	16.7	7.7	-7.1	-19.6	17.1
Rank	98	16	3	67	59	81	14	94	95	1
Lazard	34.7	-47.6	74.3	24.1	-17.2	23.1	0.7	-2.8	-19.3	13.9
Rank	84	21	76	32	43	25	46	72	95	4
PIMCO RAE	45.9	-53.3	93.9	21.1	-18.6	20.1	-3.7	-1.0	-22.9	16.8
Rank	26	47	16	52	56	57	82	53	99	1
TT International						19.7	8.0	0.0	-9.9	10.7
Rank						62	11	40	25	12
William Blair			82.6	24.6	-17.7	21.5	1.4	4.7	-13.9	4.8
Rank			42	25	49	40	41	12	59	74
MSCI EM Index	39.4	-53.3	78.5	18.9	-18.4	18.2	-2.6	-2.2	-14.9	6.4
Rank	60	48	60	68	55	70	75	69	70	54

Performance summary - as of June 2016

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair	MSCI EM Index
PERFORMANCE ANALYSIS - (5 Years)							
Alpha %	2.0	2.0	2.3	0.8	5.2	2.9	0.0
Beta	1.0	1.1	1.0	1.1	1.1	0.9	1.0
R-squared %	87.4	88.6	95.0	94.9	93.1	95.1	100.0
Sharpe Ratio	-0.1	-0.1	-0.1	-0.2	0.0	0.0	-0.2
Treynor Ratio	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tracking Error %	6.7	7.5	4.2	5.1	5.3	3.9	0.0
Annualized Std Dev %	18.8	21.0	18.4	20.1	19.4	16.2	17.4
Information Ratio	0.3	0.2	0.5	0.0	0.9	0.9	---
Max Drawdown %	-22.9	-35.2	-28.9	-29.4	-23.9	-19.5	-23.0
Calmar Ratio	-0.1	-0.1	-0.1	-0.1	0.0	0.0	-0.2
Excess Ann. Return %	1.7	1.0	2.0	0.0	4.6	3.3	0.0
1 Year	-13.0	-2.0	-7.2	-9.7	-2.6	-10.5	-12.1
3 Year	0.7	-0.3	-0.9	-0.5	3.5	0.8	-1.6
5 Year	-2.1	-2.8	-1.8	-3.8	0.8	-0.5	-3.8
7 Year	5.3	6.8	5.8	5.1	---	6.7	3.8
10 Year	5.3	6.3	5.8	5.5	---	---	3.5
Common Inception (Apr-11)	-2.5	-2.9	-1.6	-3.7	0.6	-0.3	-3.8
CALENDAR YEAR RETURNS							
2015	-7.7	-19.6	-19.3	-22.9	-9.9	-13.9	-14.9
2014	1.5	-7.1	-2.8	-1.0	0.0	4.7	-2.2
2013	5.2	7.7	0.7	-3.7	8.0	1.4	-2.6
2012	14.2	16.7	23.1	20.1	19.7	21.5	18.2
2011	-19.7	-19.5	-17.2	-18.6	---	-17.7	-18.4
2010	19.7	19.3	24.1	21.1	---	24.6	18.9
2009	100.8	112.9	74.3	93.9	---	82.6	78.5
2008	-56.2	-46.5	-47.6	-53.3	---	---	-53.3
2007	47.1	19.8	34.7	45.9	---	---	39.4
2006	37.3	31.2	32.4	---	---	---	32.1

Investment vehicle information

	INVESTMENT VEHICLES	MINIMUM INVESTMENT	EXPENSE RATIO	FEE SCHEDULE	Other Fees	Liquidity
Baillie Gifford	Separate Account	\$250,000,000	0.80% 0.70% 0.60%	First \$50,000,000 Next \$50,000,000 Balance Remaining		Daily
	Mutual Fund (BGEHX)	\$25,000,000	0.86%	All Assets	0.20%/0.25%	Daily
	Mutual Fund (BGELX)	\$100,000,000	0.79%	All Assets	Sub/red fees	
	Mutual Fund (BGEDX)	\$500,000,000	0.71%	All Assets		
Brandes	Separate Account	\$10,000,000	0.95% 0.90% 0.80% 0.70%	First \$25,000,000 Next \$25,000,000 Next \$100,000,000 Balance Remaining		Daily
	Commingled Fund	\$1,000,000	0.95% 0.90% 0.80% 0.70%	First \$25,000,000 Next \$25,000,000 Next \$100,000,000 Balance Remaining		Monthly
Lazard	Separate Account	\$50,000,000	1.00% 0.80%	First \$100,000,000 Remaining Balance		Daily
	Group Trust	\$5,000,000	1.09%	All Assets		Monthly
	Institutional Trust	\$5,000,000	1.20%	All Assets		Monthly
	Mutual Fund (LZEMX)	\$100,000	1.10%	All Assets		Daily

Lazard: Mutual fund has limited capacity and requires pre-approval; Group Trust is ERISA eligible, E&F and 401k money not accepted; Institutional Trust is ERISA eligible and E&F eligible, 401k money not accepted.

Investment vehicle information

	INVESTMENT VEHICLES	MINIMUM INVESTMENT	EXPENSE RATIO	FEE SCHEDULE	Other Fees	Liquidity
PIMCO RAE	Separate Account	\$100,000,000	0.50% 0.45% 0.40%	First \$50,000,000 Next \$50,000,000 Balance Remaining		Daily
	Private Account (LLC)	\$50,000,000	0.75% 0.68% 0.60%	First \$50,000,000 Next \$50,000,000 Balance Remaining		Monthly
	Mutual Fund (PEIFX)	\$1,000,000	0.75%	All Assets		Daily
TT International	Separate Account	\$30,000,000	0.85% 0.80% 0.75% 0.70%	First \$50,000,000 Next \$50,000,000 Next \$200,000,000 Balance Remaining		Daily
	Commingled Fund	\$3,000,000	0.80% 0.75% 0.70% 0.65%	First \$50,000,000 Next \$50,000,000 Next \$200,000,000 Balance Remaining	0.31% op exp; Sub/red fees 0.40% max	Monthly

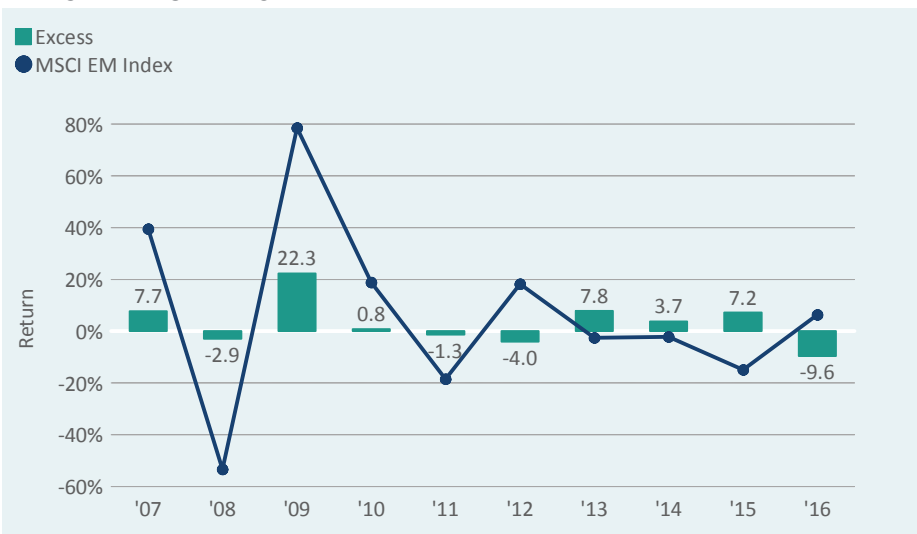
Investment vehicle information

	INVESTMENT VEHICLES	MINIMUM INVESTMENT	EXPENSE RATIO	FEE SCHEDULE	Other Fees	Liquidity
William Blair	Separate Account	\$20,000,000	0.90%	First \$20,000,000		Daily
			0.70%	Next \$30,000,000		
			0.60%	Next \$50,000,000		
			0.55%	Next \$50,000,000		
			0.50%	Next \$50,000,000		
			0.40%	Next \$200,000,000		
			0.30%	Balance Remaining		
	Commingled Trust	\$20,000,000	0.90%	First \$20,000,000	Op exp 0.10% max	Daily
			0.70%	Next \$30,000,000		
0.60%			Next \$50,000,000			
0.55%			Next \$50,000,000			
0.50%			Next \$50,000,000			
0.40%			Next \$200,000,000			
0.30%			Balance Remaining			
Mutual Fund (WELIX)	\$5,000,000	1.25%	All Assets		Daily	
Mutual Fund (WBELX)	\$500,000	1.40%	All Assets		Daily	

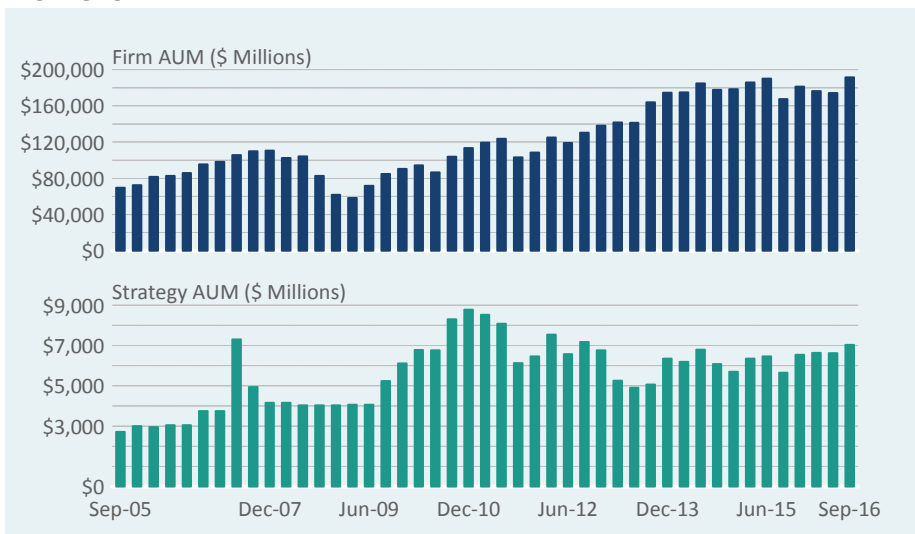
II. Strategy detail

Strategy overview - Baillie Gifford

ANNUAL PERFORMANCE



AUM GROWTH



INVESTMENT PHILOSOPHY

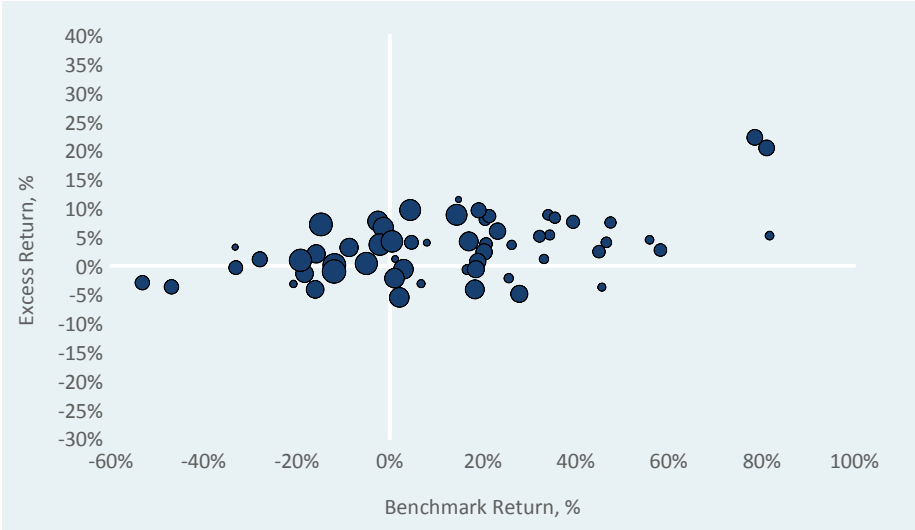
- Baillie Gifford believes that the power of compounding is often misunderstood, and that sustainable long-term investing is rewarded.
- The team takes a benchmark agnostic approach, focusing on a company's potential over 3-5 years and beyond.

TEAM DESCRIPTION

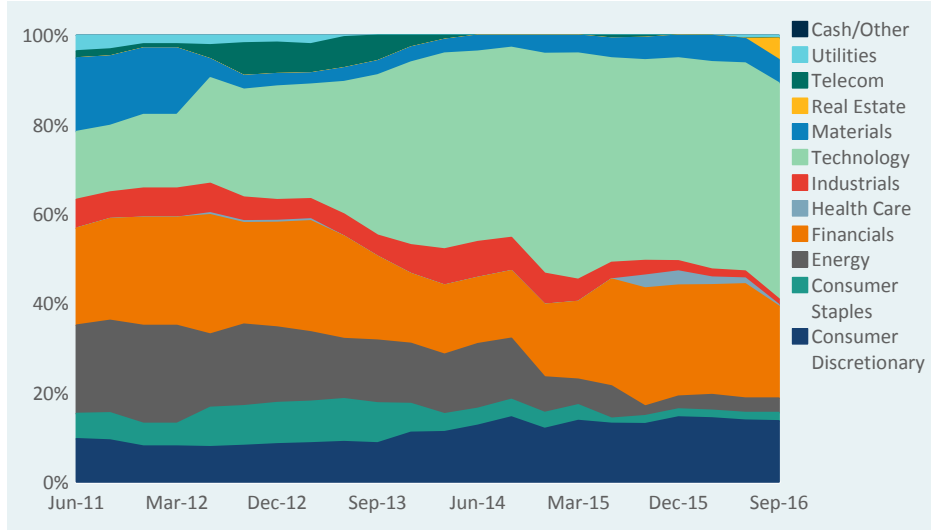
- The Emerging Markets team consists of nine investment professionals, including Richard Sneller, head of emerging markets team, six portfolio managers, and two analysts.
- Geographic region/country assignments are rotated every 2-3 years providing continuity of coverage and also fresh perspective.

Strategy overview - Baillie Gifford

12 MONTH EXCESS PERFORMANCE VS. BENCHMARK, SEP-01 TO JUN-16



HISTORICAL SECTOR ALLOCATIONS



PORTFOLIO CONSTRUCTION

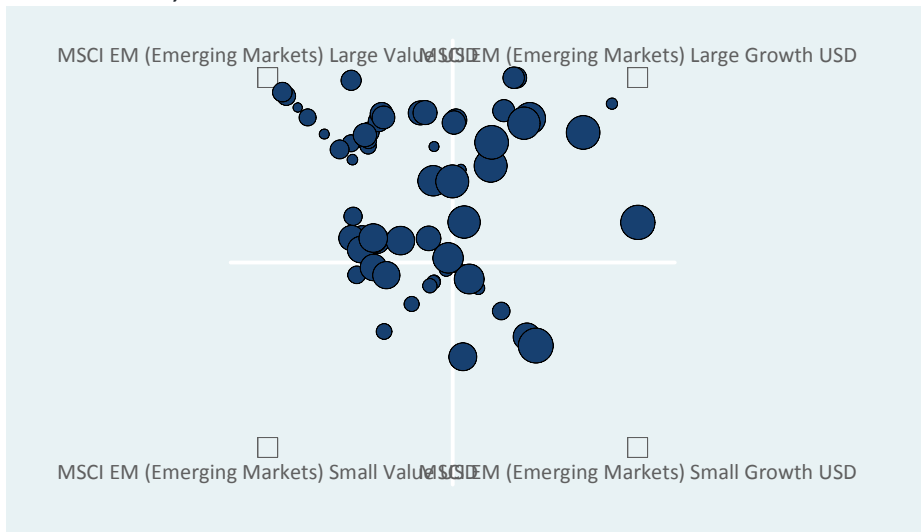
- 60 to 120 stocks
- Sector and country weighting a byproduct of stock selection
- Sector/country limited to +/- 15% of benchmark weight
- Individual stock position +/- 5% of benchmark weight
- Max cash position 10%

PERFORMANCE SENSITIVITY

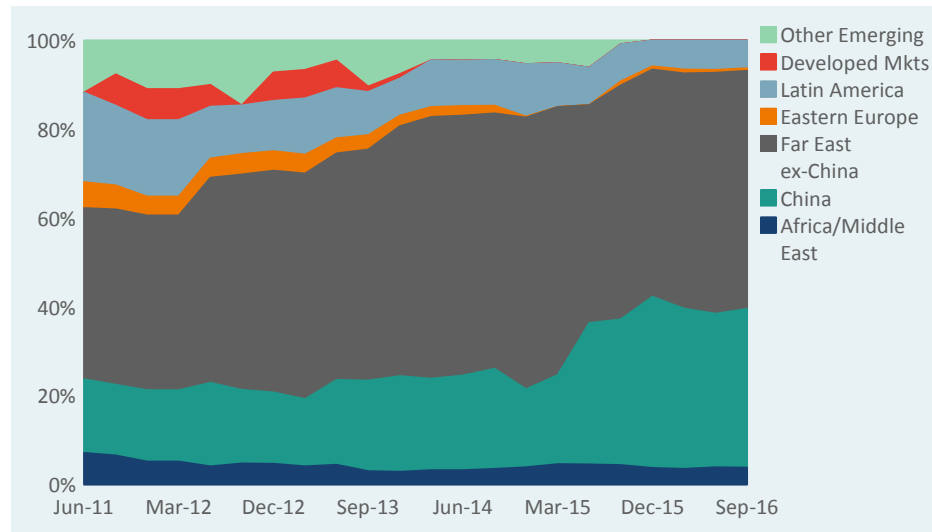
- The portfolio tends to struggle when low quality stocks outperform or in value-driven rallies; performance has been strong in recent down markets, although this is not an explicit aim of the process.

Strategy overview - Baillie Gifford

MSCI EM MAP, APR-98 TO JUN-16



HISTORICAL REGIONAL ALLOCATIONS



DIFFERENTIATING CHARACTERISTICS

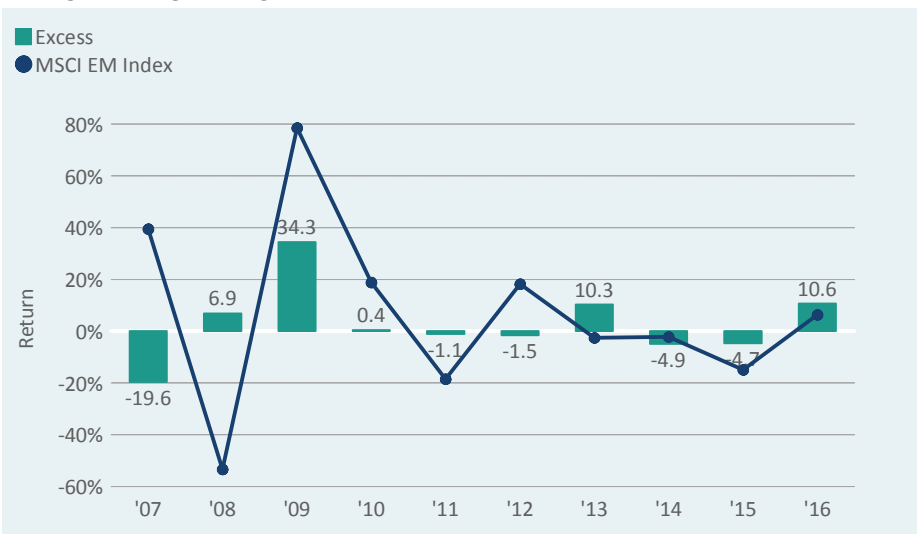
- Baillie Gifford can be distinguished by its very long horizon investment approach and independence supported by its partnership structure.
- Firm has maintained the same partnership structure for over 100 years.
- The firm eliminated the use of soft dollars altogether in 2015.

POTENTIAL CONCERNS

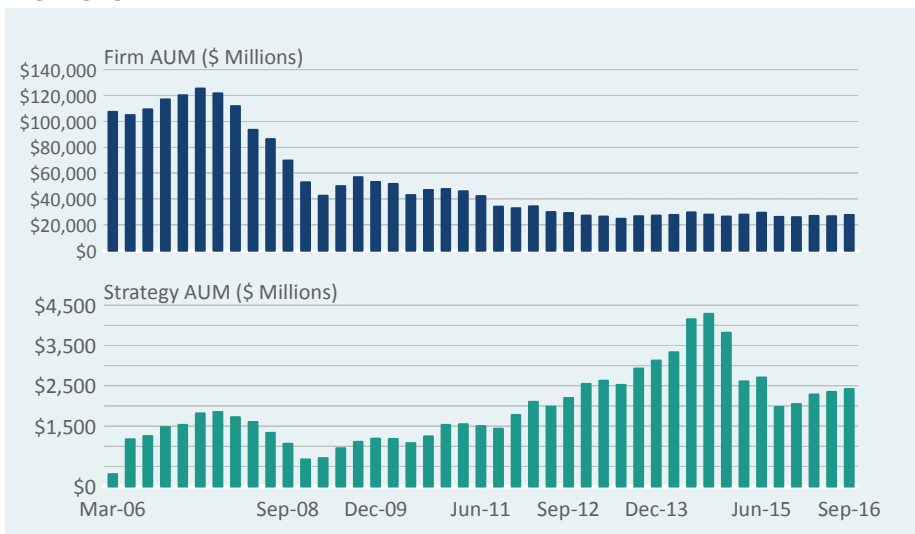
- The long-term investment horizon coupled with the potential for the portfolio to express large country or sector over/underweights has the potential to result in periods of underperformance.
- While Richard Sneller leads the team, there is considerable depth within the group and across the firm that we believe would allow the team to adapt if he were to depart.

Strategy overview - Brandes

ANNUAL PERFORMANCE



AUM GROWTH



INVESTMENT PHILOSOPHY

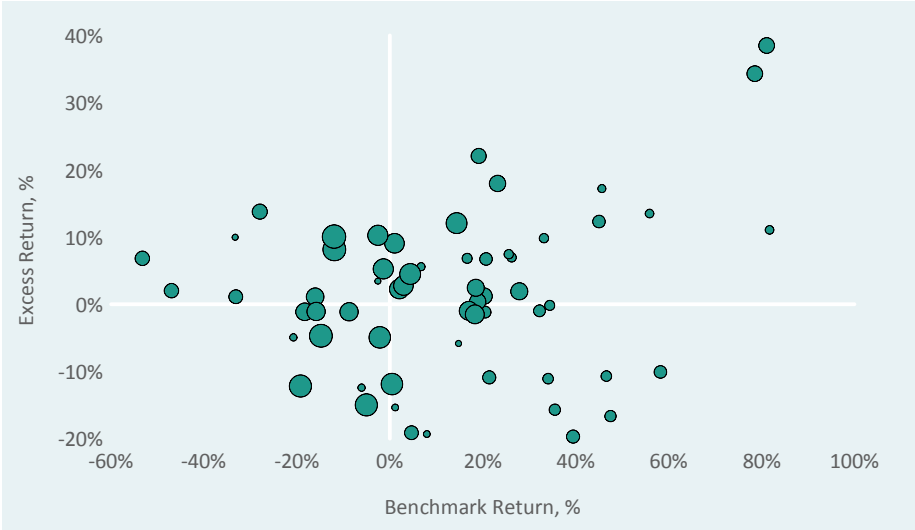
- Bottom-up fundamental approach with broad country & sector guidelines.
- Determine intrinsic value and look for high margin of safety.
- Invests in deep value companies based on a long term view (3-5 years).

TEAM DESCRIPTION

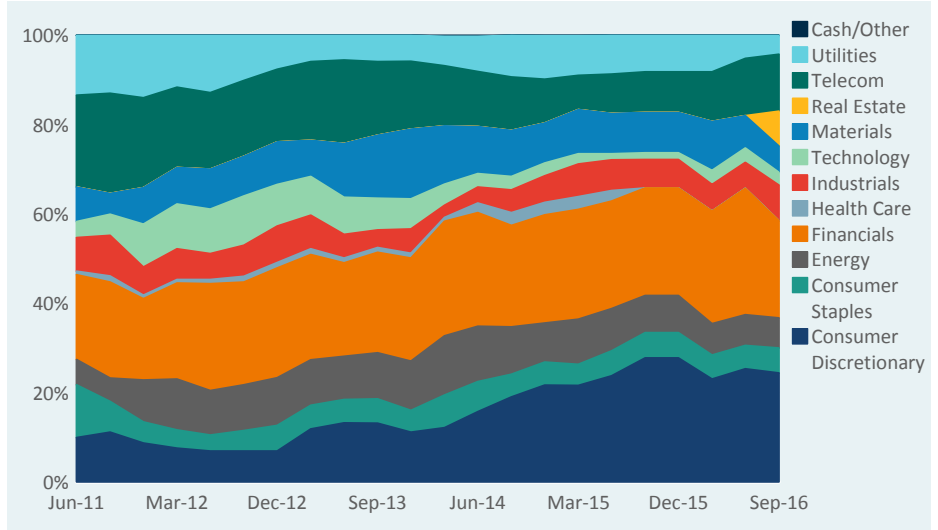
- Five investment committee members, all members have more than 15 years of investment experience.
- Supported by over 20 global sector research analysts with an average of 15 years investment experience.

Strategy overview - Brandes

12 MONTH EXCESS PERFORMANCE VS. BENCHMARK, SEP-01 TO JUN-16



HISTORICAL SECTOR ALLOCATIONS



PORTFOLIO CONSTRUCTION

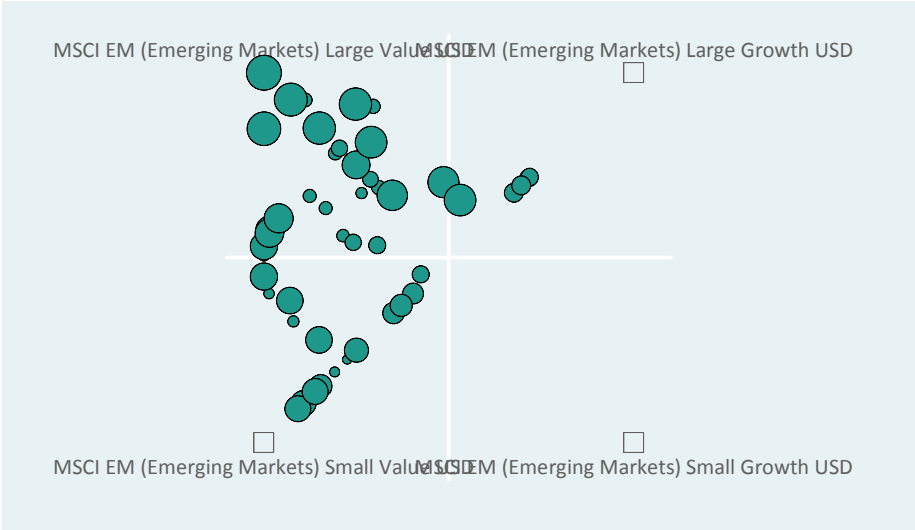
- Moderate diversification
- Broad country & sector weights: 0-20% or max 150% of benchmark weight
- 5% max position at cost

PERFORMANCE SENSITIVITY

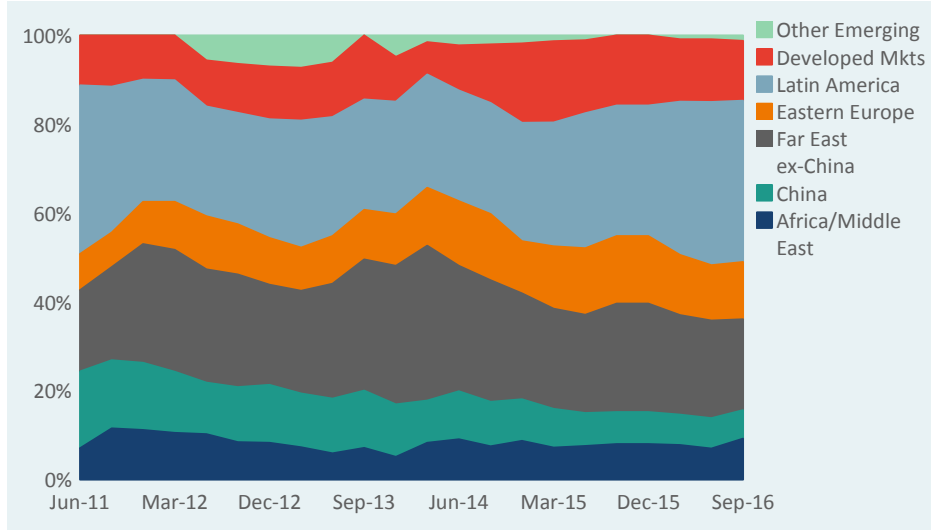
- Focus on high margin of safety helps the strategy to do very well through the early stages of recovery. It might lag in the later stages of an extended bull run as valuations become expensive.
- The strategy is benchmark agnostic, and large benchmark relative country over and underweights might have material impact on short and medium term results.

Strategy overview - Brandes

MSCI EM MAP, APR-98 TO JUN-16



HISTORICAL REGIONAL ALLOCATIONS



DIFFERENTIATING CHARACTERISTICS

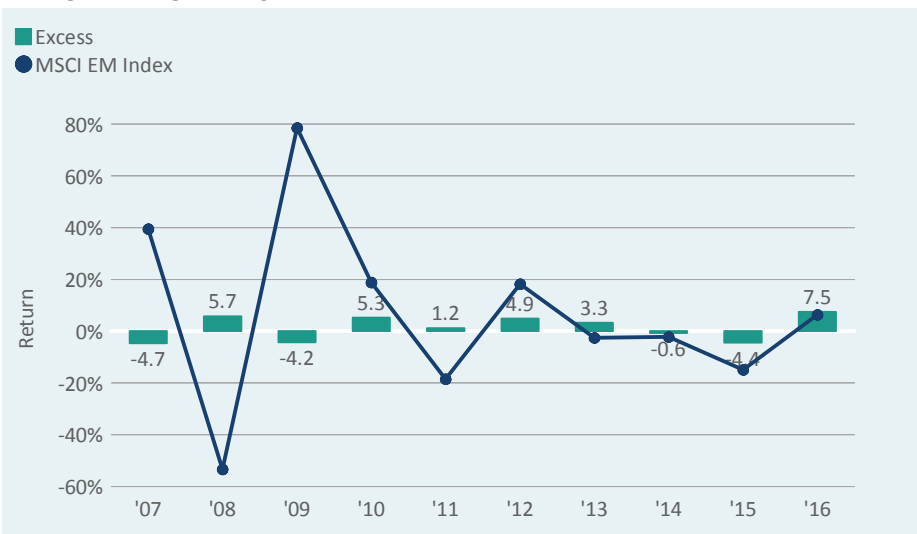
- Price driven value investor
- Deep, experienced, fundamental research team

POTENTIAL CONCERNS

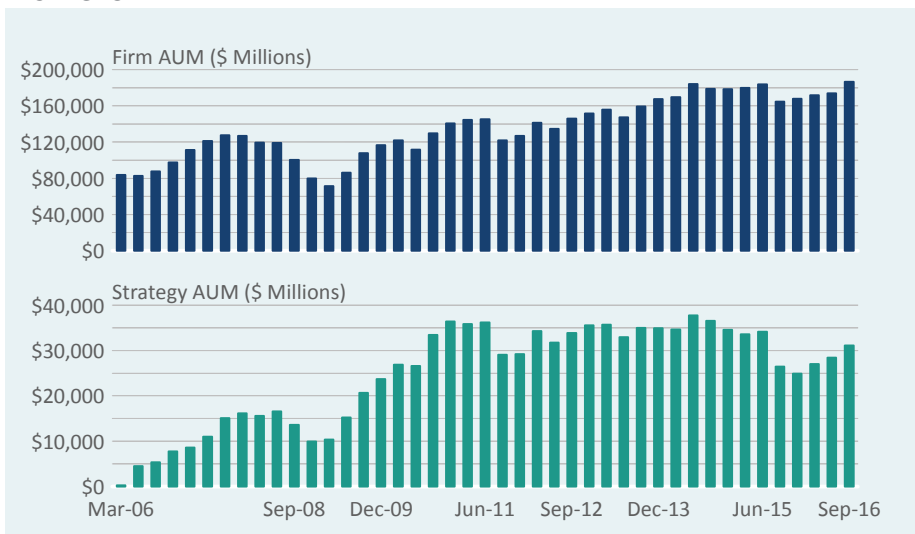
- Benchmark agnostic, will look and perform very differently than the benchmark at times.
- Long term, sometimes contrarian view, will have periods where they will underperform in the short term.
- The strategy invests in mid and large capitalization companies with a minimum capitalization requirement of \$3 billion.
- A higher minimum capitalization requirement in the mutual fund vehicle may produce different results than the commingled fund and separate accounts which are managed as all-cap portfolios.

Strategy overview - Lazard

ANNUAL PERFORMANCE



AUM GROWTH



INVESTMENT PHILOSOPHY

- The investment process is bottom-up and fundamentally driven.
- Grounded in bottom-up stock selection informed by an assessment of the tradeoff between valuation and financial productivity.
- The focus on financial productivity is assessed based on ROE, ROA, cash return on equity and operating margin.

TEAM DESCRIPTION

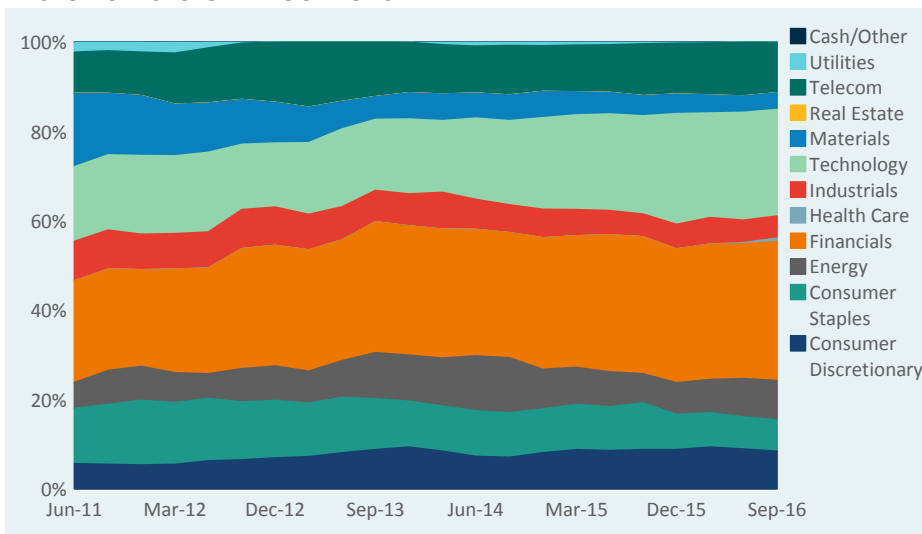
- Leader of emerging markets team is supported by two portfolio manager/analysts and three dedicated analysts.
- There are two support analysts who are part of a longer-term rotational structure at the firm.
- The emerging markets team also leverages the research of Lazard's global sector analysts.

Strategy overview - Lazard

12 MONTH EXCESS PERFORMANCE VS. BENCHMARK, SEP-01 TO JUN-16



HISTORICAL SECTOR ALLOCATIONS



PORTFOLIO CONSTRUCTION

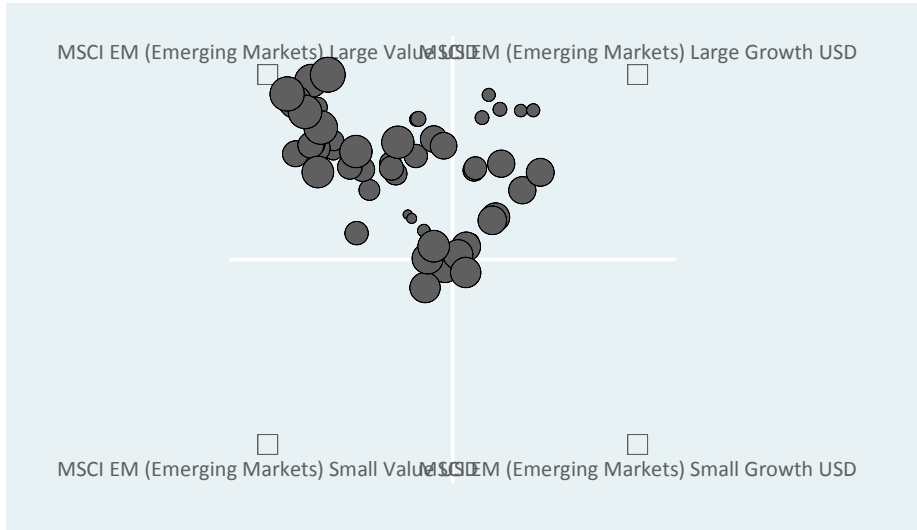
- 70 – 90 stocks, invested primarily in mid-to-large cap stocks
- Maximum position is typically 5% at cost and 7% at market
- No benchmark relative constraints on stock, sector or country allocation
- Maximum allocation to cash is 10%, cash levels of 3-5% are typical
- Low portfolio turnover, averaging approximately 10% per year

PERFORMANCE SENSITIVITY

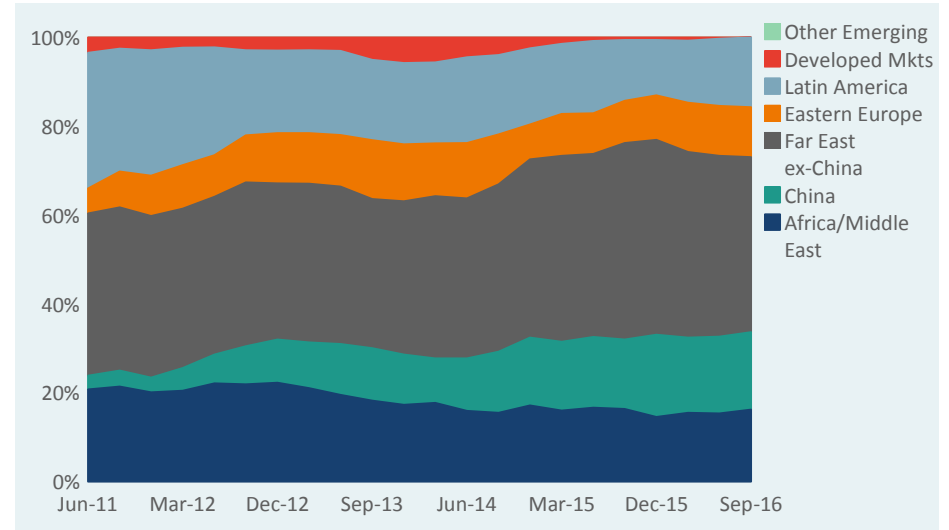
- The strategy can be expected to perform in line with a value style and is expected to perform particularly well when long periods favoring momentum come to an end.
- The strategy can be expected to underperform in momentum-driven rallies.
- The strategy may also be challenged in narrow markets characterized by low cross-sectional volatility that may hamper stock selection.
- Although this is a distinct value-driven style, the attention to quality can produce somewhat lower tracking error and better downside capture than a valuation-only driven approach.

Strategy overview - Lazard

MSCI EM MAP, APR-98 TO JUN-16



HISTORICAL REGIONAL ALLOCATIONS



DIFFERENTIATING CHARACTERISTICS

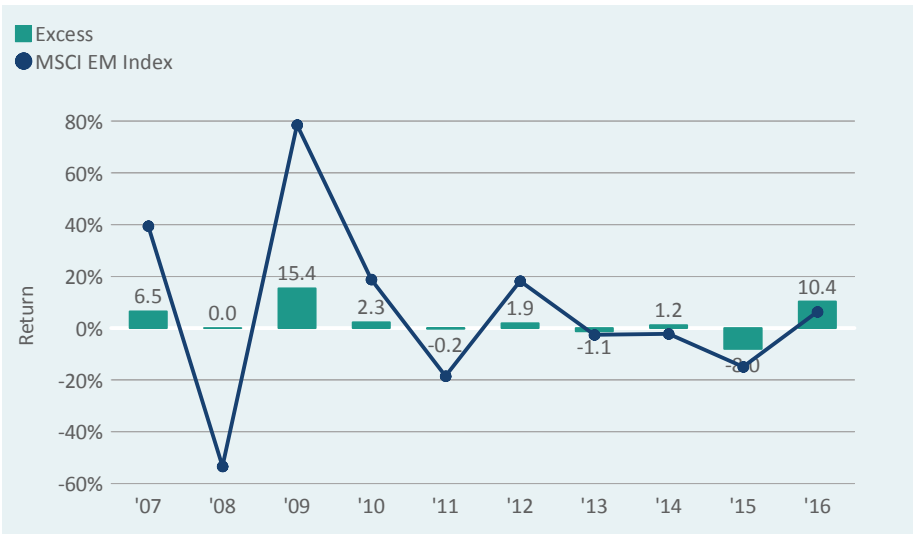
- The portfolio tends to have a higher quality profile than many pure valuation strategies as reflected by a portfolio ROE that is typically higher than the benchmark.
- Lazard has a unique ability to use the research resources across the firm, including the teams that manage core emerging markets and discounted assets as well as emerging markets debt.
- The emerging markets team is also able to leverage the firm's global sector analysts.

POTENTIAL CONCERNS

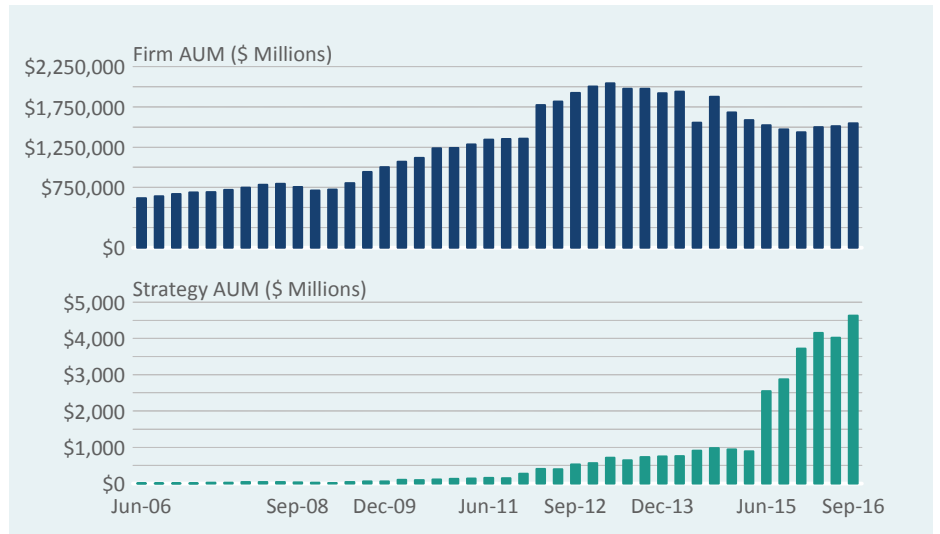
- Because the firm is publicly traded, there is the potential for short-termism to influence decisions related to the asset management business and how it is resourced. However, this is mitigated by the large share of revenue accounted for by the asset management business as well as the long tenure of the emerging markets team.
- James Donald, head of the emerging markets team, has been identified as key to the investment process and we would reassess our confidence in this strategy if he were to depart.
- After a period of AUM losses in this strategy, capacity has opened. The firm has set very specific thresholds based on market impact and daily trading volume. If the firm were to change or exceed these limits without closing the strategy, we would reevaluate our confidence.

Strategy overview - PIMCO RAE

ANNUAL PERFORMANCE



AUM GROWTH



INVESTMENT PHILOSOPHY

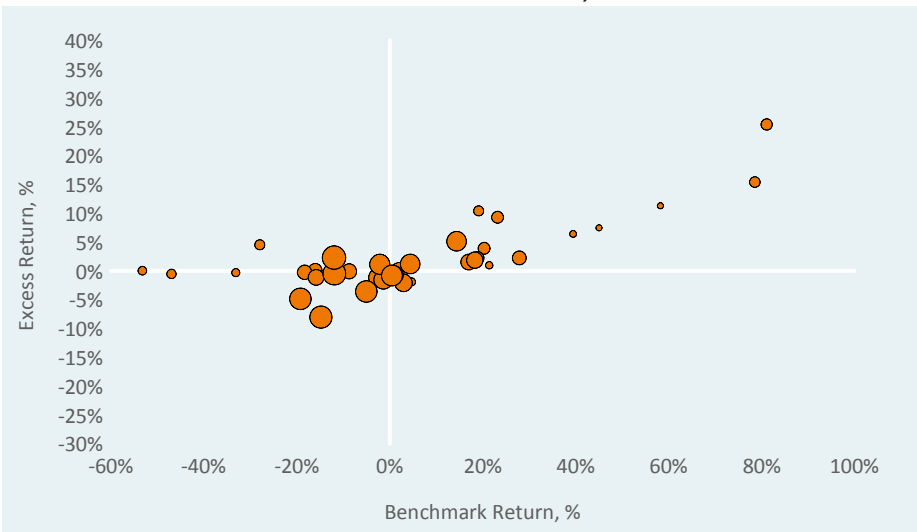
- Fundamental indexing approach that weights the securities based upon non-price driven characteristics of size other than market capitalization, including sales, cash flow, dividends, and book value.
- The weights are further refined through a series of active insights.
- (1) Financial health/quality: Seeking to avoid value traps by adding a quality metric.
- (2) Momentum: Trying to improve returns by eliminating negative exposure to momentum.
- (3) Diversification by style: Targeting to diversify active risk by style and improve upside potential by increasing/decreasing exposure to cheap/expensive stocks with low/high value factor.
- (4) Diversification by size: Seeking to improve return by redistributing active weights from large cap stocks to smaller cap stocks that are more likely to be mispriced.

TEAM DESCRIPTION

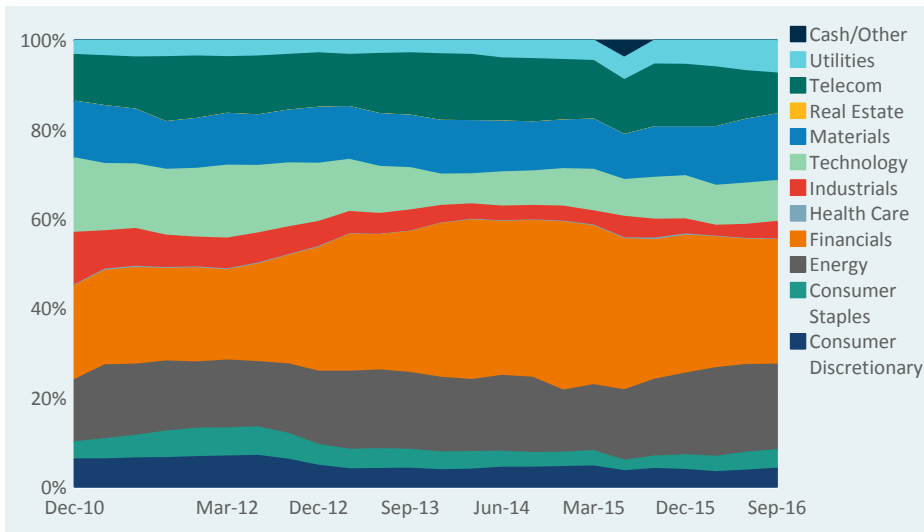
- Two portfolio managers, Rob Arnott and Chris Brightman are supported by a large group of investment professionals.
- Investment committee comprises Mr. Arnott, Mr. Brightman, and senior investment professionals across the firm. The committee is responsible for reviewing research findings and making investment decisions.

Strategy overview - PIMCO RAE

12 MONTH EXCESS PERFORMANCE VS. BENCHMARK, JUN-07 TO JUN-16



HISTORICAL SECTOR ALLOCATIONS



PORTFOLIO CONSTRUCTION

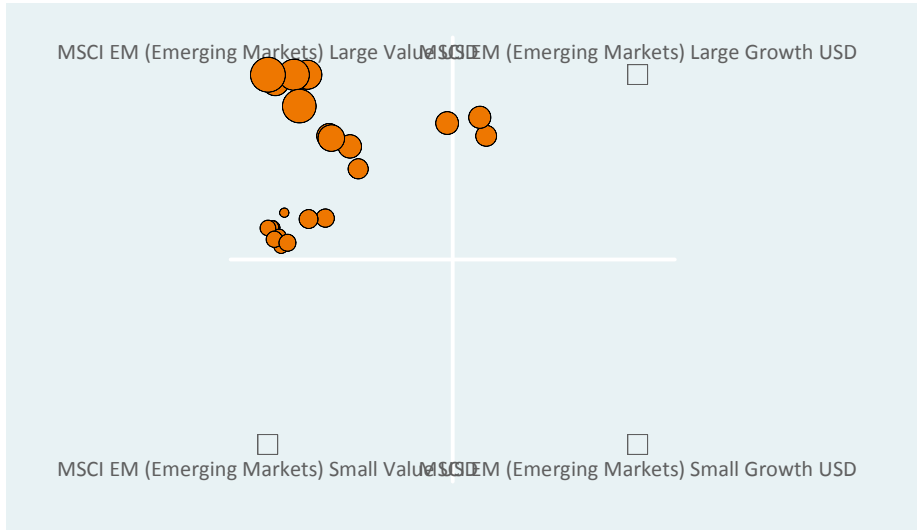
- Highly diversified
- Quantitative, bottom-up, rules based approach
- 300-600 holdings
- Rules based with no limits on sectors or countries, capitalization or individual position size
- 20%-40% turnover

PERFORMANCE SENSITIVITY

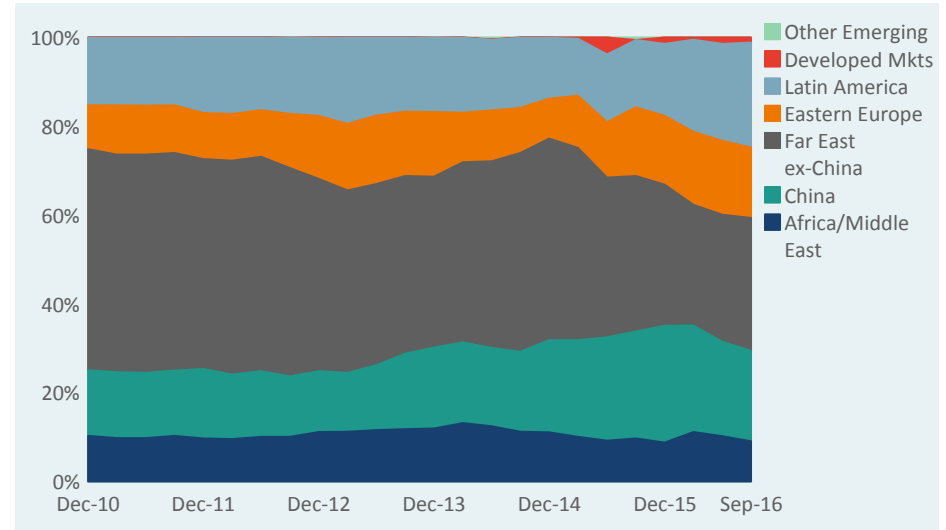
— This strategy is expected to do well in broad market rallies and underperform in narrow markets. It is likely to lag when there is a strong momentum market or periods when the value style significantly underperforms the growth style. Improving economic conditions tend to help reversion to the mean strategies.

Strategy overview - PIMCO RAE

MSCI EM MAP, APR-09 TO JUN-16



HISTORICAL REGIONAL ALLOCATIONS



DIFFERENTIATING CHARACTERISTICS

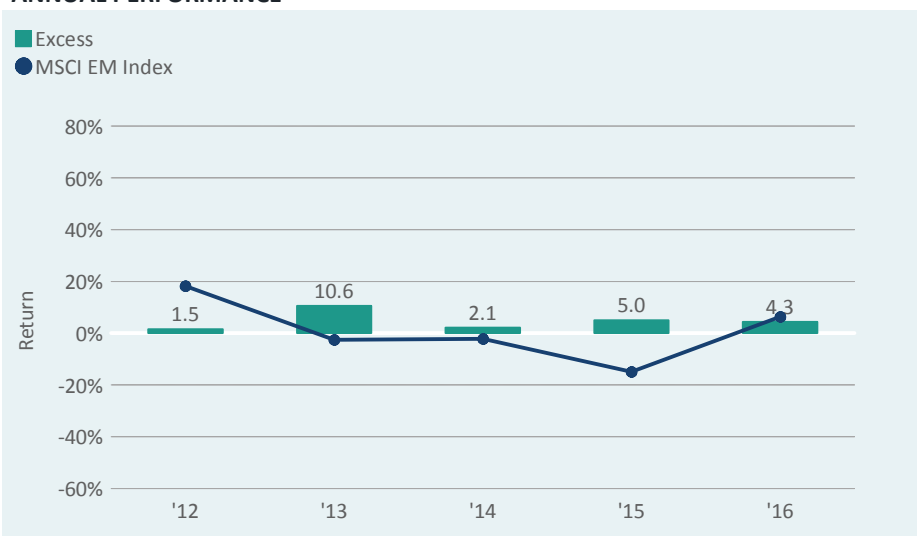
- Fundamental indexing concept
- Staggered quarterly rebalance of the portfolio

POTENTIAL CONCERNS

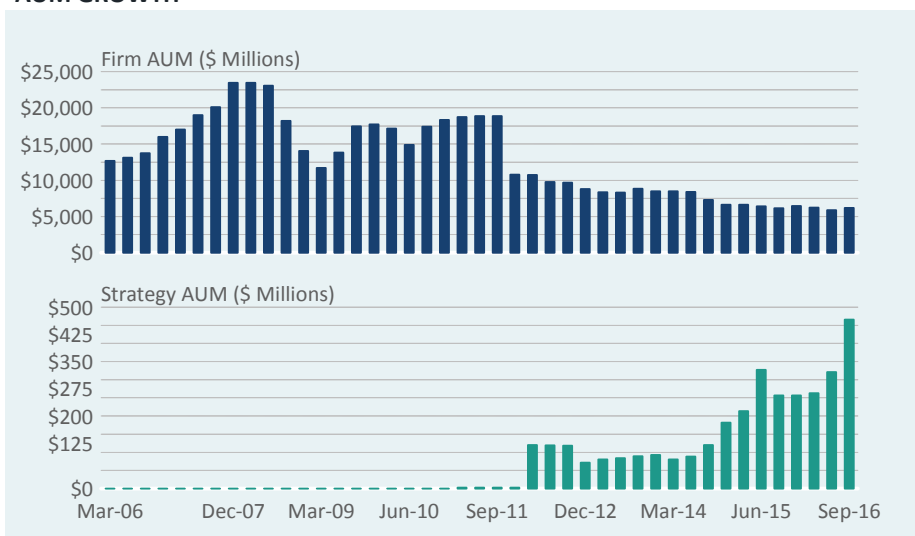
- Key man risk does exist with Rob Arnott who is the founder and majority shareholder of the firm. However, he does share final decision responsibilities on the investment process with Chris Brightman and has a research staff of over 40 professionals.
- In January 2016, Jason Hsu, vice chairman, co-founder and former CIO of Research Affiliates, became chairman, CEO, and majority owner of Rayliant Global Advisors (formerly Research Affiliates Global Advisors), an Asian-focused investment firm based in Hong Kong. Research Affiliates retains a substantial minority interest in Rayliant. While research contributions of Dr. Hsu were very important for original design and continuous product enhancement, a capable team of investment professionals was assembled over time to continue research efforts.
- A large number of enhancements have been implemented since the strategy's inception in 2006. Therefore, we believe the track record in recent years is more representative of what could be expected in the future.

Strategy overview - TT International

ANNUAL PERFORMANCE



AUM GROWTH



INVESTMENT PHILOSOPHY

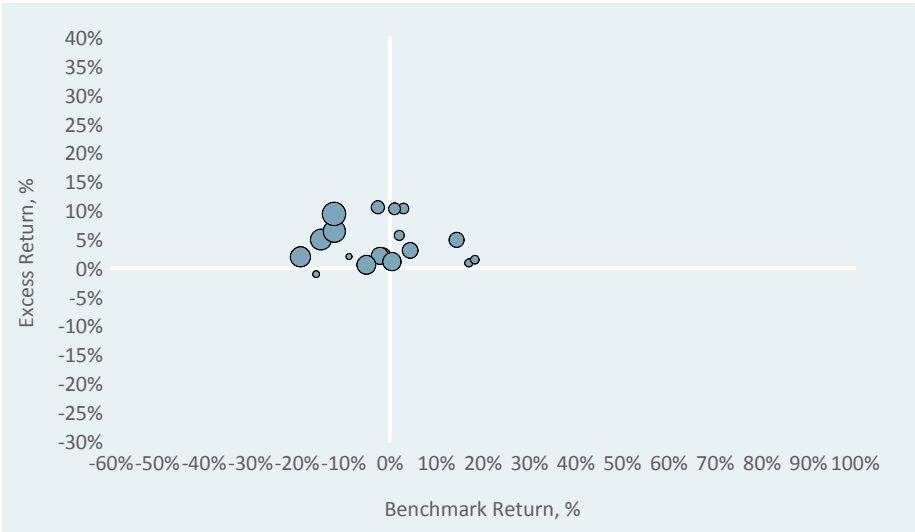
- TT International believes that emerging markets are structurally inefficient due to interplay between macro and micro factors, under-researched companies and persistent behavioral bias across the investor base.
- The firm invests to exploit these inefficiencies.

TEAM DESCRIPTION

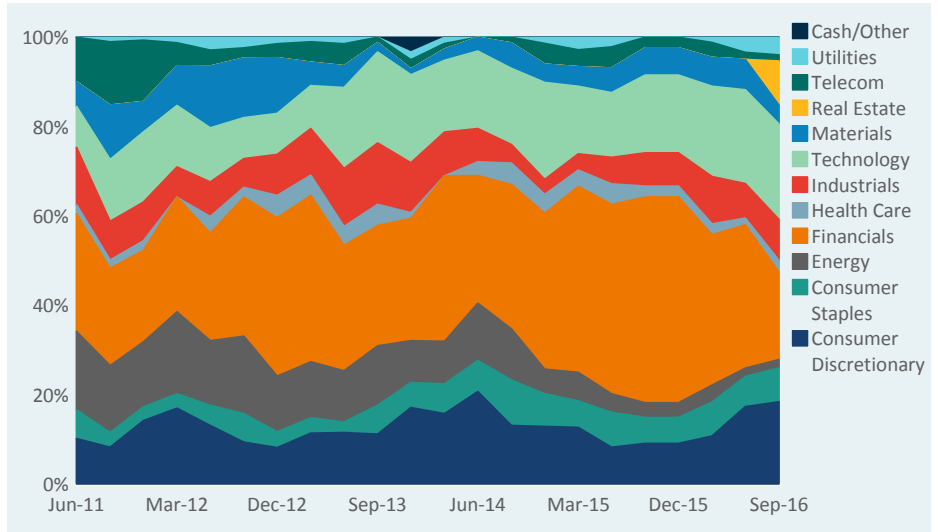
- Niall Paul leads the Global Emerging Markets team of six portfolio manager/analysts with region and sector responsibilities.
- The team co-invests in the strategy.

Strategy overview - TT International

12 MONTH EXCESS PERFORMANCE VS. BENCHMARK, MAR-12 TO JUN-16



HISTORICAL SECTOR ALLOCATIONS



PORTFOLIO CONSTRUCTION

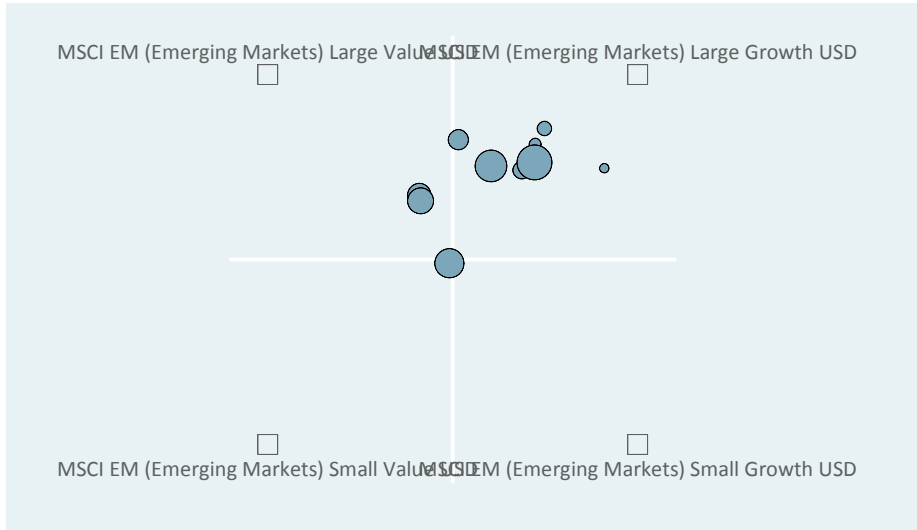
- 40-60 stocks
- A Single sector or country contributes no more than 50% of portfolio tracking error; in percentage terms rarely exceeds 10%
- FX hedging contributes no more than 10% of tracking error
- Tracking error 4-8%

PERFORMANCE SENSITIVITY

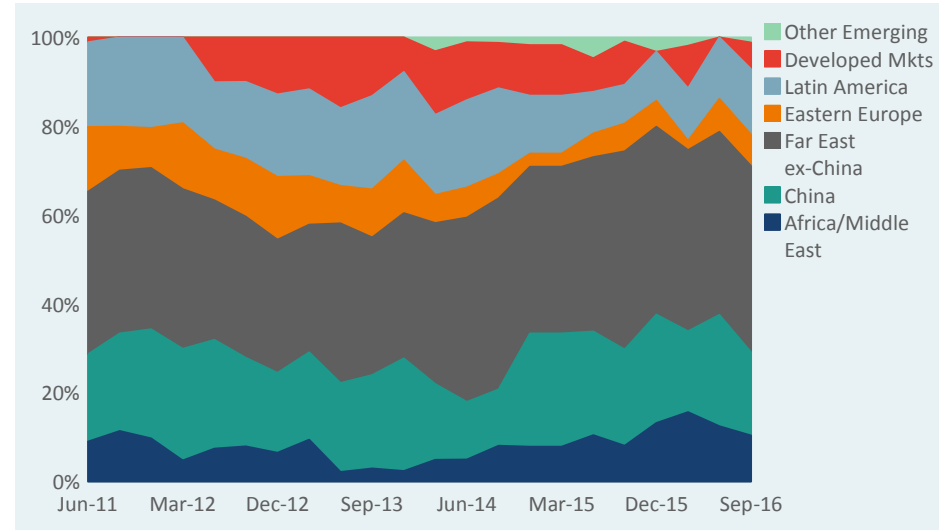
- The TT investment approach is longer-term oriented and based in fundamentals; markets characterized by multiple re-rating of companies reflecting changes in shorter term sentiment will not favor the portfolio.
- By virtue of its higher allocation to midcap, the portfolio may struggle in environments characterized by large flows into ETFs which boost returns of large cap stocks.

Strategy overview - TT International

MSCI EM MAP, JAN-14 TO JUN-16



HISTORICAL REGIONAL ALLOCATIONS



DIFFERENTIATING CHARACTERISTICS

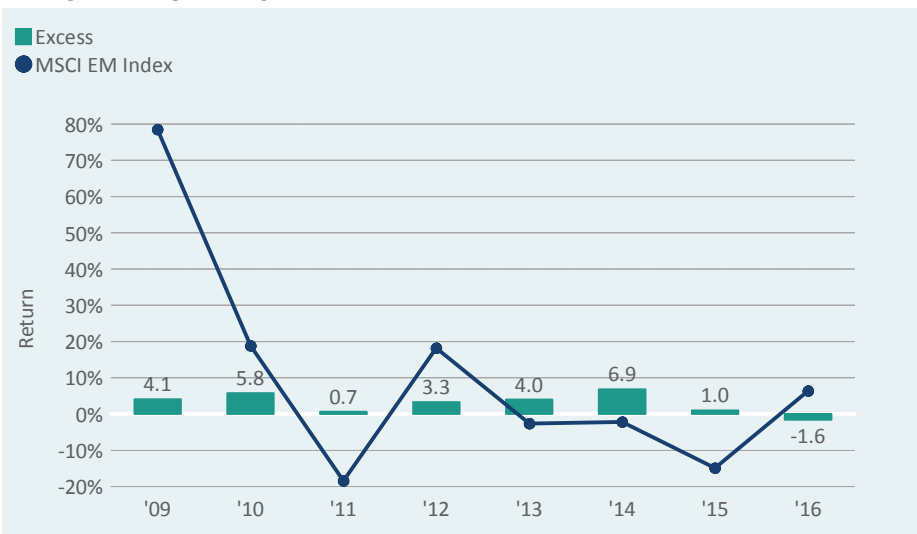
- TT International can be distinguished by its investment process which incorporates integrated top-down and bottom-up analysis.
- The firm pays close attention to risk management, assessing portfolio exposures both relative to benchmark and in terms of contribution to tracking error.
- The firm actively manages currency, which allows the team to make stock selection decisions on their merit; Niall Paul, lead portfolio manager, has responsibility for the hedging decision, and he is supported by the firm's macro team and dedicated FX strategists and traders for implementation.

POTENTIAL CONCERNS

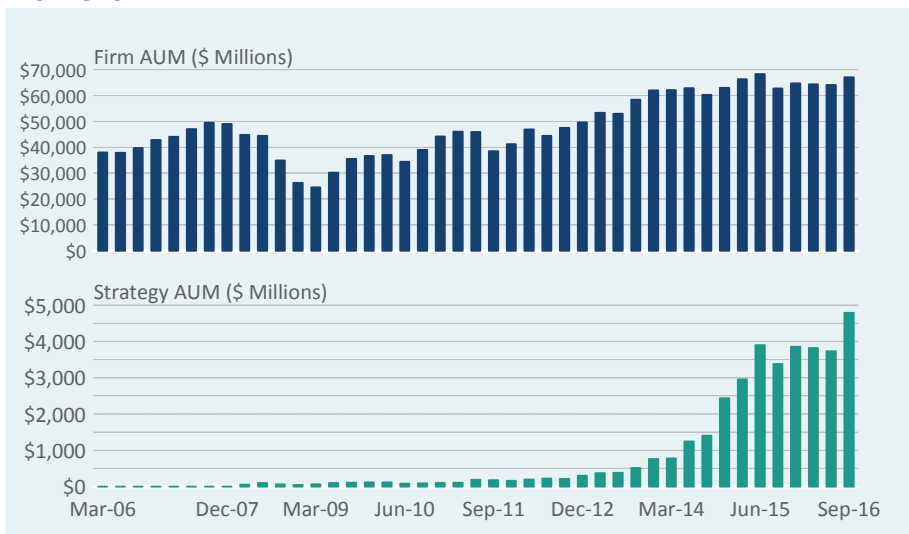
- Niall Paul is the architect of the strategy and key decision maker. Any change to the team should be evaluated critically.
- Given its all-cap approach, portfolio composition by capitalization should be revisited as AUM in the strategy grows.

Strategy overview - William Blair

ANNUAL PERFORMANCE



AUM GROWTH



INVESTMENT PHILOSOPHY

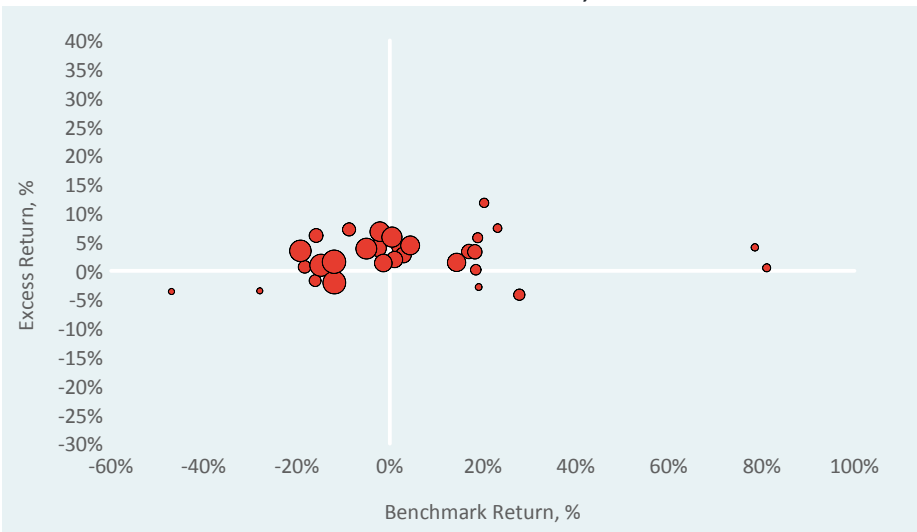
- The strategy identifies quality growth companies that can achieve a higher growth rate for a longer period of time than the market expects.
- The Leaders strategy focuses on the mid-to-large spectrum of market cap.
- The strategy is fairly benchmark agnostic and is given broad flexibility for country and sector allocations.

TEAM DESCRIPTION

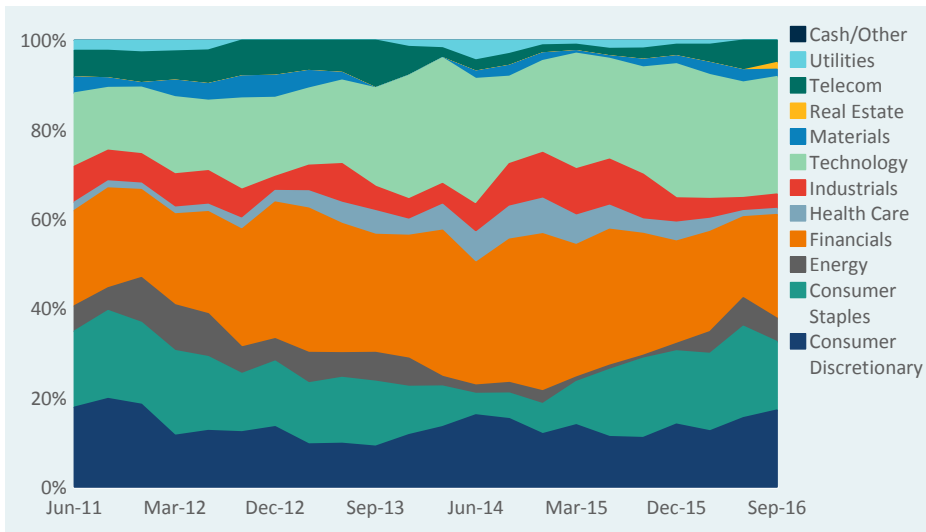
- Led by two co-portfolio managers supported by a large team of research analysts.

Strategy overview - William Blair

12 MONTH EXCESS PERFORMANCE VS. BENCHMARK, MAR-09 TO JUN-16



HISTORICAL SECTOR ALLOCATIONS



PORTFOLIO CONSTRUCTION

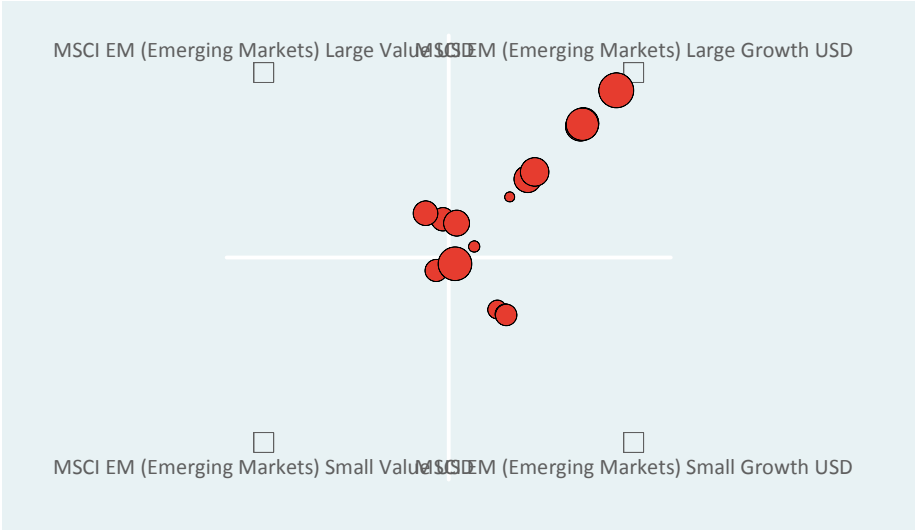
- Diversified
- Fundamental approach, top-down and bottom-up
- Benchmark agnostic
- 6% max position size

PERFORMANCE SENSITIVITY

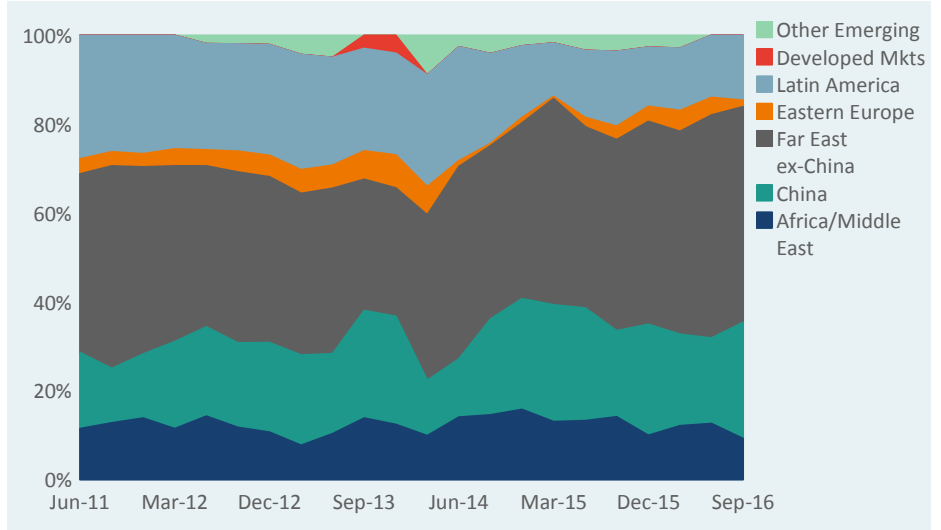
- The focus on high quality companies (higher ROE and conservative financials) will tend to protect in down markets. Historically, the strategy also has delivered strong results in stable markets.

Strategy overview - William Blair

MSCI EM MAP, JAN-11 TO JUN-16



HISTORICAL REGIONAL ALLOCATIONS



DIFFERENTIATING CHARACTERISTICS

- High quality growth approach looking for strong franchises
- Historically good downside protection

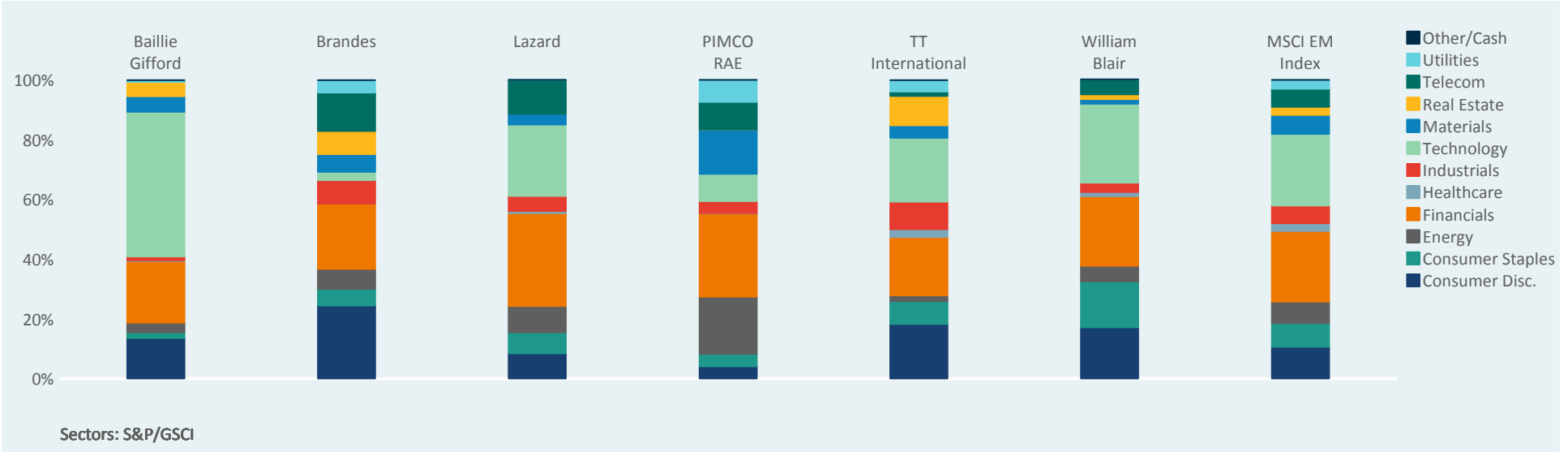
POTENTIAL CONCERNS

— As of January 2016, the equity team was split into US Equity and International Equity teams. The US team will focus on US equity strategies only while the International team, renamed Global equity team, added select US stocks to its non-US coverage. Verus believes the new Global equity team has enough depth to absorb new responsibilities. During our future meetings we will review ongoing realignment and performance of William Blair strategies.

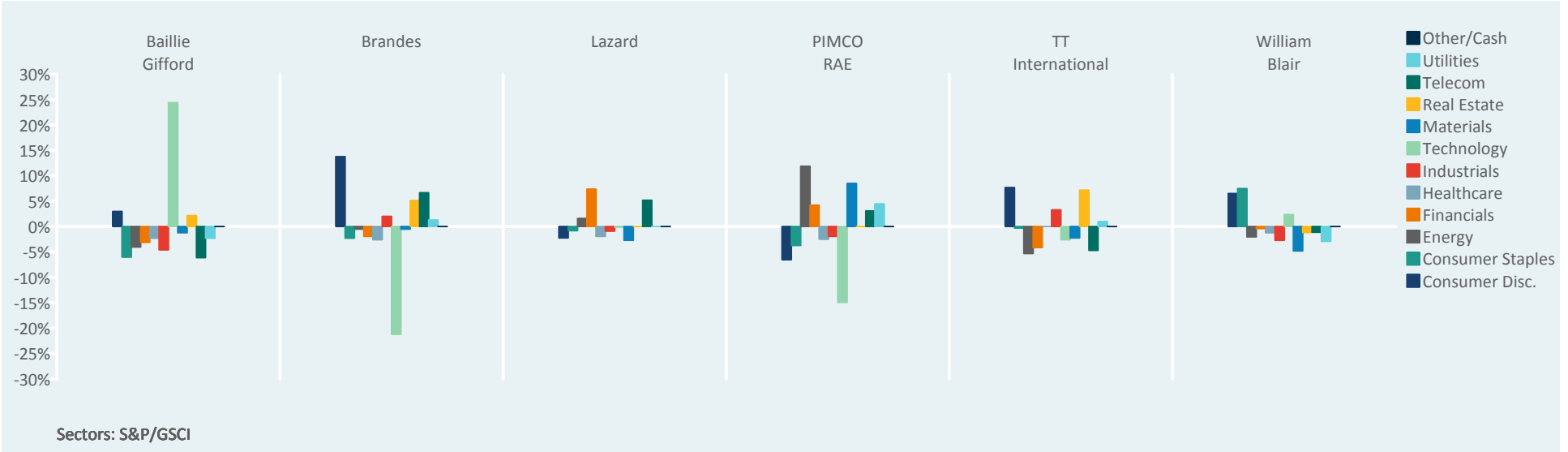
III. Appendix

Equity sector exposure

CURRENT SECTOR POSITION, AS OF SEP-16

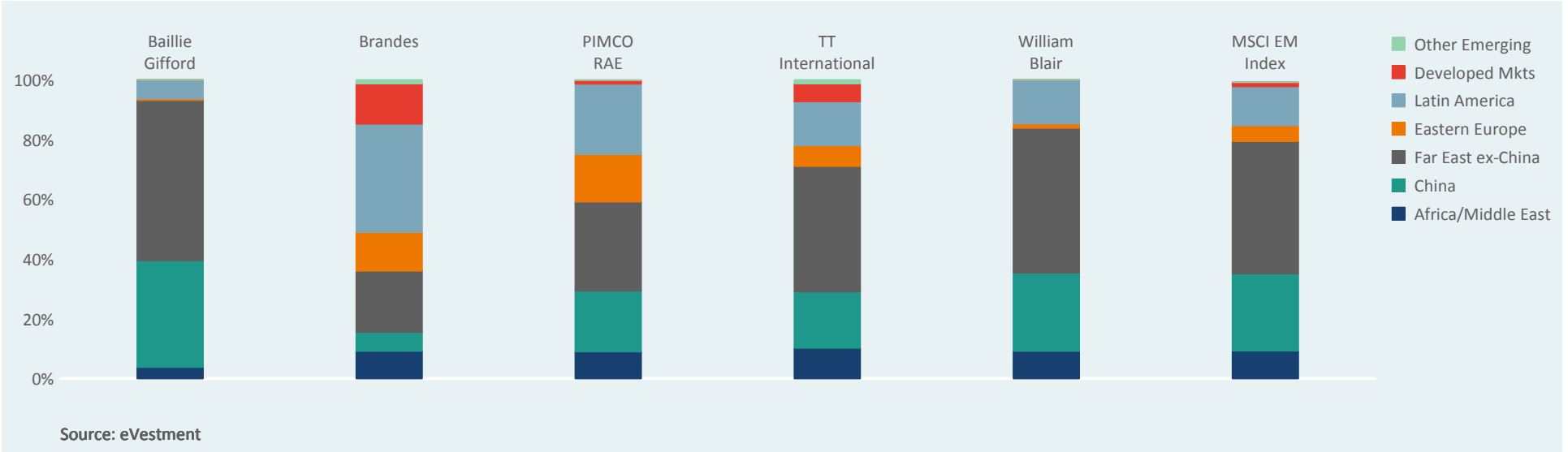


RELATIVE TO MSCI EM INDEX, AS OF SEP-16

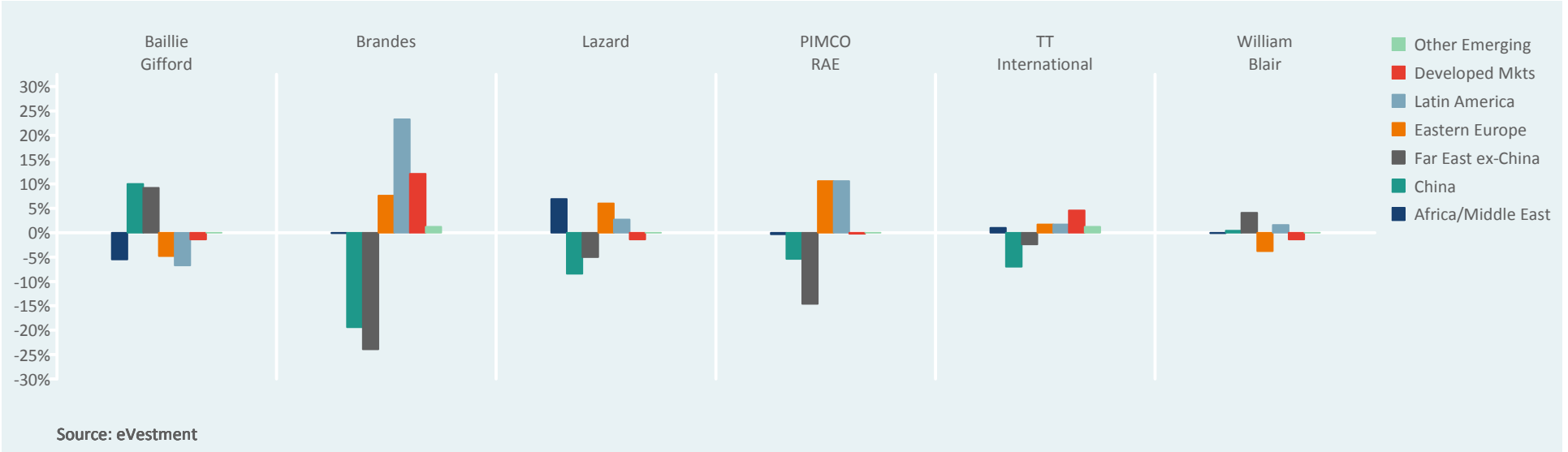


Regional exposure

CURRENT REGIONAL EXPOSURE, AS OF SEP-16



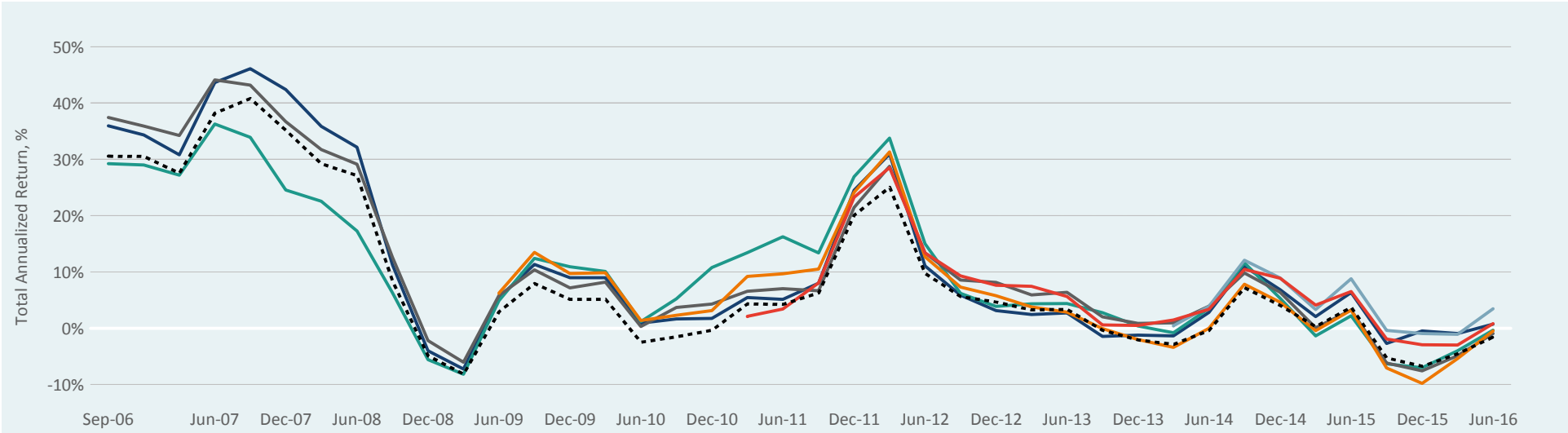
RELATIVE TO MSCI EM INDEX, AS OF SEP-16



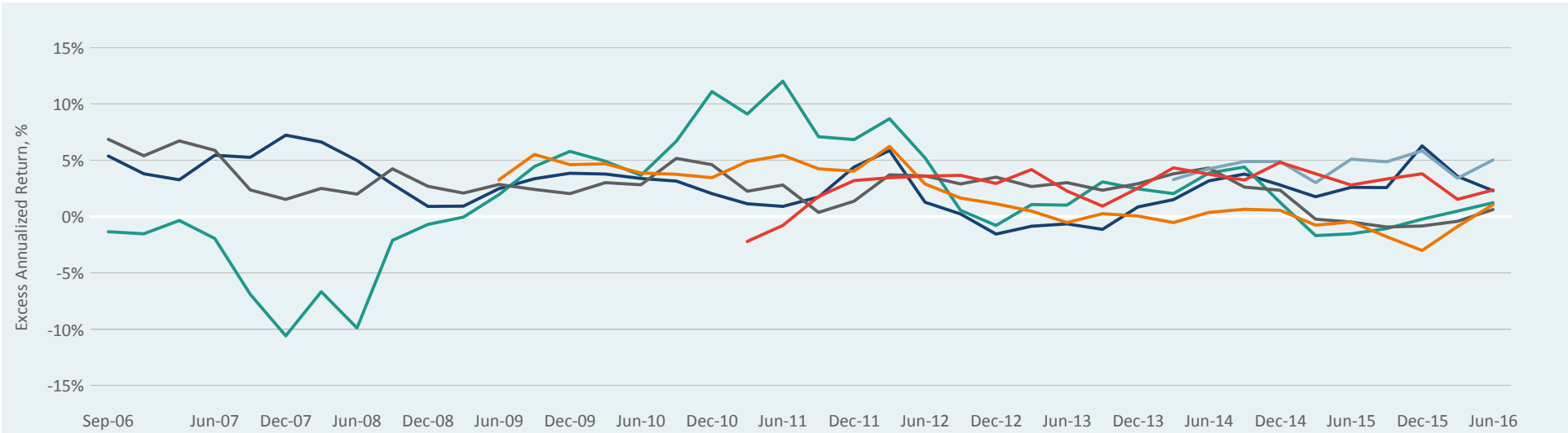
Rolling performance

- Baillie Gifford
- Brandes
- Lazard
- PIMCO RAE
- TT International
- William Blair
- + MSCI EM Index

TOTAL 36 MONTH ROLLING PERFORMANCE



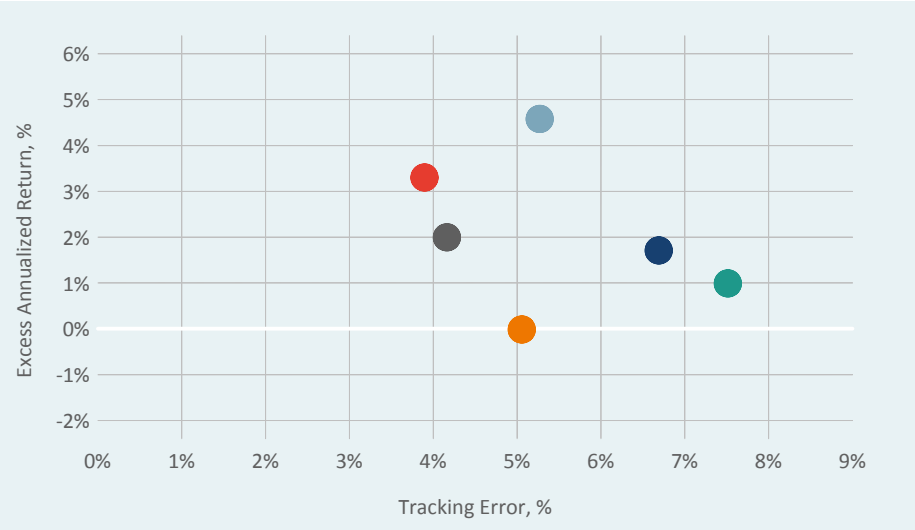
EXCESS 36 MONTH ROLLING PERFORMANCE



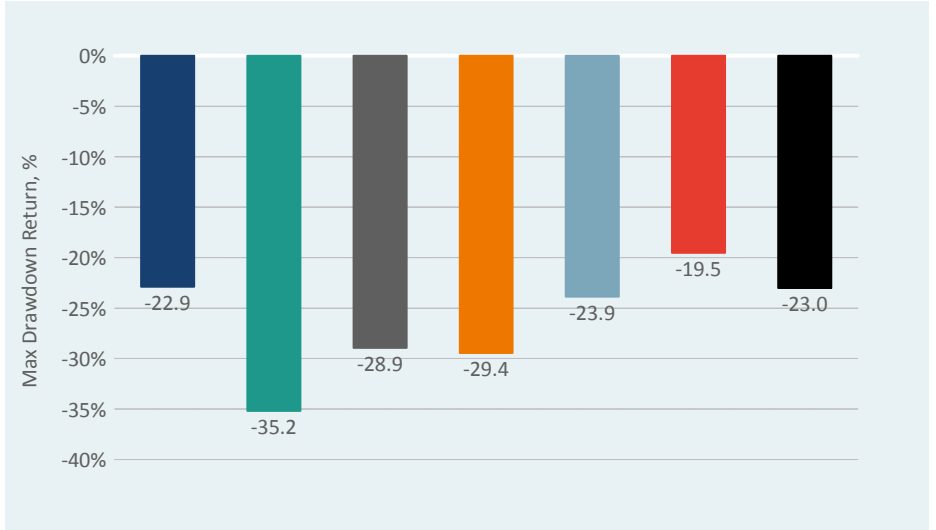
Performance statistics

- Baillie Gifford
- Brandes
- Lazard
- PIMCO RAE
- TT International
- William Blair
- + MSCI EM Index

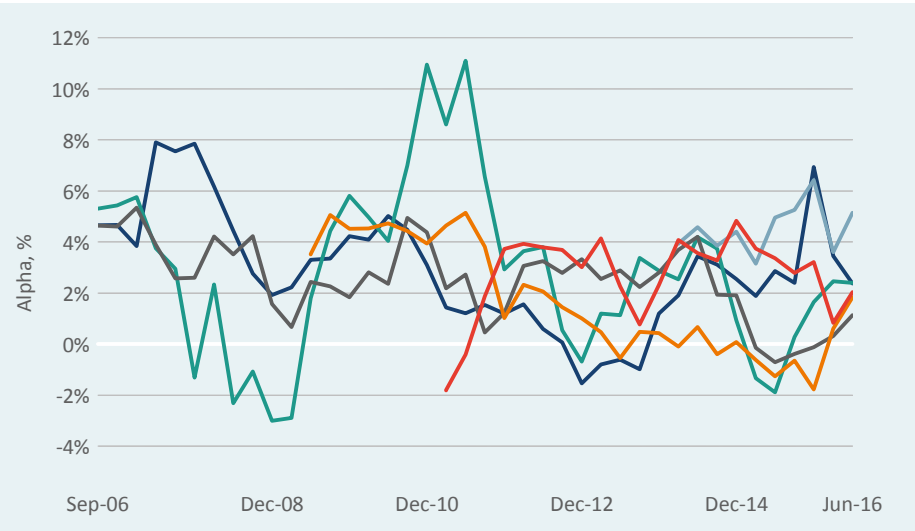
EXCESS PERFORMANCE VS. RISK, JUL-11 TO JUN-16



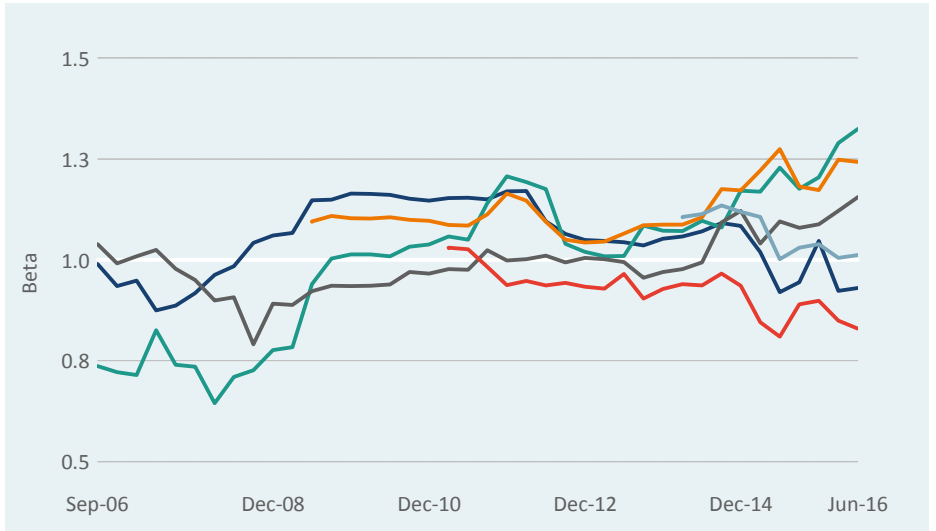
MAX DRAWDOWN RETURN, JUL-11 TO JUN-16



36 MONTH ROLLING ALPHA



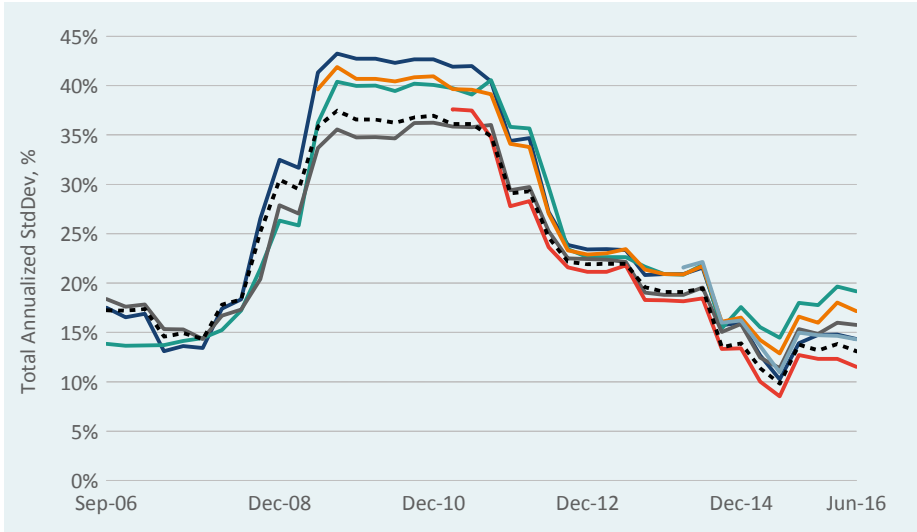
36 MONTH ROLLING BETA



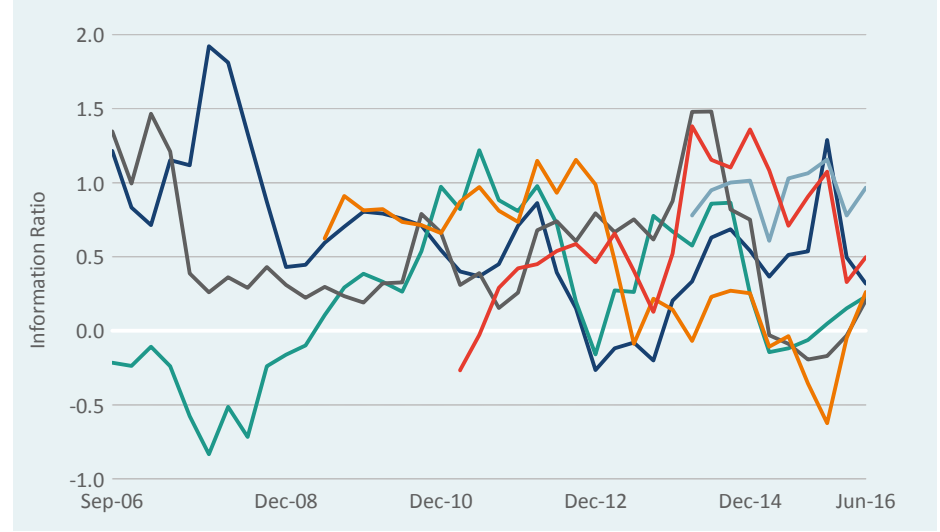
Performance statistics

- Baillie Gifford
- Brandes
- Lazard
- PIMCO RAE
- TT International
- William Blair
- ⊕ MSCI EM Index

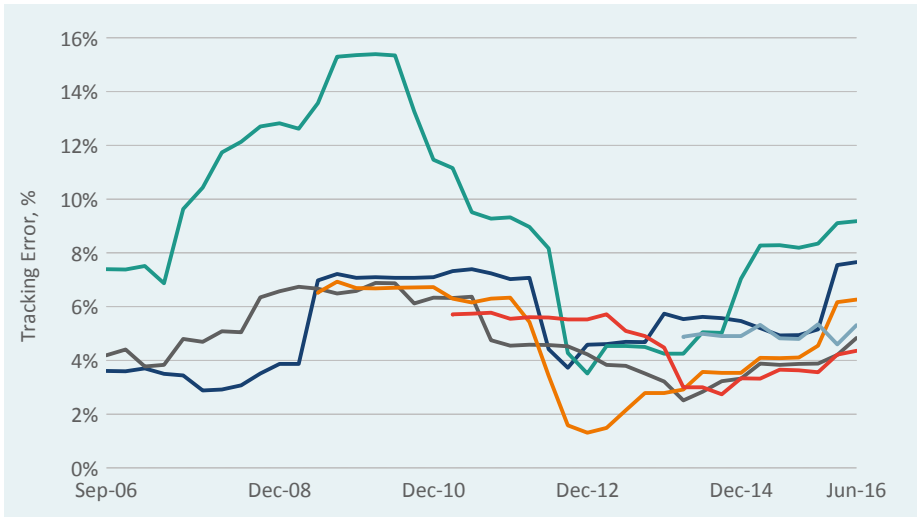
36 MONTH ROLLING RISK



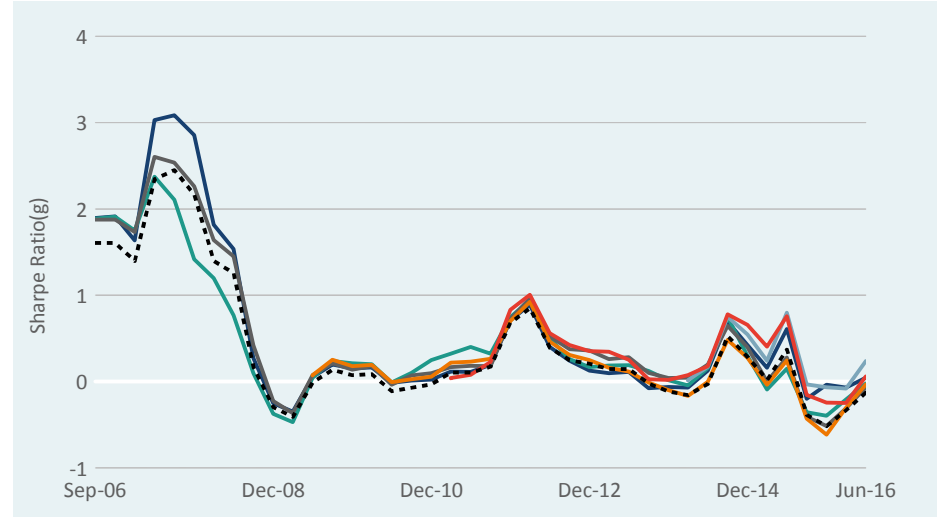
36 MONTH ROLLING INFORMATION RATIO



36 MONTH ROLLING TRACKING ERROR



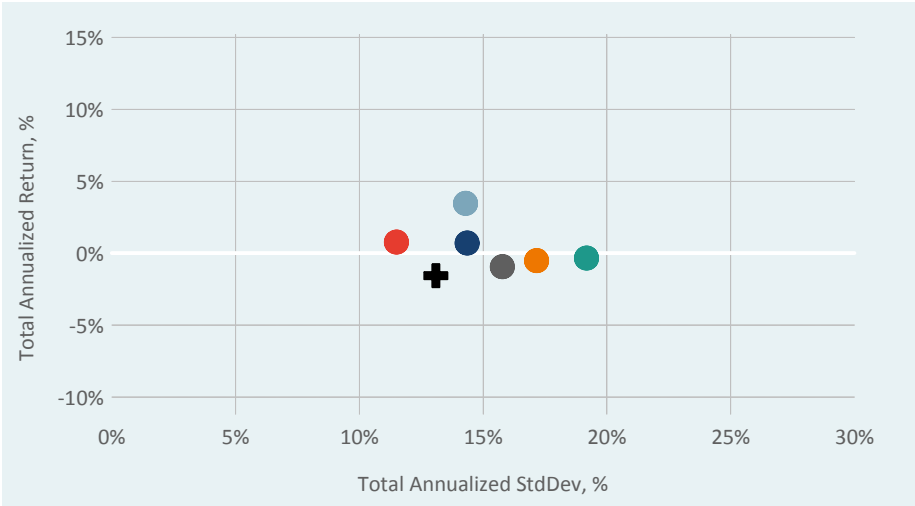
36 MONTH ROLLING SHARPE RATIO(G)



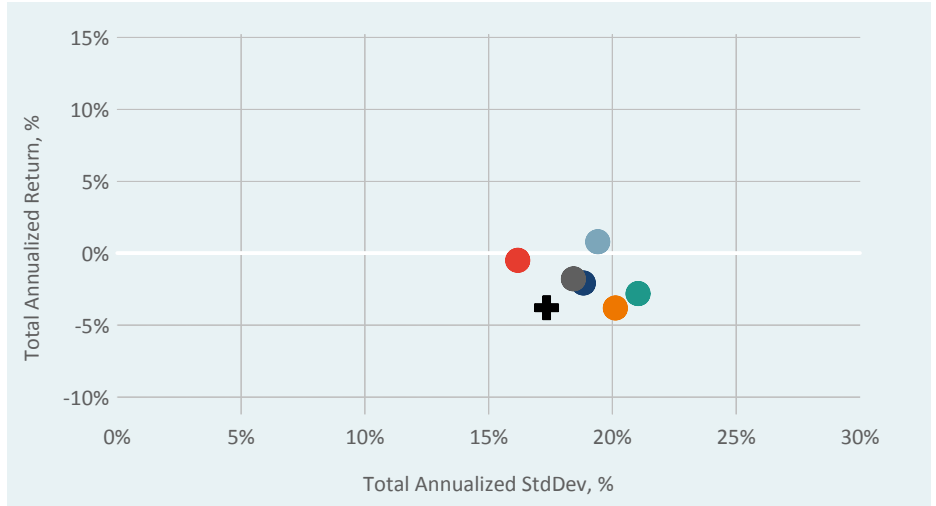
Risk vs. return

- Baillie Gifford
- Brandes
- Lazard
- PIMCO RAE
- TT International
- William Blair
- + MSCI EM Index

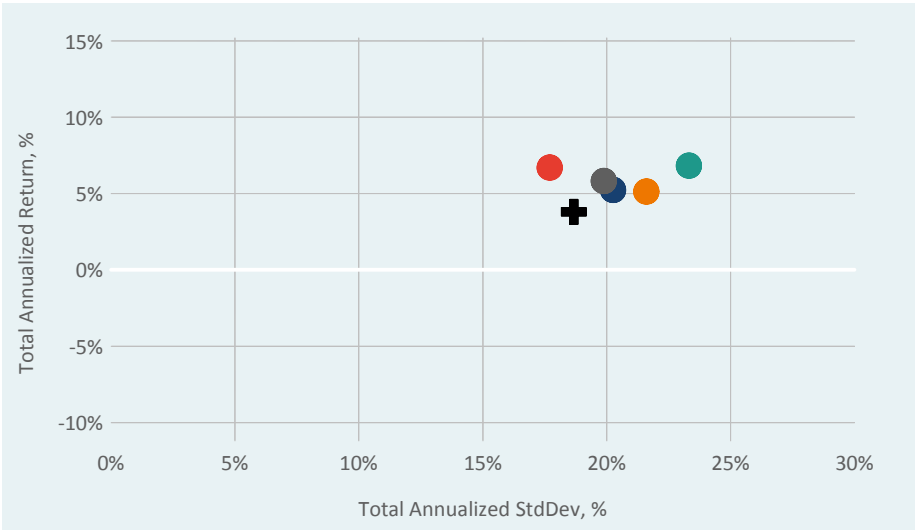
TOTAL PERFORMANCE VS. RISK, JUL-13 TO JUN-16



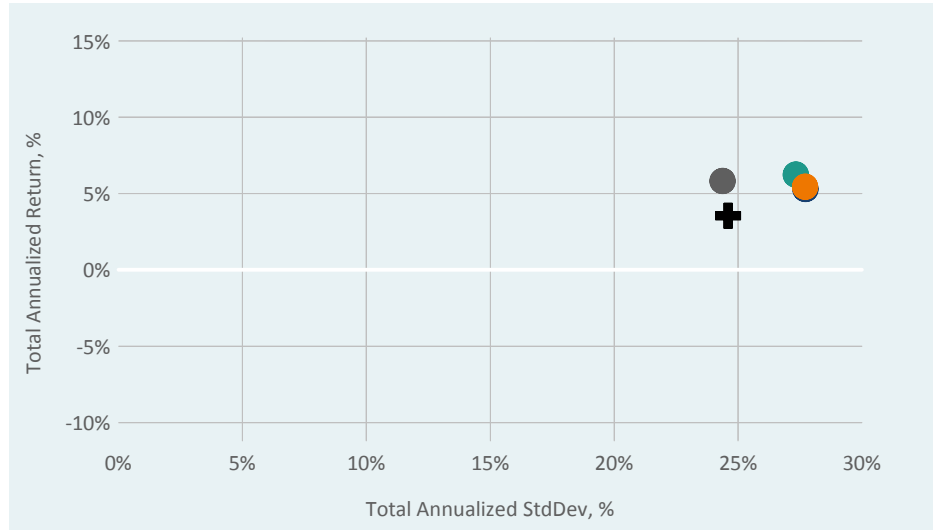
TOTAL PERFORMANCE VS. RISK, JUL-11 TO JUN-16



TOTAL PERFORMANCE VS. RISK, JUL-09 TO JUN-16



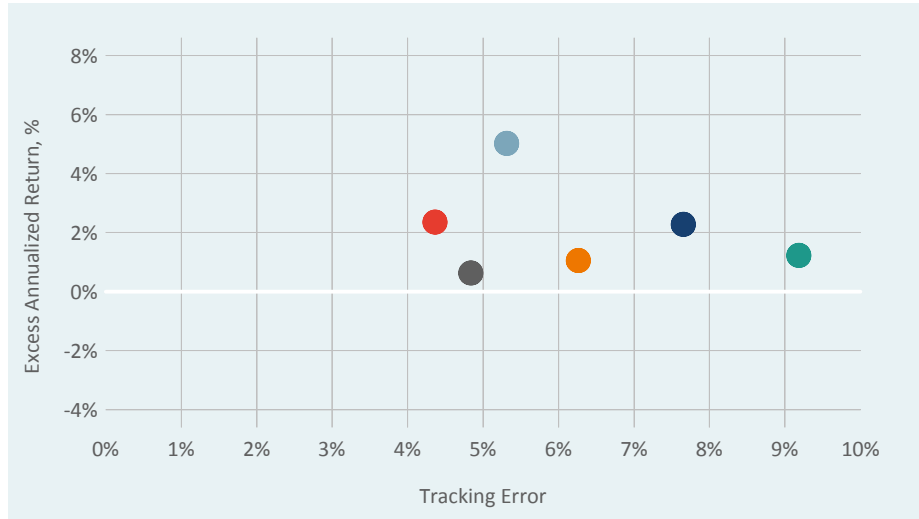
TOTAL PERFORMANCE VS. RISK, JUL-06 TO JUN-16



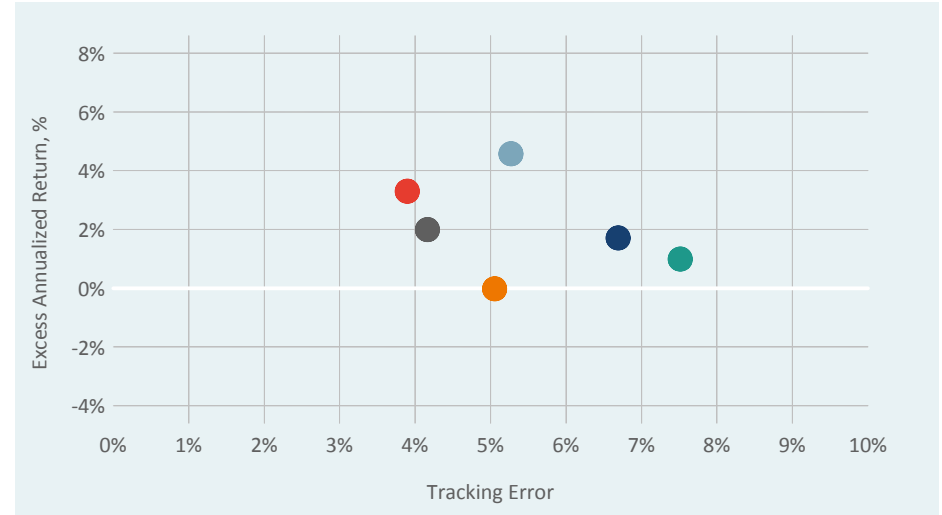
Performance efficiency

- Baillie Gifford
- Brandes
- Lazard
- PIMCO RAE
- TT International
- William Blair
- ✚ MSCI EM Index

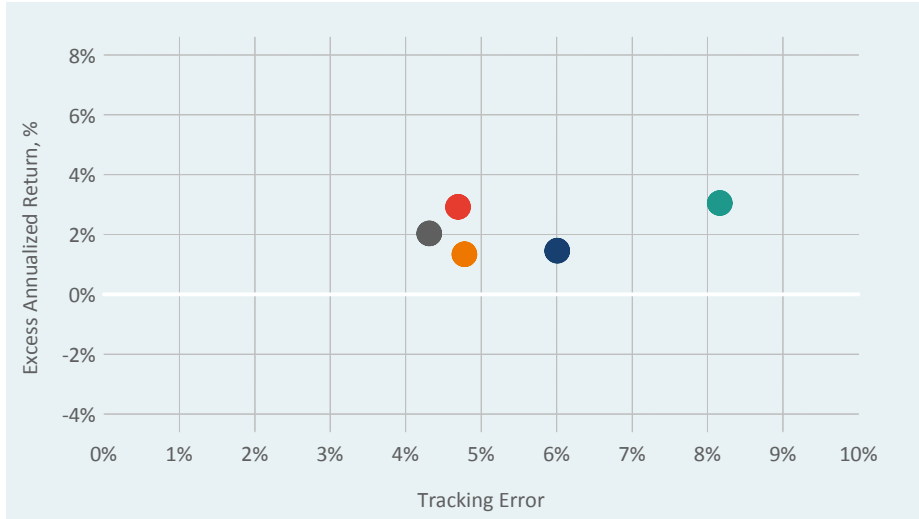
EXCESS PERFORMANCE VS. RISK, JUL-13 TO JUN-16



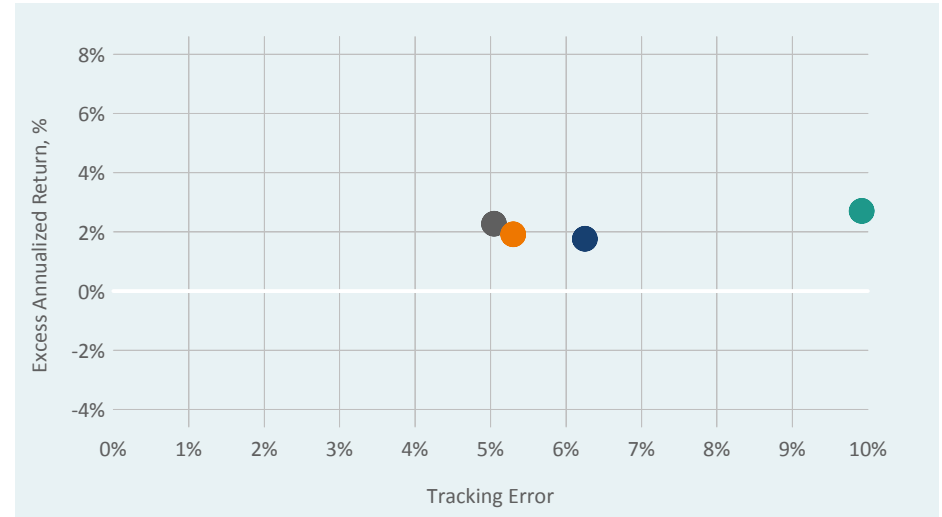
EXCESS PERFORMANCE VS. RISK, JUL-11 TO JUN-16



EXCESS PERFORMANCE VS. RISK, JUL-09 TO JUN-16



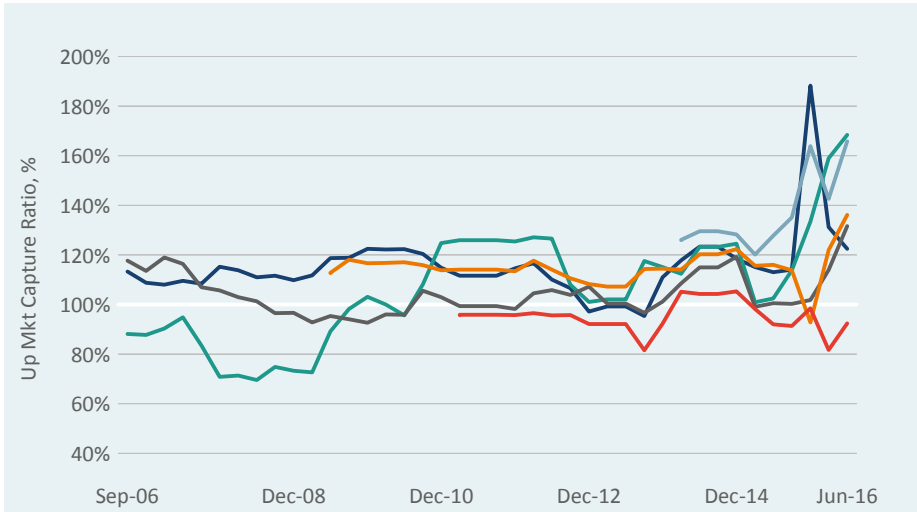
EXCESS PERFORMANCE VS. RISK, JUL-06 TO JUN-16



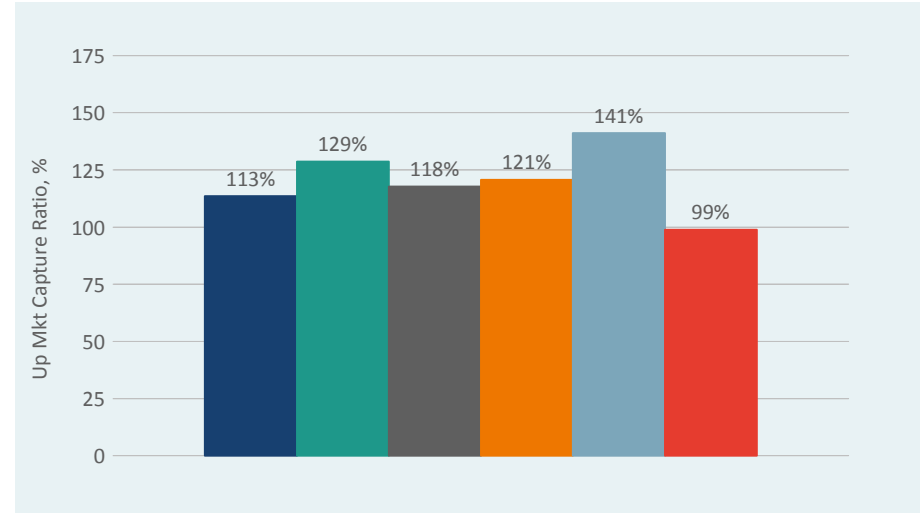
Up & down market analysis

- Baillie Gifford
- Brandes
- Lazard
- PIMCO RAE
- TT International
- William Blair
- + MSCI EM Index

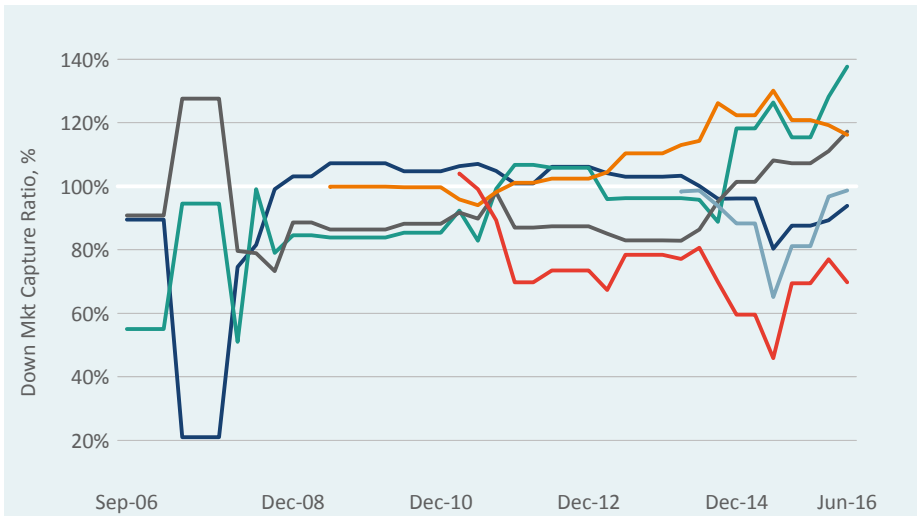
36 MONTH ROLLING UP MKT CAPTURE RATIO



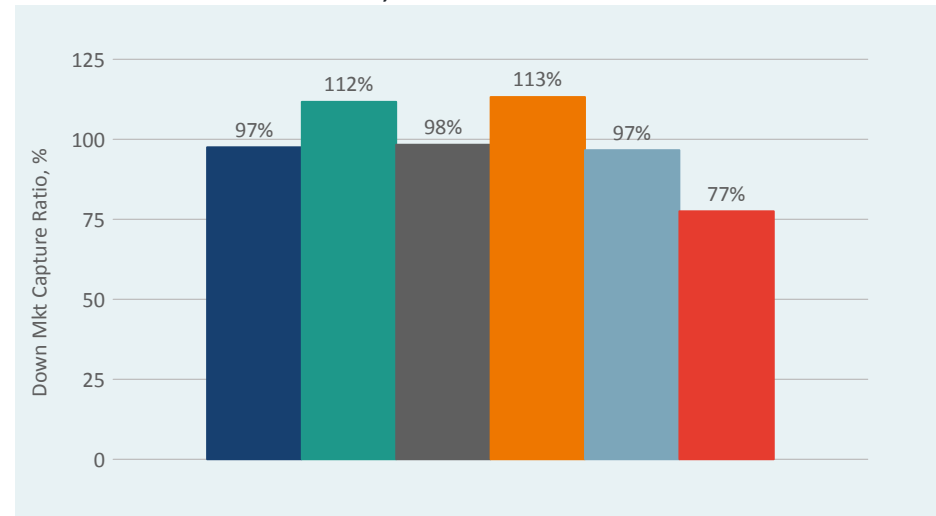
UP MARKET CAPTURE RATIO, JUL-11 TO JUN-16



36 MONTH ROLLING ROLLING DOWN MKT CAPTURE RATIO



DOWN MARKET CAPTURE RATIO, JUL-11 TO JUN-16



Correlations - as of June 2016

3 Years

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair	MSCI EM Index
Baillie Gifford	1.00	0.74	0.78	0.69	0.89	0.89	0.85
Brandes	0.74	1.00	0.96	0.94	0.89	0.79	0.91
Lazard	0.78	0.96	1.00	0.98	0.95	0.90	0.96
PIMCO RAE	0.69	0.94	0.98	1.00	0.88	0.87	0.95
TT International	0.89	0.89	0.95	0.88	1.00	0.94	0.93
William Blair	0.89	0.79	0.90	0.87	0.94	1.00	0.95
MSCI EM Index	0.85	0.91	0.96	0.95	0.93	0.95	1.00

5 Years

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair	MSCI EM Index
Baillie Gifford	1.00	0.87	0.90	0.86	0.94	0.95	0.93
Brandes	0.87	1.00	0.97	0.96	0.94	0.90	0.94
Lazard	0.90	0.97	1.00	0.98	0.96	0.95	0.97
PIMCO RAE	0.86	0.96	0.98	1.00	0.93	0.93	0.97
TT International	0.94	0.94	0.96	0.93	1.00	0.97	0.97
William Blair	0.95	0.90	0.95	0.93	0.97	1.00	0.98
MSCI EM Index	0.93	0.94	0.97	0.97	0.97	0.98	1.00

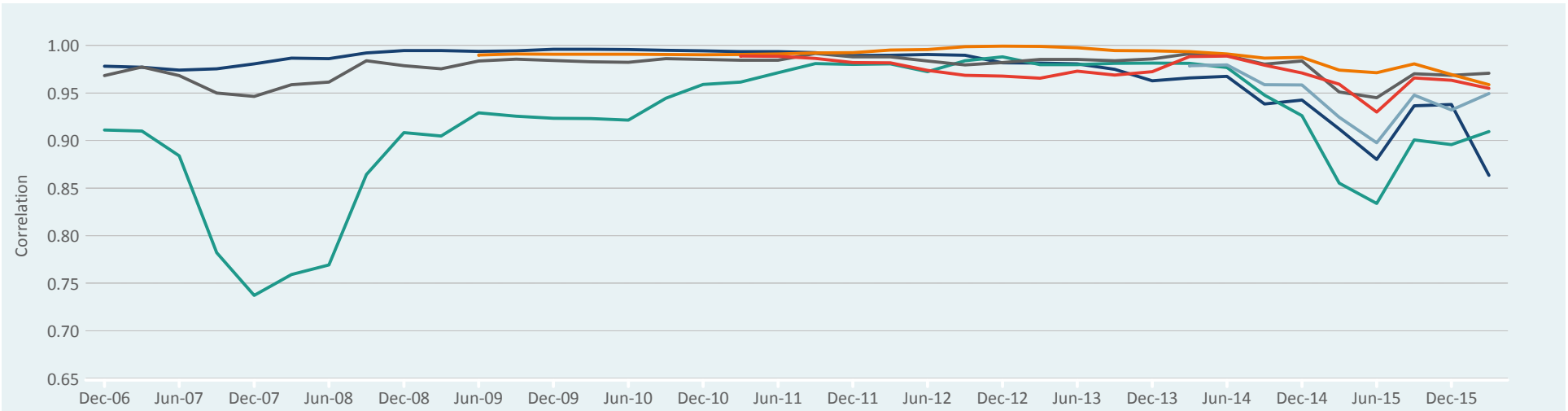
7 Years

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair	MSCI EM Index
Baillie Gifford	1.00	0.91	0.93	0.91		0.96	0.96
Brandes	0.91	1.00	0.95	0.96		0.90	0.95
Lazard	0.93	0.95	1.00	0.98		0.96	0.98
PIMCO RAE	0.91	0.96	0.98	1.00		0.94	0.98
TT International							
William Blair	0.96	0.90	0.96	0.94		1.00	0.97
MSCI EM Index	0.96	0.95	0.98	0.98		0.97	1.00

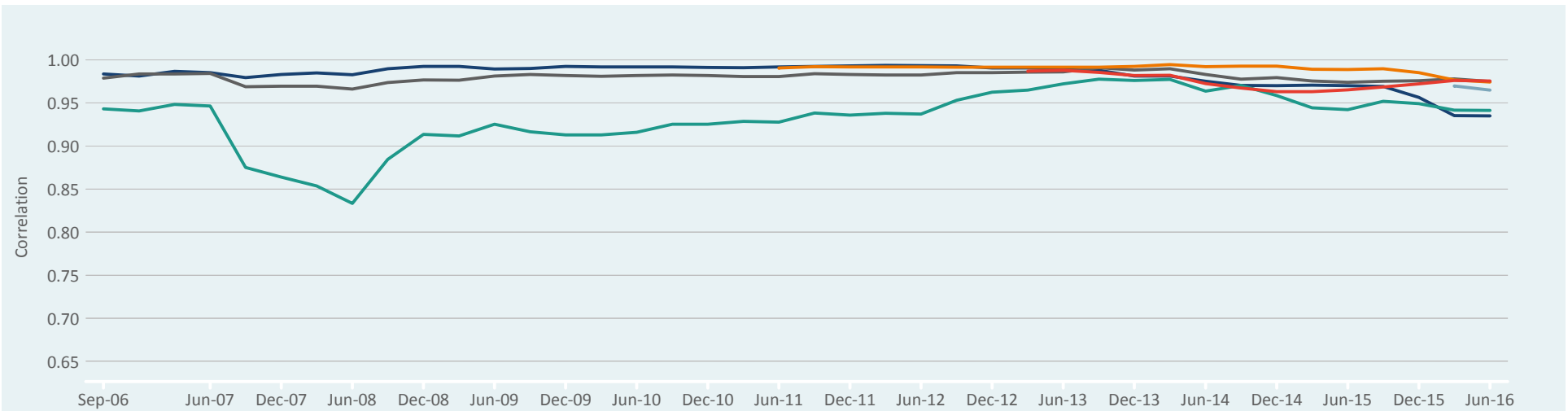
Correlations to benchmark - as of June 2016

- Baillie Gifford
- Brandes
- Lazard
- PIMCO RAE
- TT International
- William Blair
- + MSCI EM Index

CORRELATION - 36 MONTH ROLLING



CORRELATION - 60 MONTH ROLLING



Excess return correlations - as of June 2016

3 Years

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair	MSCI EM Index
Baillie Gifford	1.00	-0.17	-0.24	-0.64	0.50	0.52	0.51
Brandes	-0.17	1.00	0.84	0.68	0.28	-0.57	0.15
Lazard	-0.24	0.84	1.00	0.78	0.51	-0.27	0.15
PIMCO RAE	-0.64	0.68	0.78	1.00	0.04	-0.47	0.11
TT International	0.50	0.28	0.51	0.04	1.00	0.40	0.51
William Blair	0.52	-0.57	-0.27	-0.47	0.40	1.00	0.28

5 Years

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair	MSCI EM Index
Baillie Gifford	1.00	-0.09	-0.14	-0.53	0.43	0.42	0.01
Brandes	-0.09	1.00	0.71	0.57	0.39	-0.37	-0.05
Lazard	-0.14	0.71	1.00	0.61	0.35	-0.01	-0.08
PIMCO RAE	-0.53	0.57	0.61	1.00	0.03	-0.44	0.07
TT International	0.43	0.39	0.35	0.03	1.00	0.34	0.01
William Blair	0.42	-0.37	-0.01	-0.44	0.34	1.00	-0.10

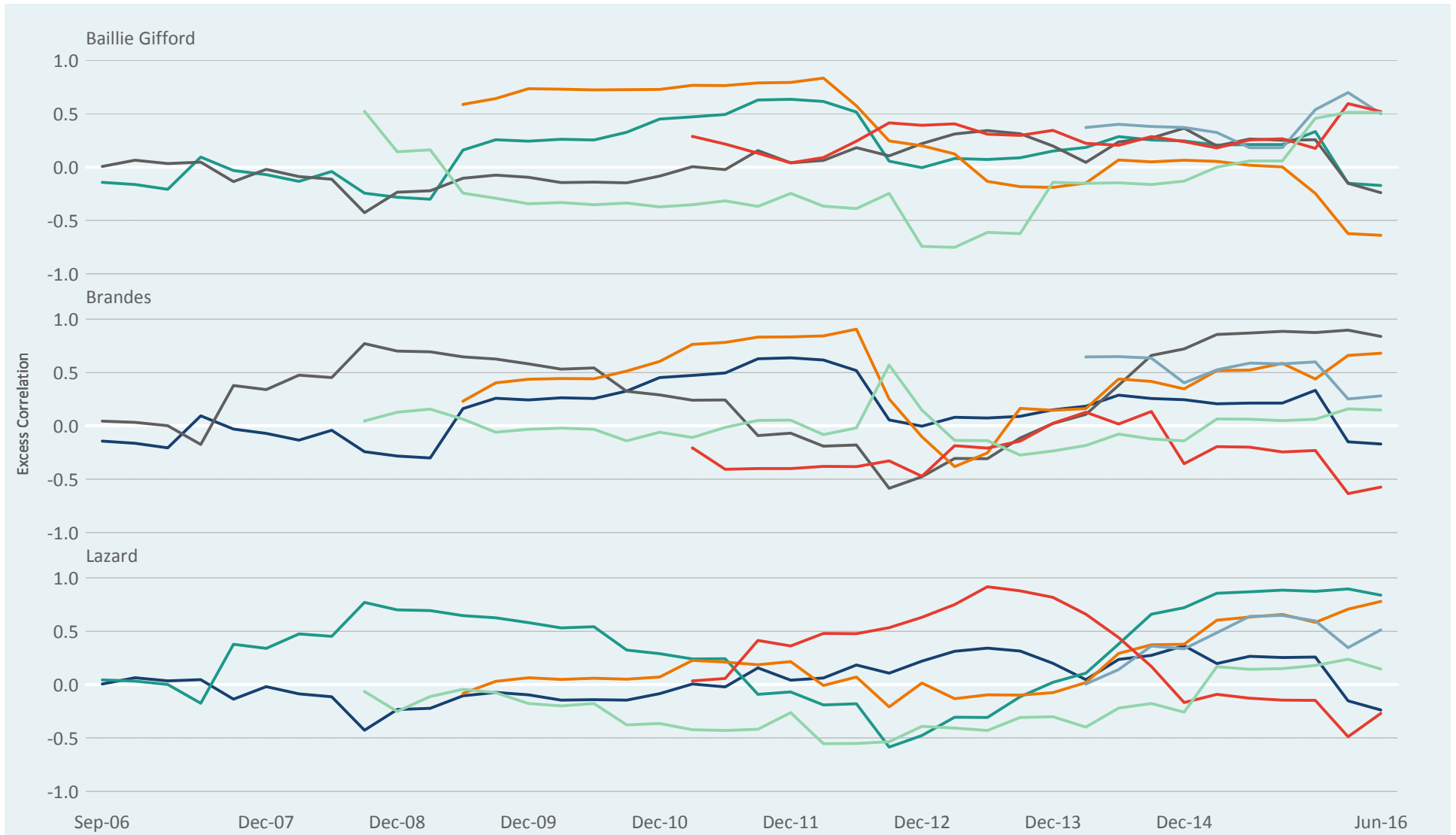
7 Years

	Baillie Gifford	Brandes	Lazard	PIMCO RAE	TT International	William Blair	MSCI EM Index
Baillie Gifford	1.00	0.07	-0.06	-0.33		0.36	-0.04
Brandes	0.07	1.00	0.39	0.65		-0.36	-0.06
Lazard	-0.06	0.39	1.00	0.48		0.16	-0.29
PIMCO RAE	-0.33	0.65	0.48	1.00		-0.33	-0.04
TT International					1.00		
William Blair	0.36	-0.36	0.16	-0.33		1.00	-0.08

Excess returns correlation - as of June 2016

● Baillie Gifford ● Brandes ● Lazard ● PIMCO RAE ● TT International
● William Blair + MSCI EM Index

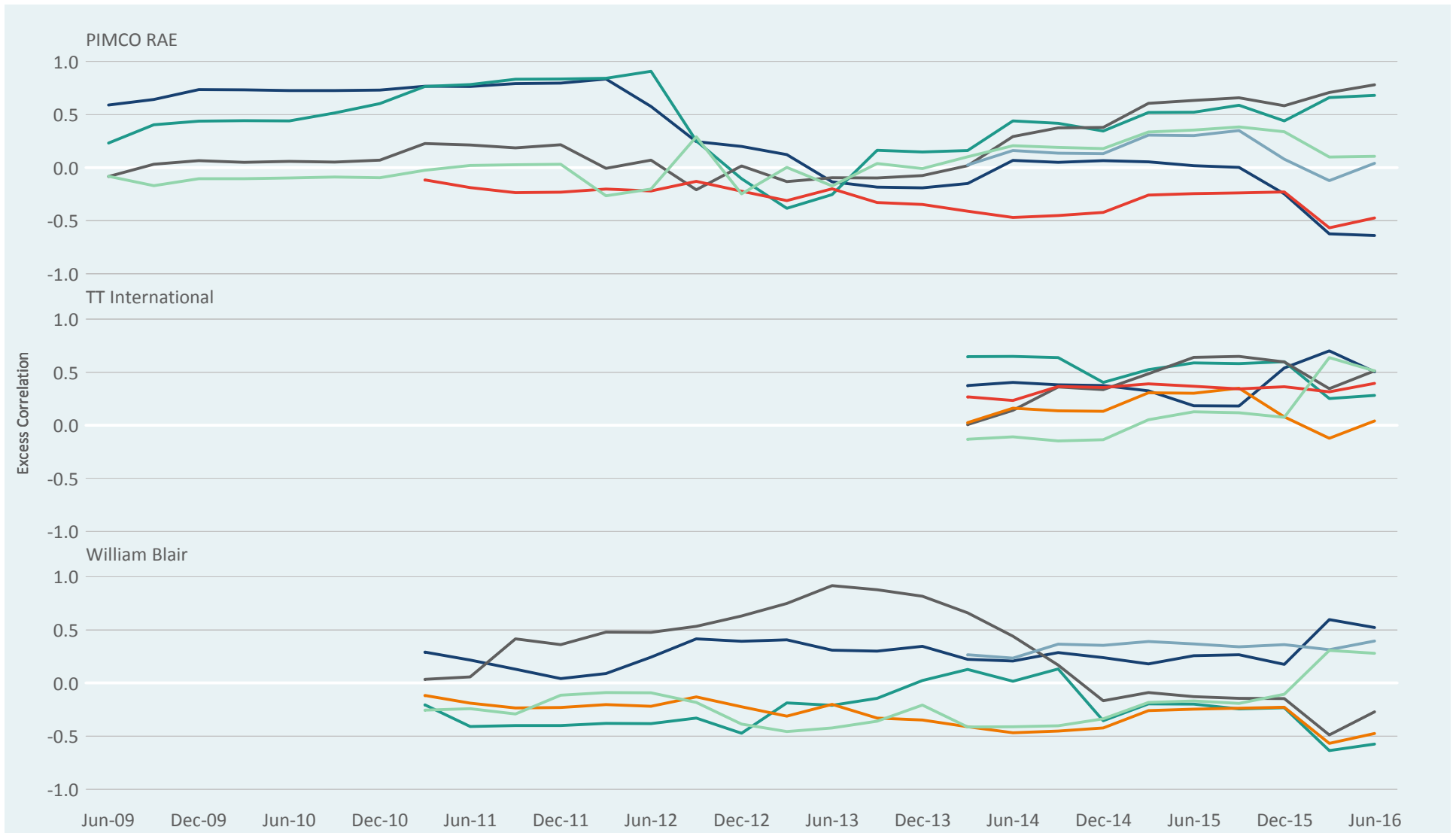
36 MONTH ROLLING



Excess returns correlation - as of June 2016

● Baillie Gifford
 ● Brandes
 ● Lazard
 ● PIMCO RAE
 ● TT International
● William Blair
 + MSCI EM Index

36 MONTH ROLLING



IV. Glossary of terms

Glossary

Alpha (a): The excess return of a portfolio after adjusting for market risk, usually attributable to the selection skill of the portfolio manager. $\text{Alpha} = \text{Excess Return} - (\text{Beta} \times \text{Excess Market Return})$.

Annualized Return: Converts the Total Return to an annual basis for comparison purposes. Periods shorter than one year are not annualized.

Benchmark: Investment index used as a standard by which to measure the relative performance of an overall portfolio or an individual money manager. Appropriate benchmarks are selected based on their similarity to a portfolio or to the style of the individual money manager being measured.

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta (b): A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Calmar Ratio - The Calmar Ratio is a risk/return ratio that calculates return on a downside risk adjusted basis. Similar to other efficiency ratios it balances return in the numerator per unit risk in the denominator. In this case risk is characterized by the Maximum Drawdown.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen/fallen. The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation Coefficient (r): A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Hurst Exponent: quantifies the relative tendency of a time series either to regress the mean. A value H in the range $0.5 < H < 1$ indicates a time series with long-term positive autocorrelation, meaning a high value in the series will probably be followed by another high value. A value in the range $0 < H < 0.5$ indicates a time series with long-term switching between high and low values in adjacent pairs, meaning that a single high value will probably be followed by a low value. A value of $H=0.5$ can indicate a completely uncorrelated series.

Excess Correlation: Correlation of the excess returns (above the benchmark).

GARP: Growth-At-A-Reasonable-Price. Equity strategy that combines tenets of both growth and value investing, looking for companies with above average earnings growth but excluding those with high valuations.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: $\text{alpha} / \text{tracking error}$.

Glossary

Kurtosis (excess returns)- Kurtosis describes whether the series distribution is peaked or flat and how thick the tails are as compared to a normal distribution. Positive kurtosis indicates a relatively peaked distribution near the mean and tends to decline rapidly and have fat tails. Negative kurtosis indicates a relatively flat distribution near the mean.

Long Term Reversal Factor: Risk premium associated with buying past losers and selling past winners (five year time horizon).

Low Volatility: Risk premium generated by picking low volatility stocks, measured by the MSCI USA Minimum Volatility Index.

Momentum Factor: Risk premium associated with buying past winners and selling past losers.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Predicted Style R-squared: Measures how well the manager's predicted style fits the manager's return series. Adding many unnecessary indices will not improve the Predicted Style R-Squared. The methodology essentially predicts the manager's style at each point in time without the data at that point with the rationale being that if the style estimates obtained so far are good, then they can be used to predict the style at the estimation point.

Price-to-Earnings Ratio: Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

Quality: The quality factors measured the manager's exposure to high quality stocks versus low quality stocks as defined by S&P. The factor is constructed by combining a long position in the S&P 500 High Quality index and short position S&P 500 Low Quality index.

Regression Based Asset Loadings: Represents the exposure period of an investment product (called a Manager, Fund, or Index in Stylus) to various explanatory variables. It is also referred to as Style Indices or Asset Classes. These Indices can be interpreted as the Manager Betas or risk factors at a given point in time.

Risk Premium: An expected return in excess of the risk-free rate. The premium provides compensation for the assumption of risk.

Risk-Free Rate: The rate of interest that one can earn on an investment with no default risk. It is generally assumed to be the interest rate on a 91 day T-Bill.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection return: The difference between the Manager and the Manager's Style Return.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: $\text{Portfolio Excess Return} / \text{Portfolio Standard Deviation}$.

Short Term Reversal Factor: Risk premium associated with buying past losers and selling past winners (two month time horizon).

Significance Level (Excess Returns) - The Significance Level of a test is the probability that the test statistic will reject the null hypothesis when the hypothesis is true. Significance is a property of the distribution of a test statistic, not of any particular draw of the statistic.

Glossary

Size Factor: Risk premium associated with buying small companies.

Skewness (Excess Returns)- Skewness describes the degree of asymmetry of a distribution around its mean. A distribution is said to be symmetric if it has the same shape to both the left and right of the mean. A perfectly symmetrical distribution has a Skewness of 0. A positively skewed distribution has larger gains than losses, while a negatively skewed distribution has a longer tail of losses.

Standard Deviation (s): A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds.

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

Style Returns: The sum of the Return of each Style Asset multiplied by its weight for the time period.

Style R-squared: Measures how well the estimated Manager's style return series fits the manager's return series. The higher the Style R-squared, the better the fit between the manager's style and return series.

Total Return: Total Return geometrically compounds the Returns in the series from one period to the next.

Tracking Error/Excess Standard Deviation: The standard deviation of the difference between the rate of return of a portfolio and its benchmark.

Treynor Ratio - The Treynor Ratio is defined as the ratio of the manager's excess geometrically annualized return over the portfolio Beta. Excess returns are computed versus the cash index.

Universe: Also called a peer group, a universe is a large number of portfolios of a similar style. These portfolios can be divided into deciles or quartiles and then used for performance measurement and comparative purposes. Portfolios are ranked within the universe, which tells the investor how well a manager has done relative to his or her peers.

Value: Refers to the style of an equity manager. A value manager seeks to create returns by purchasing stocks selling at a discount to their true or intrinsic value. Typical portfolio characteristics of this strategy include a low price-to-earnings ratio, high book-to-market ratio, and high dividend yield.

Valuation Factor: Risk premium associated with buying companies trading at a low price/book multiple.

VIX : VIX is a trademark ticker symbol for the Chicago Board Options Exchange Market Volatility Index, a popular measure of the implied volatility of S&P 500 index options. Often referred to as the fear index or the fear gauge, it represents one measure of the market's expectation of stock market volatility over the next 30 day period.

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Contra Costa County Employees' Retirement Association

TT Emerging Markets Equity

January 25, 2017

Niall Paul

Partner, Head of Global Emerging Markets, Portfolio Manager

Greg Cassano

Institutional Relationship Manager, US Public Funds



Why TT International

High alpha specialist and advantage of Partnership structure

High-alpha specialist	<ul style="list-style-type: none">• High-conviction equity and macro strategies designed to match investors' objectives• Highly experienced style agnostic investors with strong sell discipline• Limit available capacity to maximise chances of success
Independent	<ul style="list-style-type: none">• Private partnership established in 1988 which now manages USD5.6bn¹• Consistently profitable and debt-free• Equity a powerful recruitment, motivation and retention tool
Interests aligned	<ul style="list-style-type: none">• Unlimited liability ownership directly aligns TT's interests with those of investors• Partners and staff also invest in TT products alongside clients• Clear incentive to deliver

1. Estimated AuM as at 31 December 2016

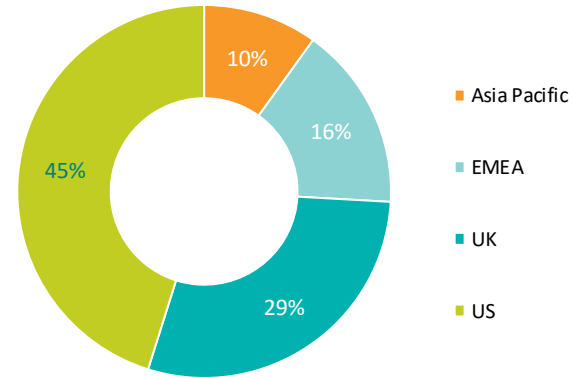


Client Base

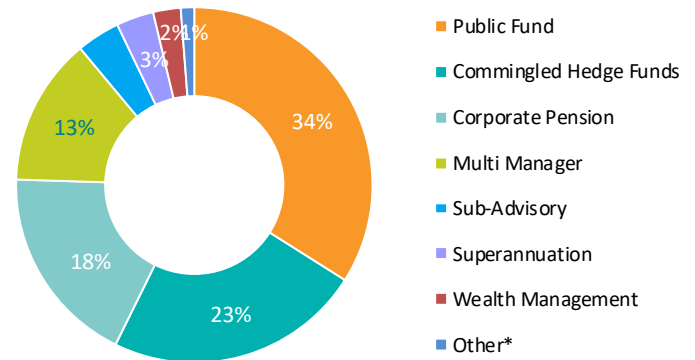
TT's clients are diverse in geography and constitution

Asset by strategy ¹	
Type	Total AuM (USDm) 31 December 2016
International Equity	1,666
UK Equity	720
Emerging Markets Equity	543
Pan European Equity	360
Global Equity	216
Eurozone Equity	185
Asia Equity	168
Europe ex UK Equity	155
Hedge Funds	1,605
Total AuM	5,578

Split by Client Domicile



Split by Client Type



Source: TT International.
Asset are an estimate, subject to change

1. The TT International Fund's investment in the TT Global Equity Fund is not double counted in total firm AuM
* Other client type category includes Sub-advised, Superannuations, Wealth Management Institutions and TT employee investments



TT Emerging Markets - Investment Philosophy

Investment Philosophy

- Emerging Markets are structurally inefficient, principally because of:
 - Insufficient analysis of the interplay between micro and macro factors
 - Under researched nature of numerous Emerging Market companies
 - Skewed index composition creates behavioural biases
- Powerful secular growth opportunities exist in Emerging Markets, overlooked in traditional and quantitative strategies
- Best returns are made by consistently investing in undervalued growth companies



TT Emerging Markets - Investment Approach

Investment objective

- Outperform MSCI Emerging Markets Index by 3% p.a. (gross of fees) over rolling 3-year periods

Investment approach

- Rigorous fundamental stock selection within a top-down framework
- High active share – typically >80%
- High conviction portfolio of typically 50-60 stocks
- Active currency management to manage risk and add alpha

Concentrated stock picking within a differentiated top-down framework



Performance

TT Emerging Markets Composite Performance (USD) (%)

	TT	Index	Relative performance (geometric)
1-year	19.6	11.6	+7.2
3-years (ann.)	2.5	-2.2	+4.8
5-years (ann.)	6.8	1.6	+5.1
Since inception (01-Apr-11)			
Cumulative	11.3	-13.0	+28.0
Annualised	1.9	-2.4	+4.4

Batting Average (From Inception)¹

	Benchmark up	Benchmark down	Total
Ahead months	22	22	44
Behind months	12	13	25
Batting Average	65%	63%	64%

Capture Ratios (From Inception)²

Upside Capture Ratio	106%
Downside Capture Ratio	93%
Capture Ratio	114%

5-year Information Ratio

1.05

Source: TT International | MSCI. Note: Performance figures are Gross of fees and are shown against the MSCI Emerging Markets Index.

Performance shown is to the 31 December 2016

Past performance is not necessarily indicative of future results and you may not retrieve your original investment

1. The Batting Average measures the portfolios ability to generate alpha in up and down markets

Upside Capture Ratio = portfolio return / benchmark return when benchmark up (i.e. > 100% indicates outperformance in up markets)

Downside Capture Ratio = portfolio return / benchmark return when benchmark down (i.e. < 100% indicates outperformance in down markets)

2. Capture Ratio = Upside Capture Ratio / Downside Capture Ratio (i.e. >100% indicates outperformance; the higher the number, the better)

Emerging Markets Team



Niall Paul

Lead Portfolio Manager



Harry Thomas

LATAM / EMEA



Robert James

Co – Portfolio Manager



Duncan Robertson

Asia



Marco Li

China



Sebastiaan de Bont

Korea / Taiwan



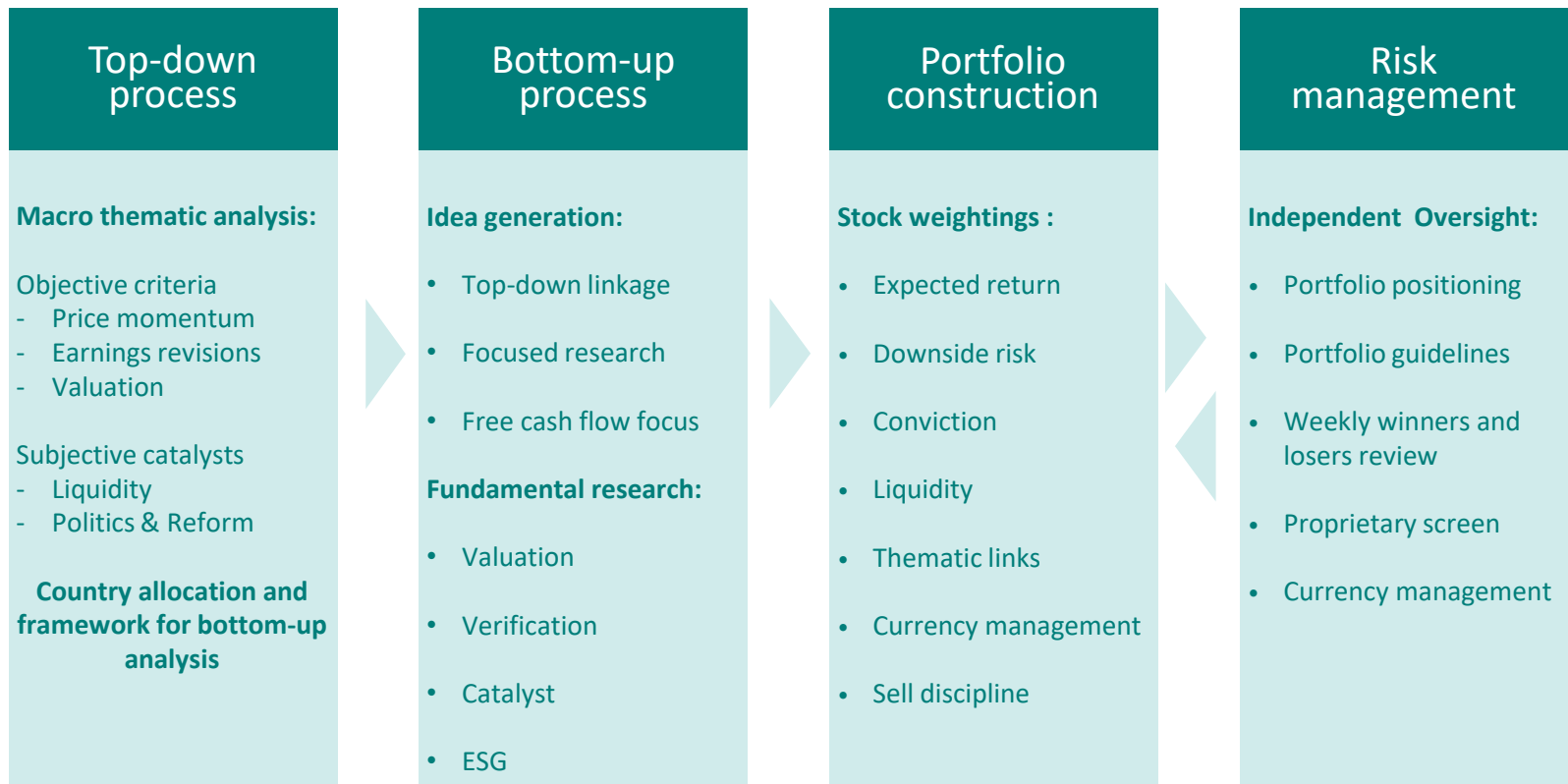
Edward Choi

China



Investment Process Summary

- Systematic and repeatable process
- Rigorous fundamental stock selection within a top-down framework





Current Portfolio Characteristics

Portfolio Statistics		
	TT	Index
Value		
P/E	11.9	11.8
Yield (%)	2.0	2.9
Price/Book	1.7	1.5
Growth		
Historic earnings growth (%)	6.3	-3.2
Forecast earnings growth (%)	20.1	14.8
Forecast dividend growth (%)	15.0	11.3
Quality		
Return on equity	14.7	12.8
Dividend cover	4.2	2.9
Risk		
Tracking Error (%)	4.9	
Active Share (%)	83.3	
Beta	0.9	1.0
Weighted Average Market Cap (USDm)	47,578	48,573
Number of stocks	56	820
Percentage of portfolio in cash (%)	2.3	

Market Cap Breakdown (%)		
	TT	Index
>USD42bn	35.1%	26.5%
USD13bn-42bn	12.6%	29.8%
USD5bn-13bn	8.9%	24.7%
USD1bn-5bn	30.4%	19.0%
<USD1.0bn	13.0%	0.1%

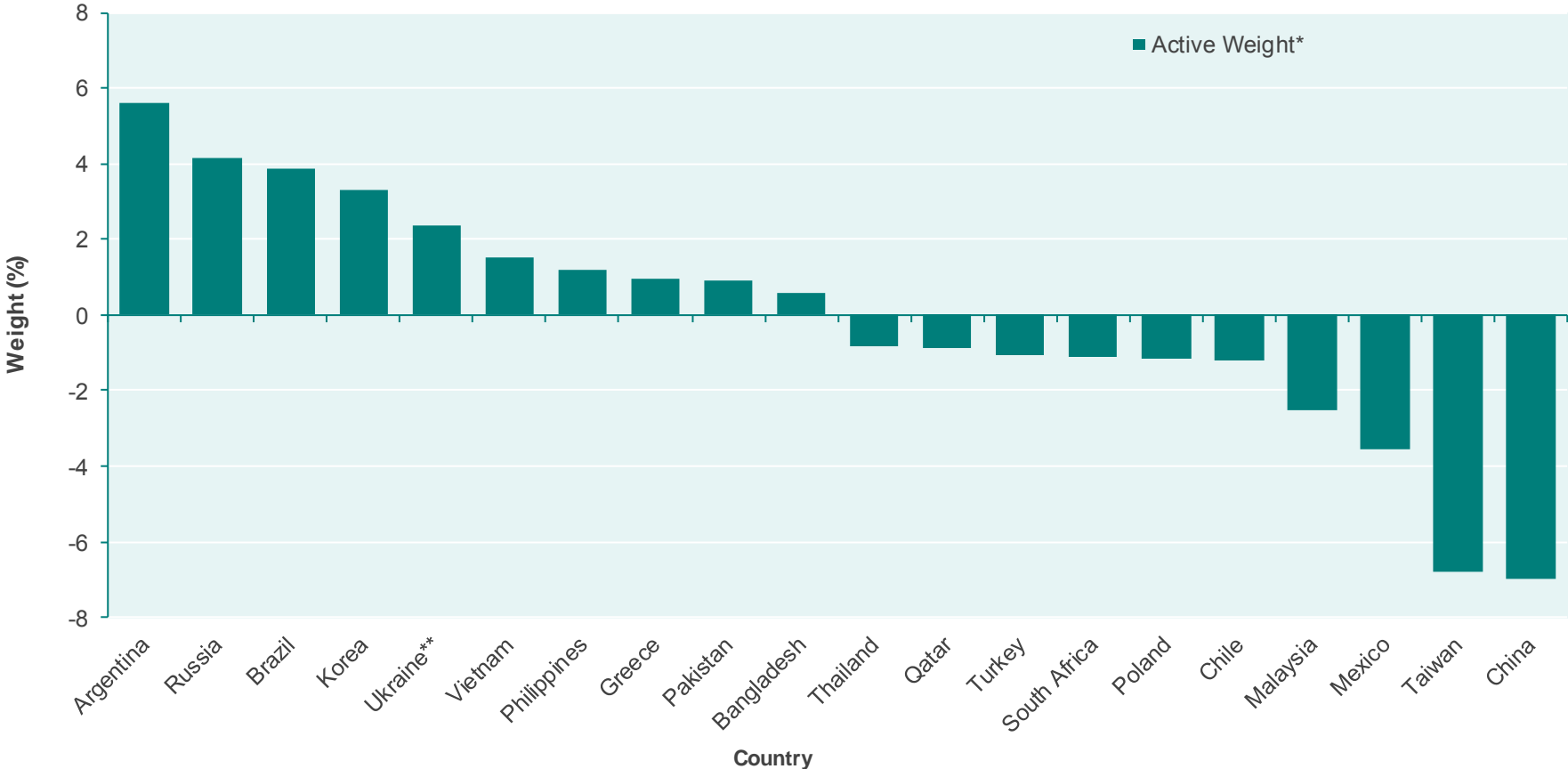
Source: TT International | MSCI | PAS | FinAnalytica Cognition | Bloomberg.

Characteristics shown as at 31 December 2016



Current Portfolio Positioning

Largest active country weights



Source: TT International | MSCI. Note: Relative to MSCI Emerging Markets, as at 31 December 2016.

* Countries where we hold an active position of between +0.5% and -0.5% have not been shown in the chart. This includes exposure to UAE, Indonesia, India, Egypt, Czech Republic, Hungary, Peru and Colombia

** Ukraine exposure is to Luxoft, a software company operating out of a number of East European countries



Current Portfolio Positioning | Themes

Macro outlook - Improving picture for selective EMs	<ul style="list-style-type: none">• Trump - a source of volatility and potential mispricing• Trade concerns are probably overdone• EMs with improving economic fundamentals perform well in early stage US rate cycle• US bond yields a focus but below 3% not problematic• Overweight “reform” countries including Indonesia, Brazil, Vietnam, Pakistan and Argentina	
Brazil & Argentina overweight	<ul style="list-style-type: none">• Broad and ambitious reform agenda led by Temer and Macri administrations• Infrastructure/ regulation and fiscal reform key drivers in both markets• Economies close to inflexion with inflation sharply declining• Argentina’s bank credit to GDP just 14%, sovereign debt 17% GDP	 
India ST pain, LT gain	<ul style="list-style-type: none">• Sweeping de-monetisation to broaden tax base and improve bancarisation• Powerful demographics, consumer-led structural growth• Quality companies compounding earnings• Headroom for rapid interest rate cuts to spur consumer led loan growth.• Declining bond yields drives multiple re-rating	
Linking top-down with bottom-up	<ul style="list-style-type: none">• Target sectors benefiting from reform initiatives: Infrastructure, real estate and regulated sectors• Target sectors benefiting from long term secular growth: Financial services, consumption and real estate• Hedge unwanted FX risk	



Current Portfolio Positioning

Stock & sector weights

Top 10 Portfolio holdings (%)			
	TT	Index	Active Position ¹
Naspers	6.0	1.6	4.4
Tencent Holdings		3.5	-3.5
AIA Group	3.0		3.0
China Pacific Insurance	2.9	0.2	2.7
CIA Saneamento Do Parana	2.4		2.4
Luxoft Holding	2.4		2.4
Pampa Energia	2.3		2.3
Sberbank	3.1	0.8	2.3
Samsung Electronics	6.5	4.3	2.2
LG Corp	2.3	0.1	2.2

Sector Weightings (%)			
	TT	Index	Active Position ¹
Consumer Staples	11.6	7.2	4.5
Industrials	9.7	5.8	4.0
Utilities	6.4	2.9	3.6
Consumer Discretionary	12.8	10.3	2.5
Real Estate	3.2	2.6	0.6
Health Care	2.5	2.5	0.0
Financials	22.2	24.4	-2.2
Information Technology	20.3	23.3	-2.9
Energy	4.7	7.9	-3.1
Materials	3.5	7.4	-3.8
Telecommunication Services	0.6	5.9	-5.3

Source: TT International | MSCI. Note: Relative to MSCI Emerging Markets, as at 31 December 2016.



Why TT for Emerging Markets Equity

Repeatable alpha

Disciplined and highly differentiated process

- Intrinsic link between top down and bottom up analysis - the core of our process
- Free cash flow focus
- Active currency management

High-alpha specialists

- Concentrated and high conviction portfolios with high active share
- Stable GEM team generating consistent top quartile performance
- Limited capacity

Firm structure

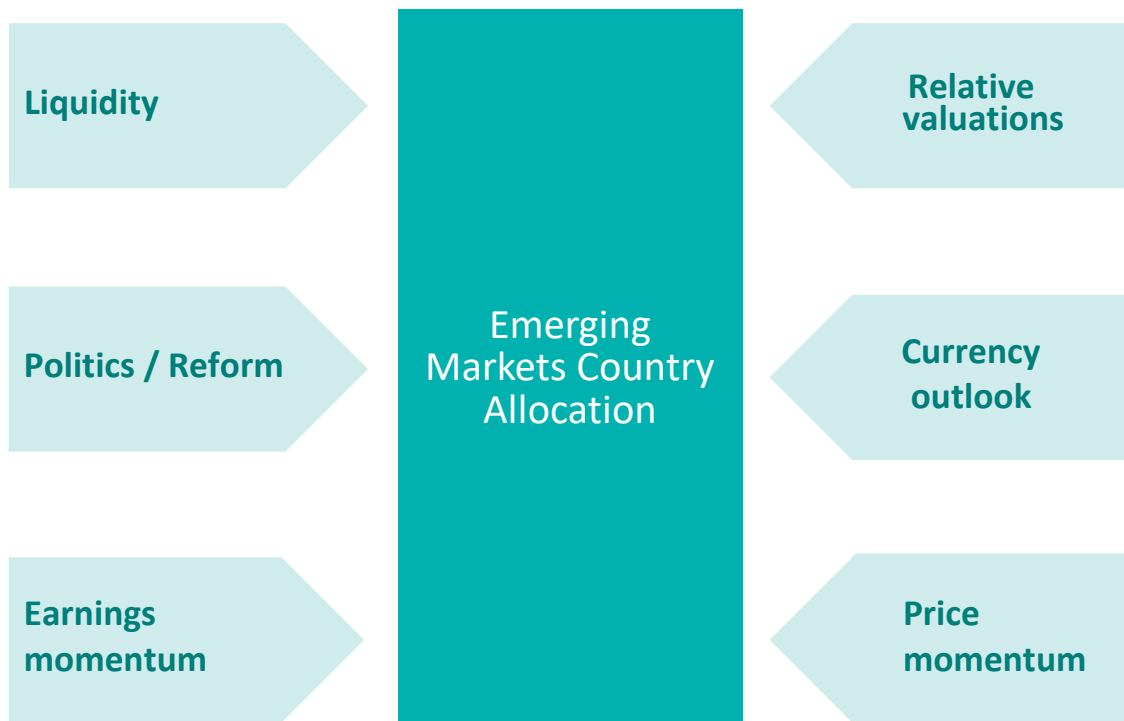
- Private partnership
- Attraction and retention of exceptional talent
- Strong alignment of interests

Appendix 1: Top-down & Bottom-up Process



Investment Process | Top-down

Top-down analysis – directs resources to most promising areas



- Monthly meeting used to determine most attractive markets and identify the trouble spots
- Impacts currency positioning as well as cross sectional macro thematic trends
- Standardised framework for discussion
- Proprietary macro models examine portfolio flows, current account changes and inflation trends
- The top-down **never** buys a stock



Investment Process | Top-down

Asset allocation - Country selection decisions built within disciplined framework

ASSET ALLOCATION FORECAST - November 2016											
	PRICE MOMENTUM		EARNINGS REVISIONS			VALUATION			LIQUIDITY		
	1m Perf (USD %)	12m Perf (USD %)	ROE (%)	Earnings Revisions 3m (Local)	12m EPS Growth	P/ BV	12m Forward Best PE Ratio	Expensive/ Cheap relative to 10 year val mean	Real Rates* (2 Year - Last inflation) %	Current Account/ GDP %	Fiscal Balance/ GDP %
DEVELOPED											
Europe	-3.3%	-10.0%	6.8	2.7%	13.0%	1.7	14.1	-2%	-0.8	3.2	-2.6
Japan	1.6%	1.3%	7.0	0.9%	8.4%	1.3	13.2	-3%	0.1	3.6	-6.7
Asia ex Japan	-1.5%	4.0%	10.3	1.6%	12.6%	1.5	12.7	-18%	0.7	2.3	3.4
U.K.	-5.1%	-13.8%	4.3	10.6%	17.2%	1.8	14.5	-3%	-0.8	-5.7	-4.3
U.S.	-2.0%	2.1%	12.4	2.5%	12.4%	2.8	16.4	14%	-1.0	-2.6	-3.1
LATIN AMERICA											
Argentina	-0.8%	1.8%	12.0	-9.9%	31.1%	1.9	11.5	3%	-14.3	-1.6	-0.5
Brazil	13.7%	65.5%	2.8	5.1%	12.4%	1.7	13.5	-19%	3.3	-2.5	-8.2
Chile	7.9%	11.8%	8.8	-0.3%	10.8%	1.6	15.3	36%	0.4	-2.1	4.6
Colombia	-1.4%	5.0%	6.4	7.8%	27.9%	1.3	11.1	-30%	-0.1	-6.1	-3.1
Mexico	4.8%	-6.1%	12.1	3.3%	21.4%	2.6	17.6	-2%	2.7	-3.2	-3.5
Peru	-1.1%	29.0%	10.2	8.1%	19.3%	2.0	12.5	-31%	1.7	-4.3	-0.8
EMERGING EUROPE & MIDDLE EAST											
Czech	4.6%	-9.6%	9.5	-4.6%	-10.5%	1.3	14.5	-9%	-1.2	1.4	-0.6
Egypt	8.6%	17.0%	19.0	6.9%	23.8%	2.4	10.4	19%	0.7	-3.7	-4.5
Greece	3.3%	-42.5%	4.9	0.0%	29.4%	1.5	17.8	-1%	4.9	1.8	-7.5
Hungary	5.8%	38.8%	4.0	5.2%	5.8%	1.6	11.4	13%	0.2	7.1	-1.6
Nigeria	-2.5%	-40.8%	13.0	-0.6%	25.7%	1.2	7.7	-31%	-2.7	-1.9	-2.6
Poland	3.6%	-13.6%	3.7	-0.8%	5.1%	1.1	11.5	-18%	2.0	0.3	-2.6
Qatar	-2.1%	-10.8%	12.2	-2.3%	10.2%	1.8	11.8	-7%	-0.5	8.2	3.9
Romania	-5.3%	-3.9%	7.8	4.4%	9.1%	1.0	10.1	-	2.3	-1.1	-2.3
Russia	-0.2%	16.6%	9.8	8.5%	12.8%	0.9	6.1	-19%	2.2	4.1	-2.9
Saudi Arabia	7.1%	-15.6%	9.9	-1.1%	9.2%	1.4	12.1	-36%	-0.2	-4.8	-2.1
South Africa	-1.4%	-0.9%	15.7	-0.5%	23.7%	2.3	13.8	-4%	1.6	-3.1	-3.8
Turkey	-0.7%	-8.4%	14.5	2.0%	15.9%	1.2	7.5	-25%	2.3	-4.1	-1.2
UAE	-4.3%	-3.0%	13.4	3.5%	10.3%	1.7	11.0	37%	3.3	3.3	10.3
EMERGING ASIA											
China	-2.0%	-0.8%	12.0	1.0%	14.6%	1.5	11.7	-14%	0.5	2.4	-3.4
Indonesia	-0.1%	30.3%	16.2	3.6%	15.4%	2.9	16.1	-4%	3.3	-2.1	-1.9
India	-0.5%	2.7%	13.8	2.8%	21.4%	3.0	16.7	-4%	2.4	-0.8	-6.9
Korea	-3.9%	3.7%	8.8	4.6%	12.7%	0.9	9.8	-16%	0.2	7.9	-0.0
Malaysia	-0.6%	3.7%	9.7	-1.0%	8.1%	1.7	15.9	-7%	1.5	2.4	-3.2
Pakistan	-2.1%	5.3%	17.8	2.1%	11.7%	1.8	9.5	-32%	-4.2	7.1	-3.0
Philippines	-3.3%	-0.3%	13.2	1.1%	8.6%	2.6	17.5	0%	0.6	1.1	-0.9
Taiwan	1.4%	14.3%	11.2	4.4%	11.0%	1.8	13.2	-26%	0.2	14.5	-0.3
Thailand	-2.5%	9.0%	11.5	2.8%	9.6%	2.0	14.1	6%	1.2	10.3	-3.0
Vietnam	-2.7%	-5.2%	19.8	-1.9%	27.5%	4.1	16.2	42%	0.1	1.4	4.6
GEM TOTAL	0.2%	6.8%	10.4%	1.9%	2.8%						

Source: TT International | Bloomberg | MSCI | IBES



Investment Process | Top-down/Bottom-up integration

Idea Generation

<u>Top-down Trends</u>	<u>Research Focus</u>
Inflation Interest Rate	Property Financials Long duration Assets
FX	Domestic vs Export Exposure
Wages Consumer Confidence	Consumer Discretionary Consumer Staples Financials
PPI CPI	Industrials Retail
Government Policy	Property Materials Regulated Sectors
Second Wave Global Trends	Consumer Services Private Education/Health Care Travel & Leisure

Top-down conclusions direct the bottom up research agenda



Investment Process | Bottom-up

Stock selection – rigorous fundamental research

Valuation

Identify where pricing anomalies exist

- Determine price target that reflects 'fair value'
- Apply most appropriate valuation method for each company/sector
- Quantify absolute and relative mispricing
- Identify where consensus is wrong
- **Free Cash Flow** analysis critical on all non-Financials

Verification

Confirm why pricing anomalies exist, using:

- Internal challenge – Stock ranking tool
- Company visits
- Conventional and unconventional information sources
- Analysis of ESG factors & ESG monitor

Catalyst

An ideal stock has bottom up and top down catalysts

- Top down catalyst examples:
 - Political change and macro opportunities
- Bottom-up catalyst examples:
 - Free Cash Flow inflection or changing use
 - Earnings upgrades
 - Corporate action / management change



ESG Approach

Signatory of:



Investment Philosophy & ESG	<ul style="list-style-type: none">• ESG factors are integral within the investment process• ESG risks given equal parity to all other business risks, framed in context of shareholder value• Negative risks focused on, but also positive traits conducive to growth in shareholder value
Internal Procedures	<ul style="list-style-type: none">• ESG considerations integrated into Investment Case template• ESG Committee (Investment, Risk, Compliance, Voting) meets monthly• Proprietary scorecard to evaluate risks and direct further analysis
External Engagement	<ul style="list-style-type: none">• TT are signatories to UN PRI• Dedicated corporate actions and voting desk. Consistent independence of voting• 3rd party providers of ESG analysis services engaged with selectively



E, S & G Considerations

Environmental	<ul style="list-style-type: none"> • Primary focus is given to the risk that the environmental practices of the company may cause to shareholder value • Positive traits of transparency of environmental disclosure and adherence to international standards – important hallmarks of good environmental practice • Environmental issues considered dynamically – improvement can be a catalyst
Social	<ul style="list-style-type: none"> • Our main focus is on how social factors can impact upon shareholder value. • TT of strong view that a diverse management culture with strong respect for employees yields best corporate results – a positive trait we look for
Governance	<ul style="list-style-type: none"> • The most consistent element of E,S,G that causes permanent loss of value to shareholders, our key focus • Core risks relating to Governance consist of treatment of minority shareholders and veracity/quality of reported accounts/data • Verification a key part of VVC process – this also relates to verifying the data available using a range of methods • Independence of board, CEO/Chairman split, single class of shares, good disclosure – all positive traits that we seek • Use of forensic accountants on portfolio on bi-annual basis

Votes ‘against’ – some examples	<p><u>Lack of independence of board directors:</u></p> <ul style="list-style-type: none"> • Fila Korea (AGM 27/03/15); Yandex (AGM 21/05/14); Coca-Cola Icecek (AGM 15/4/14); Shoprite (AGM 28/10/13); Honhai (AGM 26/6/13); First Pacific (AGM 30/5/13); Shanghai Industrial (AGM 21/5/13) <p><u>Other significant votes:</u></p> <ul style="list-style-type: none"> • Fibra Terrafina (EGM 7/04/16) - Abstained from supporting changes to management share option plan, adjustment to advisory fee • China Galaxy Securities (EGM 26/03/15) - Resolution 1- Approve the new H share issue, we voted against this resolution due to the large discount, target subscribers and issue price
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ESG Scorecard

- Scores companies across 14 ESG metrics using Bloomberg data. Low scores and missing data are prompts for further work.
- High or low scores are never sufficient for conclusions. Quantitative analysis directs our questions, doesn't give answers.
- There is no substitute for knowing our companies well and conducting our own deep ESG analysis as part of research.
- **Our prime focus with regards to ESG factors is their impact on shareholder value.** An improving ESG score, even from a very low base, could be a catalyst for us.

TT International														ESG Monitor				TTGEMS	
	Auditor	Board Meetings Per Year	Board Size	Independent Directors	% Effective Tax Rate	Account Receivables To Sales	Z-Score	Dual Class Voting	% Change Insider Holding	GHG/CO2 to Market Cap	Environmental Disclosure Score	Employee Turnover (%)	Social Disclosure Score	GICS Industry Name	ESG Score				
	Big 4?	< 4	< 7	< 50	< 10	> 0.25	< 2	TRUE	< -5	> 100	< 50	> 10	< 50						
TAIWAN SEMICON MANUFAC (TT*)	Y	6	8	62.5	12.52	0.1	8.84	FALSE	0	46.04	64.34	5	75.44	Semiconductors & Semiconductor	1				
SAMSUNG ELECTRONICS CO LTD (KP*)	N	8	9	55.56	26.58	0.13	4.79	FALSE	-0.07	49.33	71.32	13.06	45.61	Technology Hardware, Storage &	3				
TELEF BRASIL (UN*)	Y		12	66.67	22.15	0.21	2.49	FALSE	0	11.43	41.46	24.15	68.75	Diversified Telecommunication	3				
WOOLWORTHS HOLDINGS LTD (SJ*)	Y	4	15	66.67	27.85		4.82	FALSE	8.76	97.8	38.54		52.63	Multiline Retail	3				
HSBC HOLDINGS PLC (LN*)	Y	7	19	78.95	19.99			FALSE	9.01	4.87	31.25	15.9	46.67	Banks	4				
LG CHEM LTD (KP*)	Y	10	6	50	25.88	0.16	4	FALSE	59.23	660.57	51.16		54.39	Chemicals	4				
X 5 RETAIL GROUP NV-REGS GDR (LI*)	Y	5	8	75	20.95	0.02	4.31	FALSE	0					Food & Staples Retailing	4				
NASPERS LTD-N SHS USD (SJ*)	Y	6	14	50	20.62	0.07	7.81	TRUE	0	2.8	19.38		28.07	Media	4				
ECORODOVIAS INFRA E LOG SA (BS*)	Y		8	37.5	55.08	0.07	2.27	FALSE	0	18.02	40.31		52.63	Transportation Infrastructure	4				
ANTA SPORTS PRODUCTS LTD (HK*)	Y	7	9	33.33	26.19	0.1	8.55	FALSE	166.67		9.38		33.33	Textiles, Apparel & Luxury Goo	5				
AIA GROUP LTD (HK*)	Y	6	9	77.78	18.99	0.07		FALSE	0.04				13.33	Insurance	5				
KOREA ELECTRIC POWER CORP (KP*)	Y	13	15	53.33	28.08	0.12	1.19	FALSE	0	8468	24.81		36.84	Electric Utilities	5				
CHINA PACIFIC INSURANCE GR-H (HK*)	Y	7	14	35.71	25.8	0.17		FALSE	0		27.68	8.88	55	Insurance	5				
GRASIM INDUSTRIES LTD-FOREIGN (IS*)	Y	6	12	50	27.94	0.09	3.04	FALSE	0		9.3		38.8	Construction Materials	5				
TELECOM ARGENTINA SA-SP ADR (UN*)	Y		8	50	33	0.14	3.26	FALSE	0					Diversified Telecommunication	5				
XINYI SOLAR HOLDINGS (HK*)	Y	7	9	33.33	13.51	0.18	2.63	FALSE	0.22					Semiconductors & Semiconductor	5				
ALPHA BANK A.E. (GA*)	Y		15	40				FALSE	0	19.09	38.39	0.87	51.67	Banks	5				

Source: TT International | Bloomberg



Investment Process | Bottom-up

Stock selection – sell discipline

Selling is a key strength

- Objective decision making aided by stock ranking tool
- No passengers in the portfolio

Sales prompted by VVC-ESG process

- Valuation – price target reached
- Verification – investment case changed
- Catalyst – failed to materialise or move price as expected if it did
- ESG – unexpected negative event

Weekly winners and losers meeting

- Formal review of stocks that are damaging performance
- Weakened investment case and not overly discounted = CUT
- Investment case remains strong, price action unwarranted = BUY

Stock ranking tool

- Objective check
- EPS revisions consistent with Investment Case

Appendix 2: Case Study & Rationale for EM



Argentina Macro Checklist

Our Macro checklist from March 2016

	<i>Data</i>	<i>Notes</i>	<i>Catalysts for PAM</i>
Inflation	<ul style="list-style-type: none"> Interest rates have been aggressively raised (35 day Lebac rate to 37.5%). Pass through of FX deval to have big impact through 2016. 	<ul style="list-style-type: none"> Lack of adequate Kirchner-era statistics, new inflation index launched. Expectations that inflation would peak mid year, reaching 17% by 2017. 	<ul style="list-style-type: none"> Reduced inflation would alleviate pressure on cost base and decrease PAM's cost of capital. Reduced inflation creates more space for the government to proceed with absolutely vital utility tariff hikes.
FX	<ul style="list-style-type: none"> Exchange controls have been removed, FX peg removed. 	<ul style="list-style-type: none"> Ratcheting of central bank rates contains scale of currency deval. 	<ul style="list-style-type: none"> FX stability would improve investor appetite, provide certainty on costs.
Reform	<ul style="list-style-type: none"> Government settled with debt hold-outs. \$16.5bn sovereign issuance. Fiscal consolidation process initiated. Huge adjustments to regulated prices, including electricity and gas tariffs. 	<ul style="list-style-type: none"> Potential to ignite multi-year period of capital markets activity. 15 years of underinvestment – just \$1bn FDI in 2015. 	<ul style="list-style-type: none"> Completion of RAB review and resetting of distribution and transmission tariffs. Argentina returning to MSCI Emerging Markets (review process begun)
Economic Activity	<ul style="list-style-type: none"> Real GDP decelerating. 2.2% y/y by Q4 2015. Private consumption down to 1.1% y/y 	<ul style="list-style-type: none"> Expectation that consumption would be under pressure in 2016 as fiscal and monetary policy tightened. 	<ul style="list-style-type: none"> Reacceleration of consumption and corporate activity as reforms start to work should increase demand for utilities.



Pampa Energia

Investment Case Summary

Background

Pampa Energia is a vertically integrated Argentinian utility and energy company. Their assets include 52% stake in Edenor (disco with 21% market share), 2.3 GW of generation capacity, 25% of Transener (90% of transmission share) and 2.3m cubic metres daily gas production. After over a decade of sub-economic returns caused by price controls, the new government headed by Mauricio Macri has initiated a process of resetting tariffs across the electricity and power sector to allow companies to make returns commensurate to their cost of capital. From Pampa's perspective, the main reforms are the move to a Regulatory Asset Base compensation model for distribution (RABs, Reg WACC and other factors to be determined this year) and transmission assets and resetting tariffs for 'old' generation capacity that did not fall under Kirchner's emergency EnergiaPlus tariff. In addition to the regulatory reform, Pampa Energia has acquired Petrobras's controlling stake in Petrobras Argentina (PZE) which gives greater scale in oil and gas production as well as 1.1 GW of generating capacity. We see group attributable EBITDA increasing from \$316m in 2016 (TT forecasts) to \$1169m in 2019, due to both the significant price reforms and the PZE acquisition.

Valuation

- Due to extreme shifts in regulation, valuing the company on current earnings is of limited insight. That said, the multiple of 4.5x 2017 EV/EBITDA (TT numbers) is not demanding.
- We value Pampa on normalised EBITDA in 2019. We take attributable EBITDA (adjusted for minorities in subsidiaries) to which we apply a conservative 5x EV/EBITDA multiple (only slightly above current levels) and discount back to end'17 using a 15% Ke (higher than regulatory WACC on RAB) to get a \$50/ADR price target.

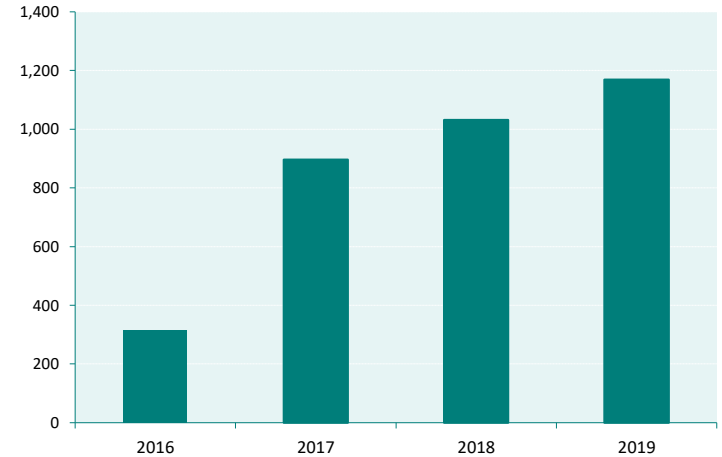
Verification

- Government commitment to the reforms is evidenced by their 185% initial tariff increase to end customers announced within weeks of coming to power. In addition they accelerated the full RAB review which wasn't due until December. Residential prices remain far below LatAm peers.
- Management unwilling to raise equity for PZE acquisition – don't want to dilute their 21% stake.
- In 1990s Edenor's EBITDA was \$350m vs \$206m in 2015 – scope of profitability increase we foresee is not large in context of previous earnings power. Edenor distributes 40% more electricity than 1990s.

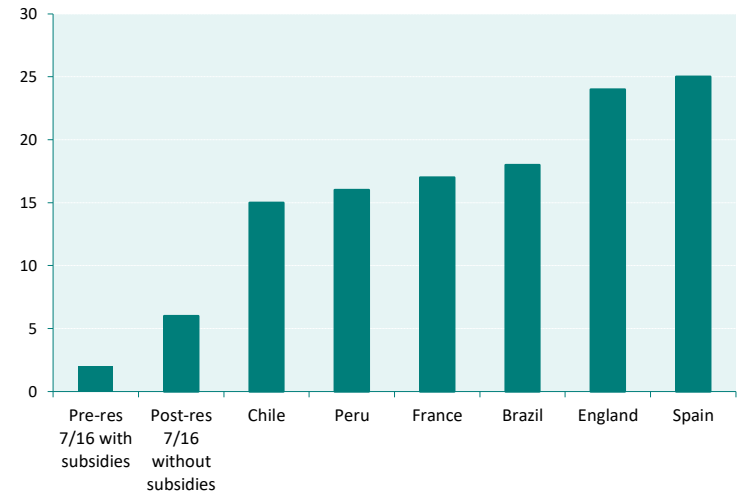
Catalysts

- Pampa is included in MSCI Argentina
- Government to confirm final timetable for implementation of new tariffs. Expected from 1st Feb.
- Successful RAB review (currently ongoing). WACC of 8.04% post tax in real USD good.
- Synergies at PZE; estimated 20-40% of PZE salary base.
- Dec 12th: start of public hearings for increase of tariffs at Transener.
- Adjustment to remuneration of 'old' generating assets – likely in 2017/8. Over 85% capacity is under 'old' compensation and this currently contributes just 10% of genco EBITDA.
- Further acquisitions – debt still < 1.7x ND/LTM-EBITDA post PZE (and much lower using forward metrics)
- Greenfield growth; recently won 300MW gas auction, 100MW wind. Exceptional returns: 18% real \$ equity IRR.
- Upside to Argentina local gas prices based on import parity (\$7/MMBTU)

Pampa Energia Attributable EBITDA (\$m, TT)

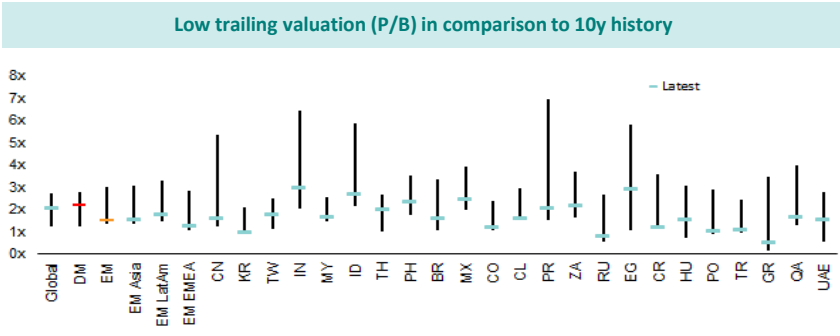


Argentina residential elect. cost and peers (\$ cent/KWh)



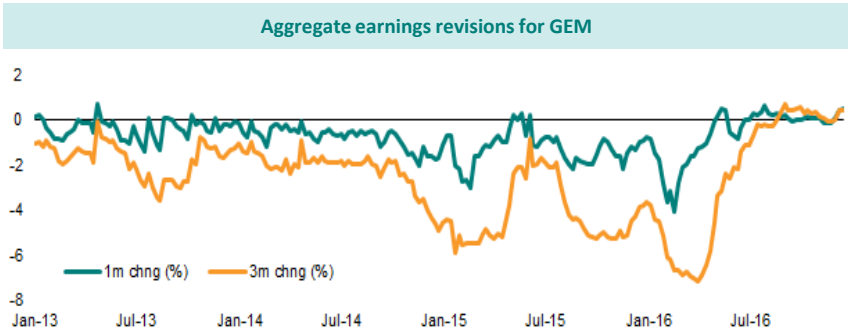
Compelling entry point for EM as a whole...

Cheap Valuations



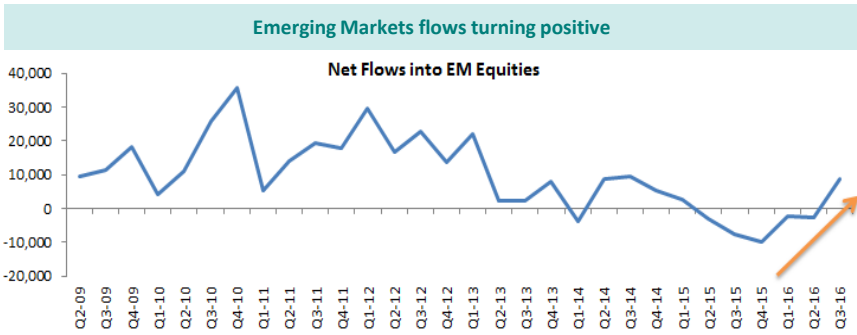
- Supportive valuations
- ROE's are improving
- Dividends growing

Positive earnings



- Earnings accelerating
- Global PMI's expanding
- Currencies stabilising

Supportive liquidity



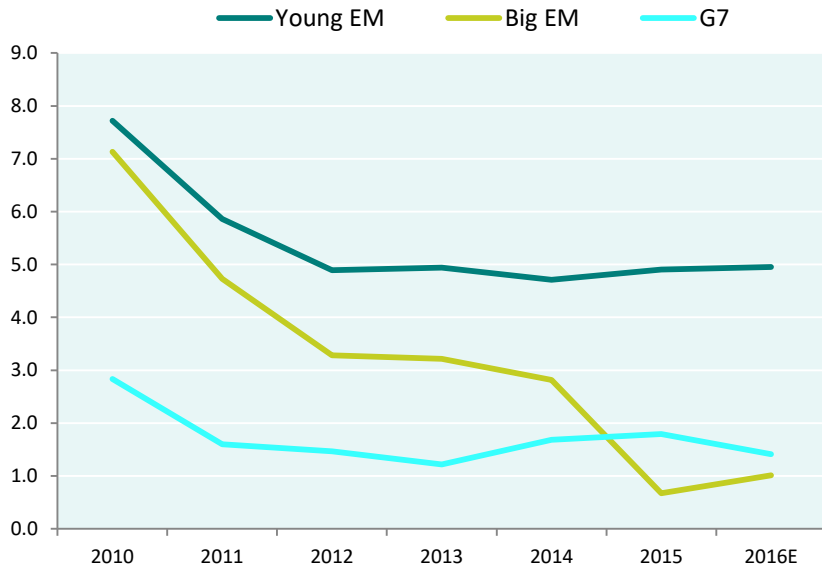
- EM yields too high
- Flows accelerating



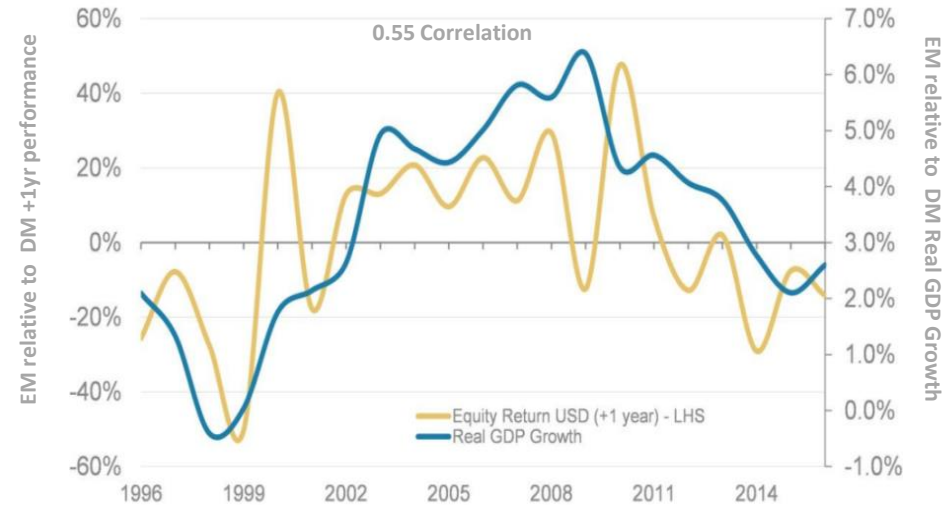
...Particularly for the Horizon markets

Relative GDP growth correlates to superior outperformance

Annual GDP growth of “Young EM” vs “Big EM” vs G7*



Correlation between rel. EM Growth and rel. EM performance



Source: UN and US Census Bureau | IMF

* “Young EM” is defined as the average of India, Philippines, Mexico, Indonesia and Turkey - 17.5% of the MSCI EM index

* “Big EM” is defined as the average of South Africa, Korea, Taiwan, Russia, China and Brasil – 71.5% of the MSCI EM index

Appendix 3: Portfolio Construction



Investment Process | Risk Management

- Dynamic and interactive approach to risk management
- Collaborative approach, using TT's highly skilled risk team

Investment Team

Ensures portfolio conforms to risk parameters:

- Exposure/active share by
 - Country – max 50% of total TE
 - Sector – max 50% of total TE
 - Stock – max 10% of total TE
 - FX – max 10% of total TE
- Liquidity
- Concentrations
- Position size vs. downside risk
- Risk matches conviction and alpha target

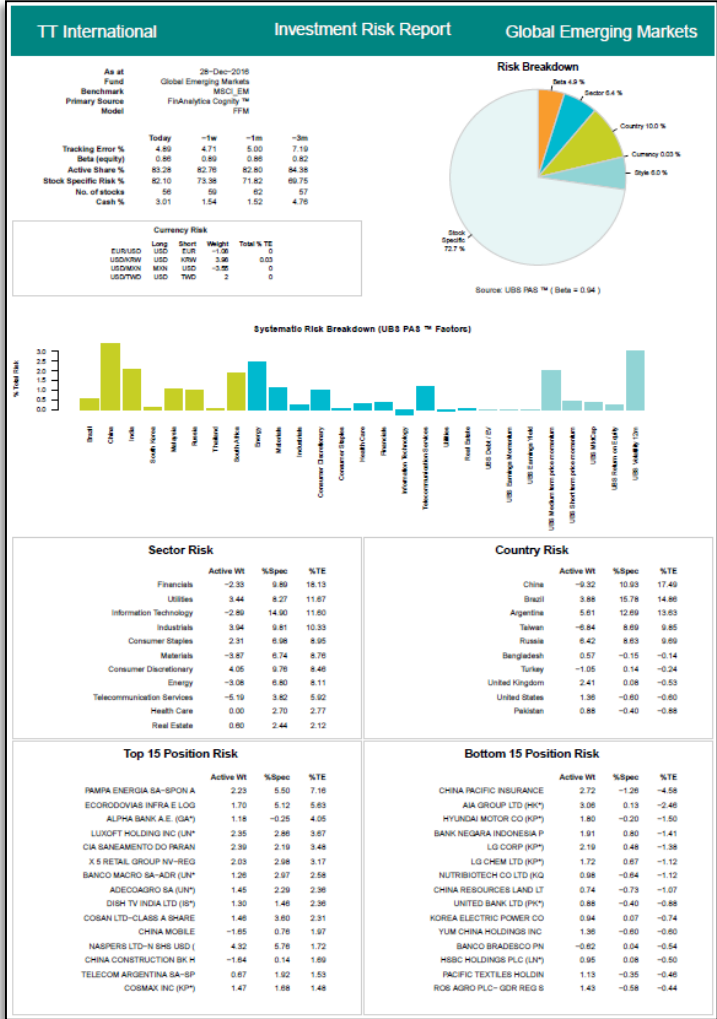
Continuously re-evaluate investment case



Risk Management Team

Monitors risk:

- Daily risk analysis and reporting (FinAnalytica / UBS PAS)
- Quantitative risk analysis – risk engineering and stress testing of portfolios
- Informal regular and formal weekly meeting with portfolio managers to discuss portfolio construction and risk distribution
- Target of measures
- Trend of risk over time





Investment Process | Currency Management

Active currency management to manage risk and add alpha

FX in Asset Allocation Process	<ul style="list-style-type: none">• Currency views assessed as part of the asset allocation process• A variety of macro and technical factors used to examine the relative attractiveness of currencies versus the dollar• This helps inform judgement on stocks and markets
FX in Risk Management Process	<ul style="list-style-type: none">• Identify 'risk currencies' traded to help manage the beta of the portfolio
FX Parameters	<ul style="list-style-type: none">• No more than 10% of tracking error of the fund• No naked short positions on currencies• Conventional FX forwards (South African Rand, Turkish Lira, Mexico Peso) or NDFs (Russian Ruble, Indian Rupee, Brazil Real)
FX in Stock Selection	<ul style="list-style-type: none">• Enhances purity of bottom-up company analysis• Analysts know currency dealt with independently• Avoids weighing trade-offs between upside in local terms and downside on FX loss

Appendix 4: Historical Characteristics, Risk & Performance Attribution



Consistent Core Investment Style

Growth at attractive valuation

Portfolio Statistics										
	Q1 2016		Q1 2015		Q1 2014		Q1 2013		Q1 2012	
	TT	MSCI EM	TT	MSCI EM	TT	MSCI EM	TT	MSCI EM	TT	MSCI EM
Value										
P/E (12m forward)	10.2	11.1	11.8	11.9	9.0	10.1	8.0	10.4	8.2	10.4
Yield (%)	2.8	3.2	2.4	2.9	2.8	3.0	3.2	2.9	2.9	3.0
Price/Book	1.3	1.2	1.7	1.5	1.6	1.5	1.5	1.6	1.4	1.7
Growth										
Historic earnings growth (%)	2.3	-2.9	5.3	0.9	14.7	9.2	5.1	4.9	16.0	10.6
Forecast earnings growth (%)	11.0	4.1	16.4	8.3	20.9	9.7	20.1	13.7	15.3	10.1
Forecast dividend growth (%)	11.1	3.9	17.6	6.9	13.5	5.9	8.8	7.8	17.4	10.8
Quality										
Return on equity	13.4	11.1	13.9	12.4	18.0	14.2	18.6	15.7	17.1	16.9
Dividend cover	3.5	2.8	3.5	2.9	3.9	3.3	3.9	3.3	4.2	3.2
Debt/Equity ratio	21.4	30.0	45.6	31.7	31.2	32.5	32.5	29.4	26.5	27.4
Risk										
Tracking Error (%)	6.0		4.4		4.1		4.4		4.8	
Active Share (%)	85.3		85.7		81.4		82.8		79.1	
Beta	0.93	1.00	0.94	1.00	0.94	1.00	0.94	1.00	1.02	1.00
Weighted avg market cap (USDm)	35,771	44,830	43,308	54,527	34,901	42,716	32,743	36,089	36,481	35,252
Number of stocks	61	821	60	836	63	808	58	807	57	810

Source: TT International | MSCI | PAS | FinAnalytics Cognity | Bloomberg.



Current Portfolio Risk Summary

Portfolio characteristics							
	Number of stocks	Tracking error (%)	Beta	Active share (%)	Stock specific risk (%)	Systematic risk (%)	Cash levels (%)
Current	56	4.9	0.86	83.3	72.7	27.3	2.3
Typical range	50-60	4.0-8.0	0.8-1.2	>80%	60-80	20-40	0-10

Top 10 risk – sectors (%)		
Sector	Active position	Tracking error
Financials	-2.3	18.1
Utilities	3.4	11.7
Information Technology	-2.9	11.6
Industrials	3.9	10.3
Consumer Staples	2.3	9.0
Materials	-3.9	8.8
Consumer Discretionary	4.1	8.5
Energy	-3.1	8.1
Telecommunication Services	-5.2	5.9
Health Care	0.0	2.8
Real Estate	0.6	2.1

Top 10 risk – held stocks (%)		
Stock	Active position	Tracking error
Pampa Energia	2.2	7.2
Ecorodovias Infra	1.7	5.6
Alpha Bank	1.2	4.1
Luxoft Holding	2.4	3.7
Cia Saneamento Do Parana	2.4	3.5
X 5 Retail Group	2.0	3.2
Banco Macro	1.3	2.6
Dish Tv India	1.3	2.4
Adecoagro	1.5	2.4
Cosan	1.5	2.3

Source: TT International | MSCI | FinAnalytics Cognito.

Characteristics shown as at 31 December 2016



Attribution

5-years to 31 December 2016

Countries (%) ¹				
	Asset Weighting	Security selection	Currency effect	Value added
Total Portfolio	6.4	16.6	3.6	28.6
Equity	5.3	16.7	1.3	24.5
Top/Bottom 5 EM Countries	2.7	8.8	-1.8	9.8
Mexico	0.0	3.2	0.2	3.4
Turkey	0.7	2.0	0.3	3.0
Indonesia	0.3	2.4	0.1	2.9
Russia	0.0	3.4	-0.8	2.5
Korea	0.5	2.6	-0.8	2.3
Brazil	0.5	-0.7	0.1	0.0
Hungary	-0.2	-0.1	0.0	-0.2
India	0.0	-0.5	0.0	-0.5
Taiwan	-0.9	-0.6	-0.4	-1.8
China	1.6	-3.1	-0.6	-2.0
Rest of the World	2.5	7.2	3.1	13.4
FX & Cash	1.4	0.0	2.0	3.4

Sectors (%)	
	Value added
Total Portfolio	28.6
Equities	24.5
Financials	11.1
Consumer Staples	4.1
Industrials	3.7
Utilities	3.0
Health Care	2.1
Consumer Discretionary	1.6
Telecommunication Services	1.3
Index Futures / ETFs	0.7
Real Estate	0.0
Materials	-0.5
Energy	-2.0
Information Technology	-2.3
FX & Cash	3.4

Source: TT International.

1. Country breakdown displays the top / bottom 5 Benchmark country level contributors to and detractors from performance, and aggregates the remaining countries as Rest of the World

Appendix 5: Terms and Capacity Analysis



Management Fee Proposal

Separate Account

Assets	Standard schedule		<u>CCCERA proposal</u>	
	USDm	Fee (bps)	USDm	Fee (bps)
First	50	85	100	75
Next	50	80	100	70
Next	200	75		
Thereafter		70		65

Pooled Fund

Assets	Standard schedule		<u>CCCERA proposal</u>	
	USDm	Fee (bps)	USDm	Fee (bps)
First	50	80	100	70
Next	50	75	100	65
Next	200	70		
Thereafter		65		60



Cayman Fund Terms

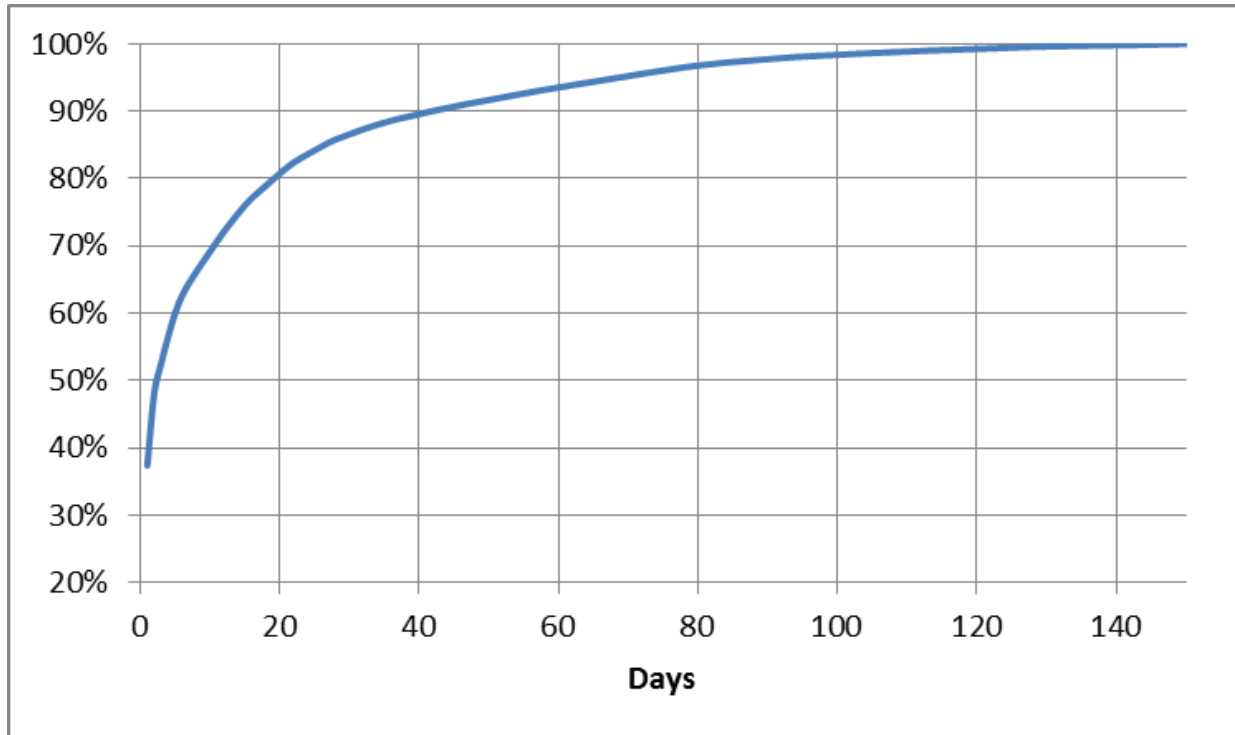
Cayman Pooled Fund	
Fund Name	TT Emerging Markets Opportunities Fund
Inception	September 2014
Base Currency	USD
Administrator	Centaur
Auditor	Deloitte & Touche
Liquidity	Monthly
Operating Expenses	50bps max (currently 31bps)
Preliminary Charge*	Up to 40bps max (charged by fund to cover cost of investment)
Eligible Investor Domicile	Include US Persons as defined by the Offering Memorandum. Please note we now also offer a separate Cayman ERISA Fund for qualifying investors. Information available upon request.

*The Fund will bear the cost of investment for all subscriptions less than 20% of fund NAV. For all investments over this threshold, the actual cost of trading will be charged up to a limit of 40bps



Capacity Analysis

\$3bn Assets under management



Methodology

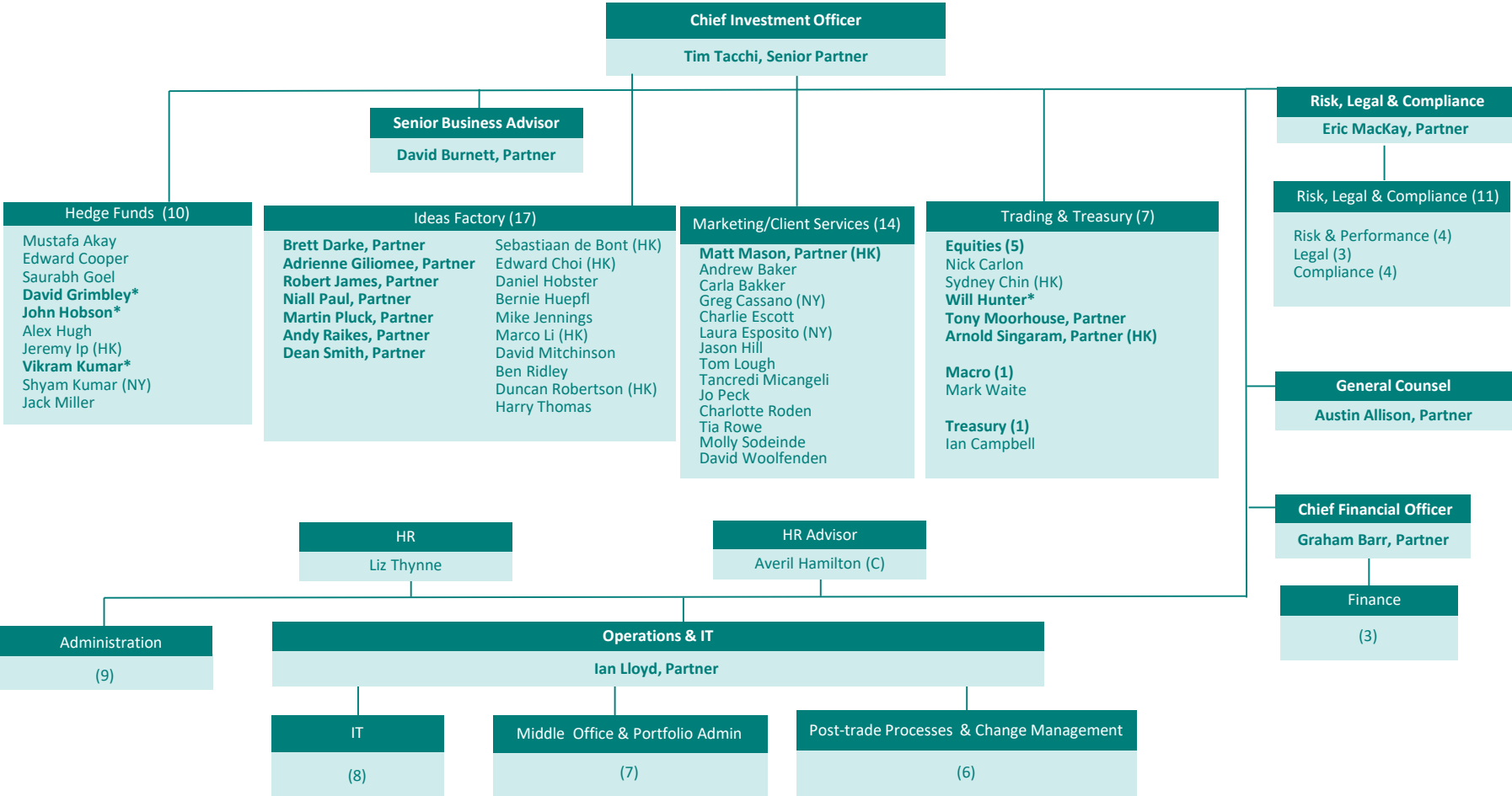
- Analysis assumes \$2bn in core GEM strategy and \$1bn in EM Unconstrained strategy
- The analysis models a simultaneous “sell all” order for every position held in the portfolio.
- The initial market value held in each position is based on actual current portfolio holding weights multiplied by hypothetical stated NAV
- The analysis assumes the market value in each position reduces by 33% of its 30 day average daily traded volume multiplied by current USD price each day until the remaining market value held is zero.
- For each day after the sell order, the remaining aggregate market value of the portfolio is subtracted from and then divided by the initial portfolio NAV to calculate the proportion of the portfolio that has been liquidated. ($\% \text{Portfolio Liquidated} = [\text{Initial NAV} - \text{sum}(\text{MV at day T})] / \text{Initial NAV}$)

Appendix 6: Organisational Chart, Bios



Organisational overview

16 partners, 7 LLP partners* and 78 employees



Note: This functional organisational chart excludes persons on long term absence or garden leave . * 10 LLP Partners – 3 of whom are also ULP Partners



Biographies

TT Emerging Markets Team

<p>Niall Paul Partner Head of Emerging Markets Lead Portfolio Manager</p> <p>Education:</p>	<p>2010– 1999–2010 1994–1998</p> <p>1990–1993</p>	<p>TT International Aviva Investors CIO, Equities & Deputy CEO, Head of Emerging Markets Foreign & Colonial Fund Manager, Latin America</p> <p>University of Liverpool, BEng (Hons)</p>
<p>Robert James, CFA, PhD Partner Co-Portfolio Manager Emerging Markets LATAM EMEA</p> <p>Education:</p>	<p>2011– 2009–2010 2007–2009 2005–2007</p> <p>2000–2004 1999–2000 1996–1999</p>	<p>TT International Pictet Asset Management Head of Latin America Pictet Asset Management Senior Portfolio Manager, Emerging Markets Pictet Asset Management Sector Analyst, Energy and Materials</p> <p>University of East Anglia, PhD in Development University of East Anglia, MA (Distinction) Rural Development Oxford University, BA (Hons) Experimental Psychology</p>
<p>Sebastian de Bont, CFA Portfolio Manager Emerging Markets Asia</p> <p>Education:</p>	<p>2010– 2007–2010 2000–2007 1999–2000</p> <p>1994–2000</p>	<p>TT International Fideuram Asset Management Head of Emerging Markets Robeco Asset Management Senior Portfolio manager, Emerging Markets Robeco Direct Wealth Management Advisor</p> <p>Erasmus University, Rotterdam, MSc in Business Economics</p>
<p>Harry Thomas Senior Analyst Emerging Markets</p> <p>Education:</p>	<p>2012– 2008–2012</p> <p>2005–2008</p>	<p>TT International UBS Investment Bank Emerging EMEA Equity Team</p> <p>Oxford University, BA (Hons) in Philosophy, Politics and Economics</p>



Biographies

TT Emerging Markets Team

<p>Duncan Robertson, CFA Portfolio Manager, Asia</p> <p>Education:</p>	<p>2014– 2005–2013</p> <p>2000–2003</p>	<p>TT International Universities Superannuation Scheme Senior Portfolio Manager, GEM</p> <p>University of Bristol, BSC (Hons), Economics and Finance</p>
<p>Marco Li, CFA Senior Analyst, Asia</p> <p>Education:</p>	<p>2013– 2004–2013</p> <p>2000–2004</p>	<p>TT International Manulife Asset Management Asian Equity Team</p> <p>Wilfrid Laurier University BBA (Hons)</p>
<p>Edward Choi, CFA Senior Analyst, Asia</p> <p>Education:</p>	<p>2015– 2011–2013 2008-2011 2005-2008</p> <p>2013-2014 2001–2005</p>	<p>TT International Bain Capital Associate, Investment Team, Greater China Entropy Ventures Senior Associate McKinsey & Company Business Analyst, Greater China</p> <p>Kellogg School of Management, Northwestern University, MBA Cornell University, BSc, Engineering; BA, Economics</p>



Biographies

<p>Greg Cassano Institutional Relationship Manager – US Public Funds</p> <p>Education:</p>	<p>2016– 2008–2016 2003–2008 2000–2003</p> <p>1995–1999</p>	<p>TT International First Eagle Investment Management Senior Vice President Goldman Sachs Asset Management Vice President Alliance Bernstein Senior Associate</p> <p>University of Scranton, BSc, Marketing</p>
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<p>Eric Mackay Partner, Head of Compliance, Legal & Risk</p>	<p>2013– 1999-2012 1997-1999 1997-1997 1995-1996 1990-1995</p>	<p>TT International F&C Asset Management plc Chief Risk Officer Working and travelling in Australia and South East Asia Dundas & Wilson W.S. Assistant to Finance Director CR Smith Glaziers Sales Standard Life Assurance Company Senior Administrator</p>
<p>Graeme Bartlett, CFA Senior Risk Manager</p> <p>Education:</p>	<p>2010– 2007–2010</p> <p>2002–2006</p>	<p>TT International Fidelity International Performance Analyst</p> <p>University of Cambridge, MA, MEng Mechanical Engineering</p>



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The Shares are being offered outside the United States pursuant to an exemption from registration under Regulation S under the 1933 Act and inside the United States in reliance on Regulation D promulgated under the 1933 Act and Section 4(2) thereof.

There is no public market for the Shares and no such market is expected to develop in the future. The Shares offered hereby are subject to restrictions on transferability and resale and may not be transferred or resold except as permitted under the 1933 Act and applicable state securities laws pursuant to registration or exemption therefrom.

The Fund has not been and will not be registered under the United States Investment Company Act of 1940, as amended (the “1940 Act”) pursuant to the provisions of Section 3(c)(7) of the 1940 Act, which excludes from the definition of “investment company” a privately offered fund that is organised outside the US and those US Person security holders consist exclusively of “qualified purchasers”, as defined in Section 2(a)(51) of the 1940 Act.

The Fund may arrange or permit the private placement in the United States of a portion of the Shares under the exemption provided by Section 4(2) of the 1933 Act and Regulation D promulgated thereunder to US Persons that are “accredited investors” (as defined in Rule 501(a) of Regulation D under the 1933 Act) and “qualified purchasers” (as defined in Section 2(a)(51) of the 1940 Act), under restrictions and other circumstances designed to preclude a distribution that would otherwise require registration of the Shares under the 1933 Act, cause the Fund to become subject to the registration requirements of the 1940 Act, oblige the Fund or the Investment manager to comply with requirements under the United States Commodity Exchange Act, or cause the assets of the Fund to be “plan assets” for the purposes of the United States Employee Retirement Income Security Act of 1974, as amended (“ERISA”), including presentation by such investors, prior to the delivery to them of Shares, of subscription documentation containing specified representations and agreements.

The Fund will not accept any subscriptions from investors that are employee benefit plans subject to Title 1 of ERISA, certain tax qualified plans subject to Section 4975 of the United States Internal Revenue Code of 1986, as amended, or other entities deemed to hold assets of such plans (together, “Benefit Plans”) if after such subscription the Shares of any class held by Benefit Plans would be 25 per cent or more of the total outstanding Shares of that class. If the Shares of any class held by Benefit Plans were to exceed this 25 per cent limit, the Fund’s assets might be considered “plan assets” under ERISA, which could result in adverse consequences to the Fund, the Investment Manager and the fiduciaries of the Benefit Plans.

Canada

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P I M C O

An Introduction to RAE Fundamental Emerging Markets
Strategy

January 2017

Contra Costa County Employees' Retirement Association

For institutional investor use only

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CMR2017-0109-241816

Biographical information

John West, CFA

Mr. West is a partner and head of client strategies at Research Affiliates, a subadvisor to PIMCO. He is responsible for product management and for spearheading various client service initiatives. He also has primary responsibility for external communication of the firm's global tactical asset allocation strategy. Before joining Research Affiliates, Mr. West was a vice president and senior consultant at Wurts & Associates (now called Verus) and managed the firm's overall research effort, including the development of

capital market assumptions, new asset class opinions, alternative investments, portfolio processes and spending policies. He is co-author of "The Fundamental Index: A Better Way to Invest," published in 2008, and holds a bachelor's degree in finance from the University of Arizona.

Stephanie L. King, CFA

Ms. King is an executive vice president, head of the U.S. public client practice and an account manager in the Newport Beach office, focusing on institutional investors within the public sector. Previously at PIMCO, she worked with a variety of institutional client types and headed the U.S. corporate client practice. Additionally, she led the firm's global recruiting function as part of PIMCO's business management group and worked on a variety of talent management initiatives. She currently serves on the steering committee for PIMCO's global inclusion, diversity and culture initiative. Prior to joining PIMCO in 2001, she was with Morgan Stanley,

Blue Capital Management and Bain & Company. She has 18 years of investment experience and holds an MBA from Stanford University Graduate School of Business and an undergraduate degree from the Wharton School of the University of Pennsylvania.

Brent Leadbetter, CFA

Mr. Leadbetter is a product specialist for Research Affiliates Equity (RAE) strategies. In this role, he helps institutional asset owners and consultants understand the RAE methodology and the potential role of smart-beta-based strategies in portfolios. Prior to joining Research Affiliates, Mr. Leadbetter worked as a private client manager at AllianceBernstein. He was also previously an institutional sales associate at A.G. Edwards and a retirement specialist at Merrill Lynch. He holds a bachelor's degree in history from the University of Michigan and an MBA from the Anderson School of Management at UCLA.

Sasha Talcott, CFA

Ms. Talcott is a vice president and account manager in the Newport Beach office, focusing on institutional client servicing. Prior to joining PIMCO in 2012, she was director of communications and outreach for Harvard Kennedy School's Belfer Center for Science and International Affairs, a research center that focuses on topics ranging from international security to energy policy. Previously, she was a business reporter for the Boston Globe, where she covered the banking and insurance sectors. She holds an MBA from MIT Sloan School of Management and received an undergraduate degree from Northwestern University.

Agenda

1/PIMCO RAE Fundamental Strategy

- Research and investment team
- Philosophy and methodology
- Performance

2/Additional information

PIMCO RAE Fundamental Strategy

Systematic equity strategies represent an attractive alternative or complement to traditional stock picking

Systematic strategies often have the same investment objectives as traditional active but adhere to unemotional, rules-based investment processes

	Systematic Equity	Traditional Active Equity
Stock selection	Model that incorporates quantitative analysis of fundamentals	Team of analysts performing bottom-up research
Security weighting and buy/sell decisions	Rules-based process that does not rely on human behavior	Judgment of portfolio manager
Diversification	Typically broadly diversified and economically representative	Typically concentrated with higher levels of stock-specific risk
Risk factor exposure	Factor exposures are intentional and transparent	Performance driven by idiosyncratic risk as well as less transparent factor exposures
Fees	Tend to be lower fee	Tend to be higher fee

Systematic equity strategies can deliver excess returns, while maintaining broad representation, liquidity and other portfolio benefits

Refer to Appendix for additional investment strategy and risk information.

Research Affiliates is a global leader in systematic equity strategies

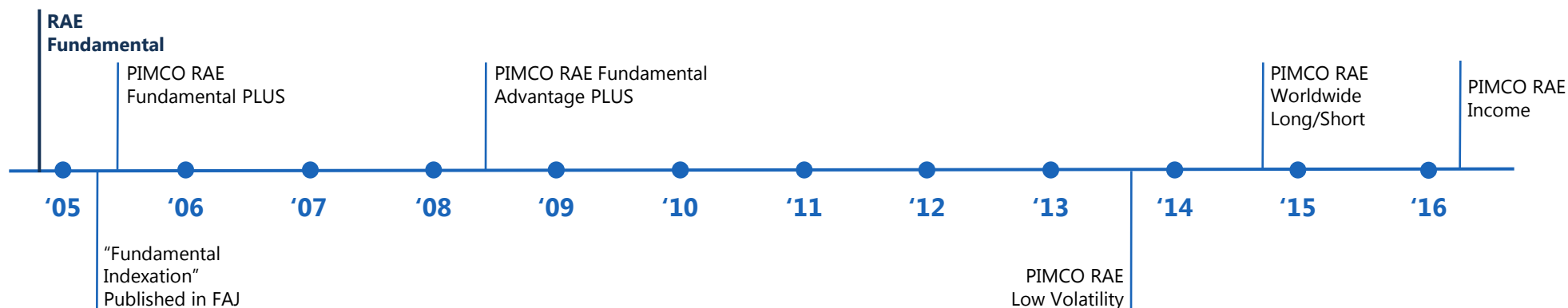
PIMCO has partnered with Research Affiliates on equity strategies since 2005

About Research Affiliates

- Founded by Rob Arnott and Jason Hsu in 2002
- Industry thought leaders with over 330 published pieces of content
- \$170 billion in assets are managed using investment strategies developed by Research Affiliates

Systematic Equity Strategies:

- Potential to achieve superior performance over traditional cap-weighted indices
- Seeks to preserve the benefits of passive investing including broad market exposure, diversification, liquidity and low-turnover
- Disciplined, rules-based approach to “buy low/sell high”



As of 31 December 2016

SOURCE: PIMCO, Research Affiliates

Refer to Appendix for additional index, investment strategy and risk information.

RAE Fundamental PM team: Leveraging a deep team of established research professionals



**Rob Arnott, RAE Portfolio Manager
Research Affiliates Chairman**



**Chris Brightman, RAE Portfolio Manager
Research Affiliates Chief Investment
Officer**

RAE RESEARCH AND INVESTMENT MANAGEMENT TEAM

Equity Research Team, 4 members

Vitali Kalesnik, Ph.D., Partner, Head of Equity Research

- Engin Kose, Ph.D.
- Noah Beck
- Mark Clements, Ph.D.

- Responsible for the initiation of and ongoing research aimed at enhancing RAE
- Thorough testing of research to ensure robustness across all regions and markets

Investment Management Team, 19 members

Feifei Li, Ph.D., Partner, Head of Investment Management

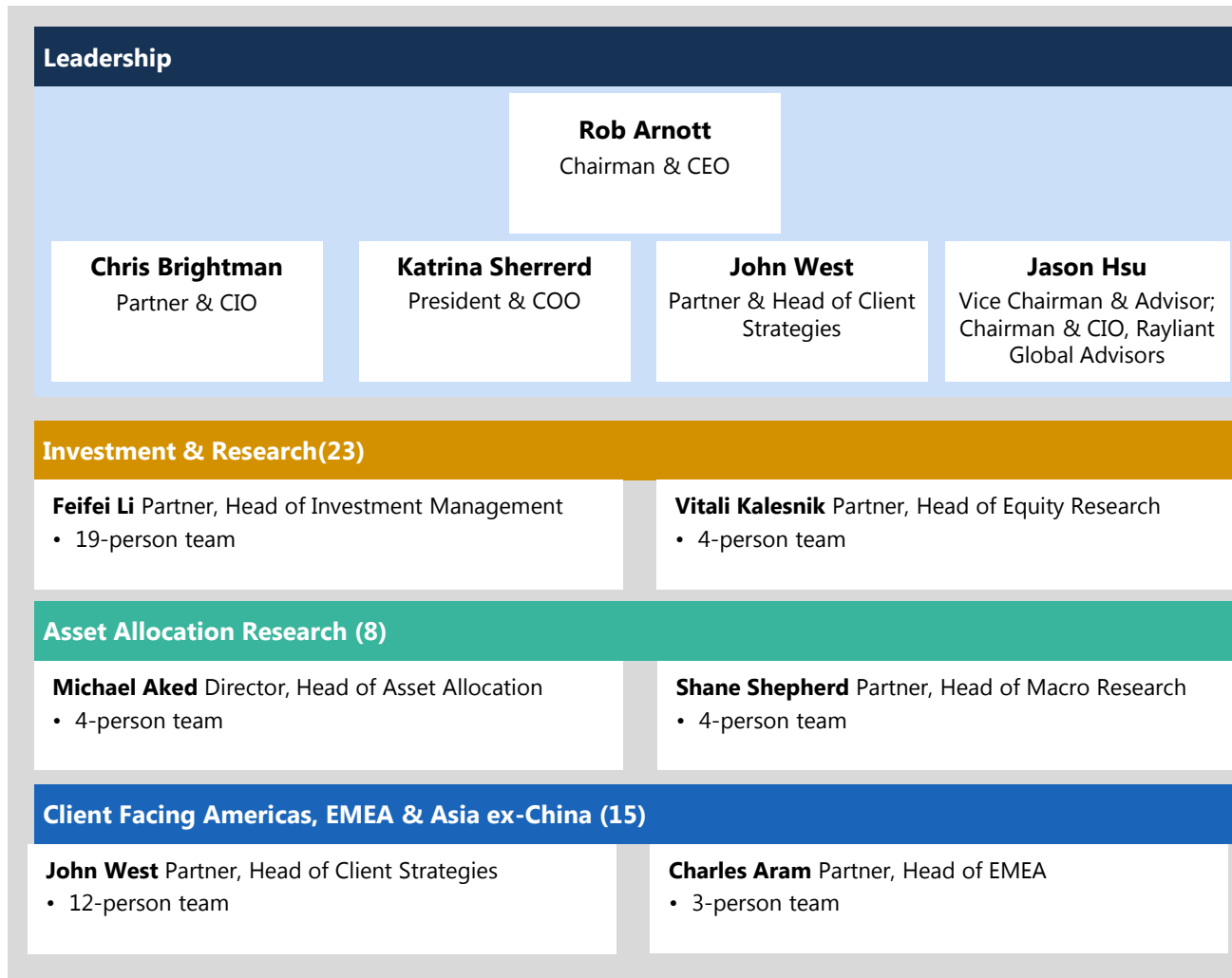
- Tzee Man Chow
- Stephen Lee, CFA
- Chris Ariza, Ph.D.

- Focused on process of incorporating research into RAE and constructing portfolios
- Evaluates trading costs, interaction with existing investment guidelines and portfolio impact

Refer to Appendix for additional investment strategy and risk information.

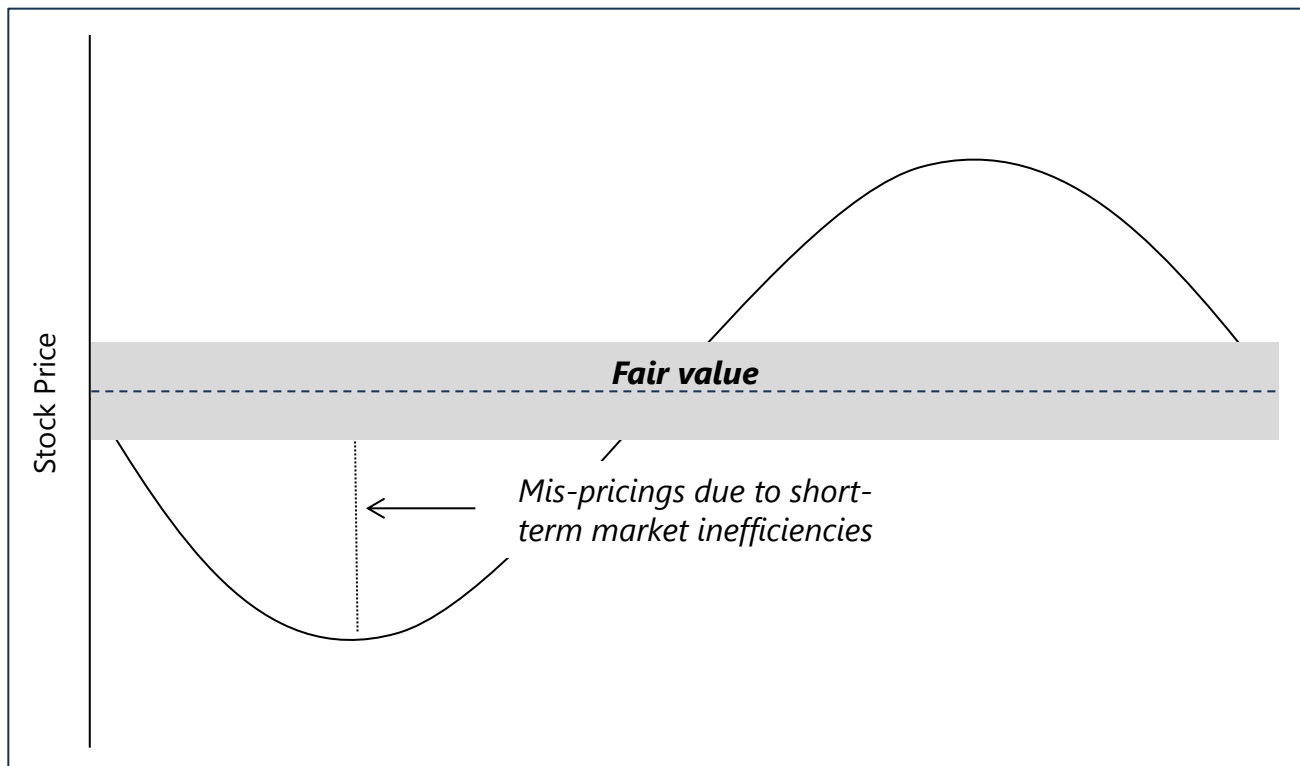
Research Affiliates organizational overview

Research Affiliates



RAE Fundamental investment philosophy

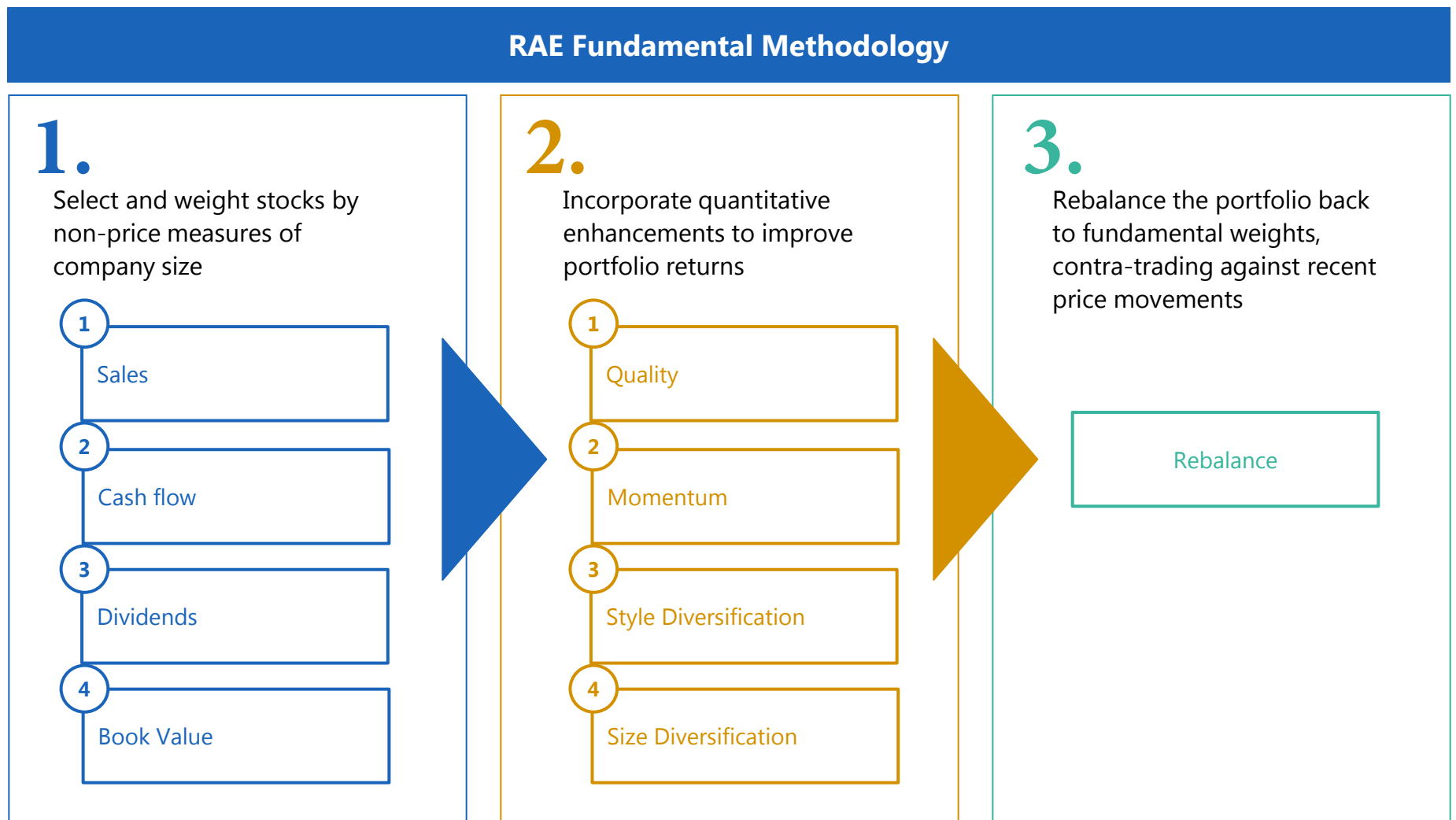
“The largest and most persistent active investment opportunity is long-horizon mean reversion.” – Research Affiliates



- In the short term stock prices **deviate from “fair value”** but over time **revert back** towards it
- Investors can profit from this mean reverting pattern, by **systematically trading against the market**
- This involves **buying stocks that have underperformed** (hence becoming cheaper and better value), while **selling those that are popular** (and hence expensive and over-priced)

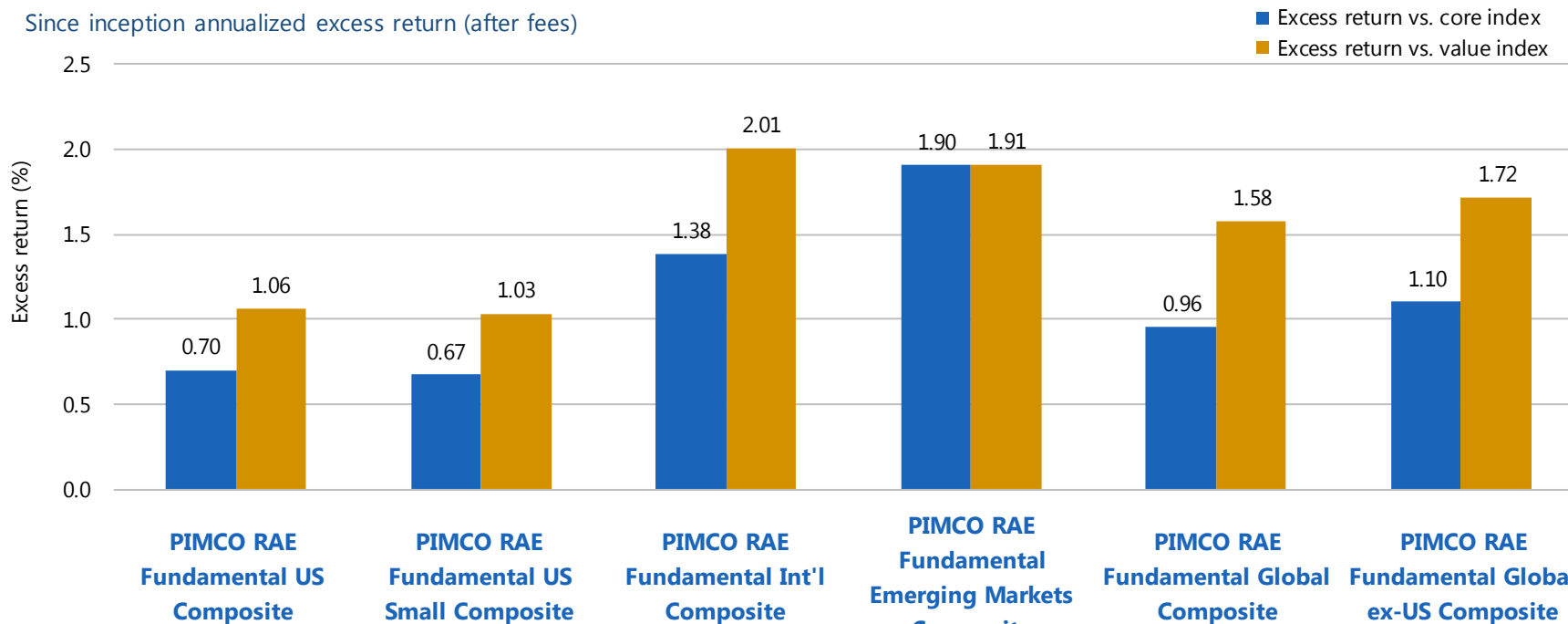
SOURCE: Research Affiliates
Refer to Appendix for additional investment strategy, and risk information.

A systematic, contrarian approach to equity investing



SOURCE: Research Affiliates
Refer to Appendix for additional investment strategy, and risk information.

PIMCO RAE Fundamental strategies have delivered consistent long-term excess returns

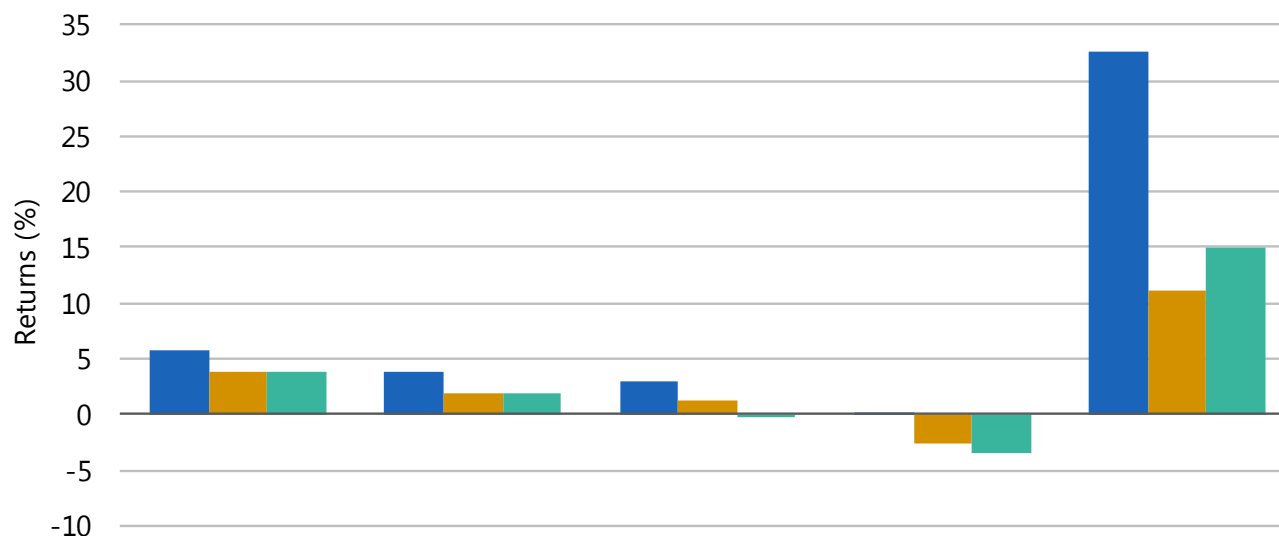


Inception date	31 Dec '04	30 Sep '05	30 Jun '05	31 May '06	31 Dec '09	28 Feb '10
Composite vs. core benchmark monthly rolling 5-year periods outperformance	87%	76%	92%	74%	96%	96%
Core benchmark	S&P 500	Russell 2000	MSCI EAFE	MSCI EM	MSCI All Country World	MSCI AC World ex-US
Value benchmark	Russell 1000 Value	Russell 2000 Value	MSCI EAFE Value	MSCI EM Value	MSCI ACWI Value	MSCI ACWI ex USA Value

As of 31 December 2016
 Performance net of fees
 Refer to Appendix for additional performance and fee, composite, index and risk information.

PIMCO RAE Fundamental Emerging Markets Composite performance

PIMCO RAE Fundamental Emerging Markets Composite performance
Periods ended 31 Dec '16



	S.I. (Inception: 31 May '06)	10 yrs. 10 yrs.	5 yrs. 5 yrs.	3 yrs. 3 yrs.	1 yr. 1 yr.
Before fees (%)	6.23	4.37	3.33	0.64	33.62
■ After fees (%)	5.65	3.78	2.85	0.13	32.72
■ MSCI Emerging Markets Index (%)	3.75	1.84	1.28	-2.55	11.19
■ MSCI EM Value Index (%)	3.74	1.97	-0.27	-3.54	14.90
<i>After fees alpha vs. core index (bps)</i>	<i>190</i>	<i>194</i>	<i>157</i>	<i>268</i>	<i>2,153</i>
<i>After fees alpha vs. value index (bps)</i>	<i>191</i>	<i>181</i>	<i>312</i>	<i>367</i>	<i>1,782</i>

As of 31 December 2016

Past performance is not a guarantee or reliable indicator of future results

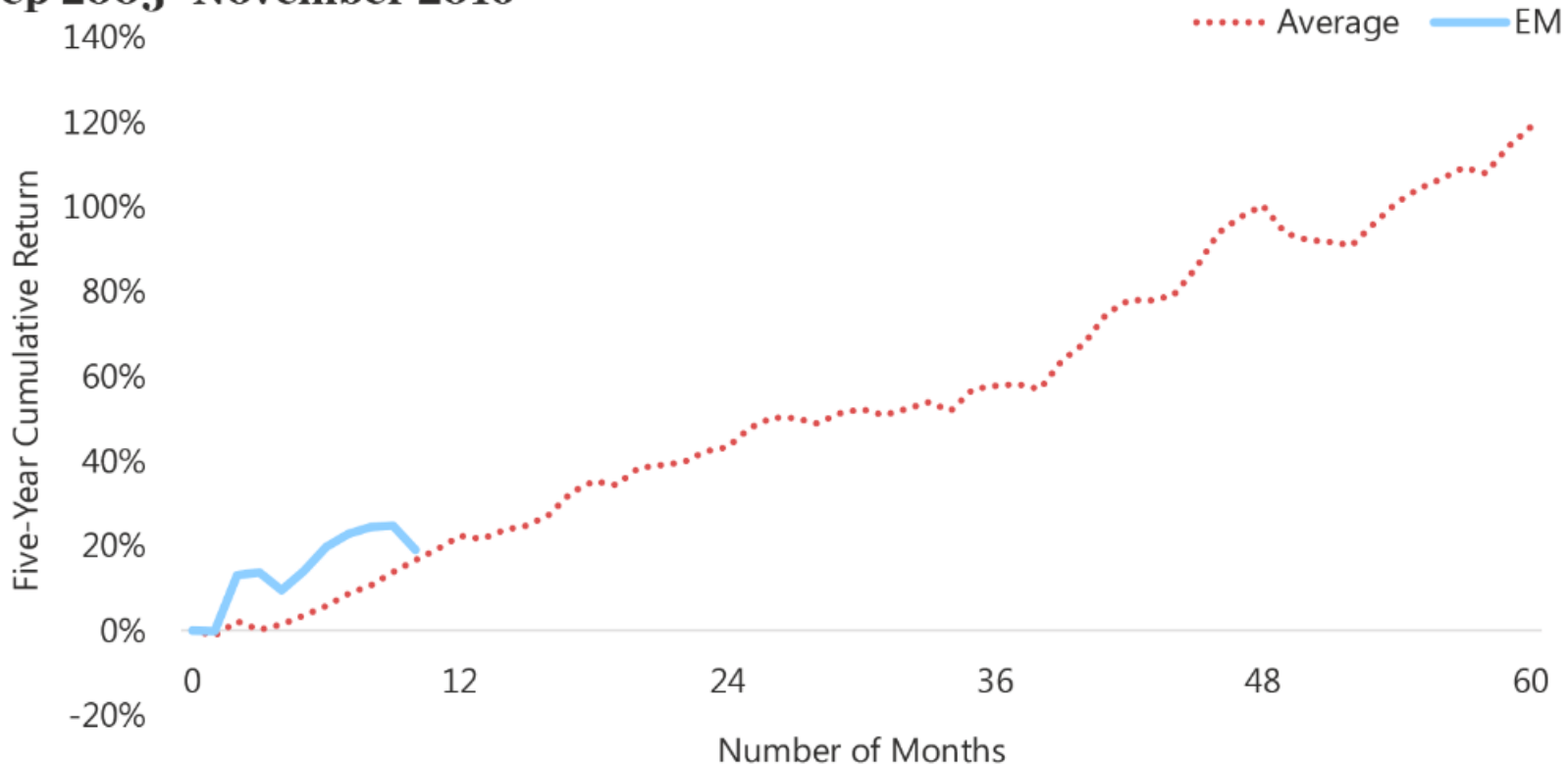
Performance presented prior to June 2015 represents the historical track record of the sub-adviser and should not be interpreted as the actual historical performance of PIMCO. PIMCO has adhered to the performance record portability requirements outlined in the GIPS standards in regard to the presentation and linking of this performance track record.

Refer to Appendix for additional performance and fee, composite, index and risk information.

Attractive valuations

The January–November 2016 rebound in EM equities is tracking the average subsequent five-year return rebound following an equity market's Shiller P/E dipping below 10.0x.

Average Five-Year Cumulative Returns Following Shiller P/E Dips Below 10, Sep 2005–November 2016



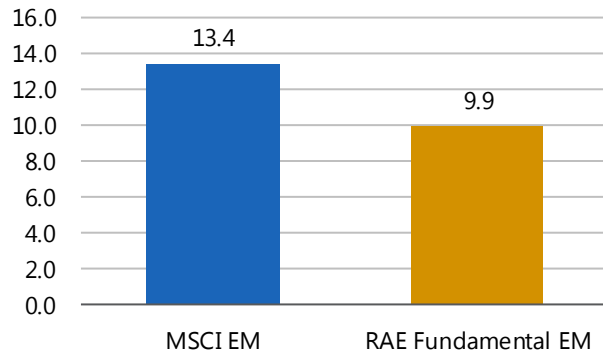
Past performance is not a guarantee or a reliable indicator of future results.

SOURCE: Research Affiliates based on data from MSCI, Bloomberg & Barclays.

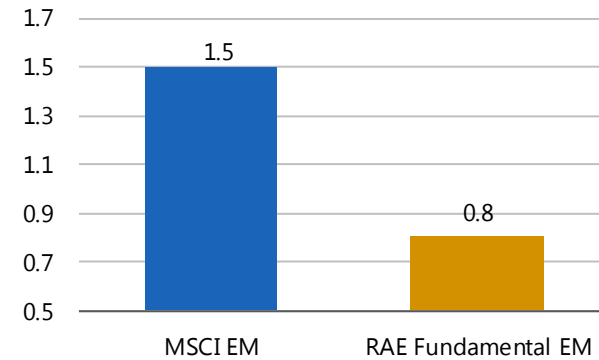
The figure shows the average subsequent five-year returns of the 24 non-overlapping instances in which a country's Shiller P/E drops below 10. The five-year (60-month) span begins in the month immediately after the Shiller P/E ratio drops below 10, and the next 60-month span does not begin until the Shiller P/E drops again below 10 after the completion of the first 60-month span. The 60-month spans of each individual country do not overlap, and no scenarios exist in the data sample of a country's equity market perpetually trading below 10.

PIMCO RAE Fundamental Emerging Markets strategy representative account is skewed towards the cheaper stocks within an already cheap market

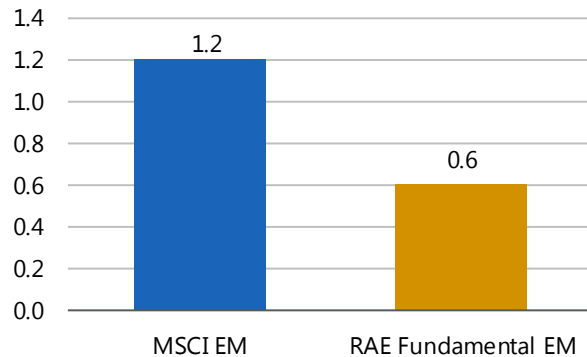
Trailing 12-month price-to-earnings ratio



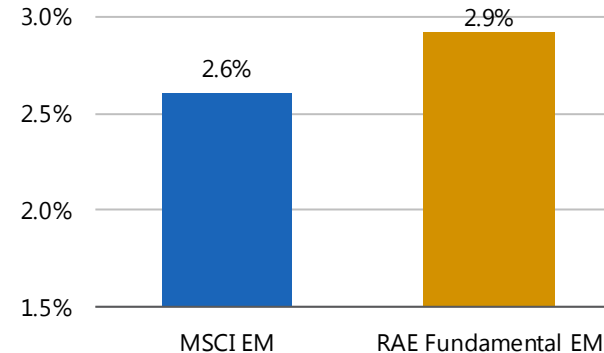
Price-to-book ratio



Price-to-sales ratio



Dividend yield



As of 31 December 2016

The representative account information presented is provided as supplemental information to the PIMCO RAE Fundamental Emerging Markets Composite performance presentation included in the Appendix. Refer to Appendix for additional performance and fee, index, representative account, and risk information.

Key takeaways

We believe RAE EM is a compelling solution for CCCERA for the following reasons:

- Potential to deliver excess returns, while maintaining broad representation and liquidity benefits
- Strong and consistent track record of outperformance
- Complements traditional active management in portfolio construction
- Transparent, highly explainable methodology
- Designed to help minimize implementation costs
- Highly dynamic strategy that can take advantage of market dislocations

Both Research Affiliates and PIMCO are committed to being true partners with CCCERA and very much value the relationship with you.

Thank you!

Additional information

PIMCO RAE Fundamental Emerging Markets strategy representative account characteristics

Portfolio characteristics	Number of holdings	P/E (Trailing 12-Mo)	P/S	P/B	Dividend yield	Weighted avg market cap (\$mm)
RAE Fundamental EM	492	9.9	0.6	0.8	2.9	20,447.4
MSCI Emerging Markets Index	815	13.4	1.2	1.5	2.6	29,583.3

Top 10 Holdings*	RAE (%)	Benchmark (%)
Petrobras	3.4	0.8
Vale	3.3	0.6
Samsung	3.1	4.3
China Construction Bank	3.1	1.6
Gazprom	2.7	0.8
Lukoil	2.5	0.6
Itaú Unibanco	2.2	0.9
Industrial & Commercial Bank of China	1.9	1.1
Banco Do Brasil	1.9	0.2
Banco Brasado	1.6	0.8

Top 5 countries	RAE (%)	Benchmark (%)
Brazil	22.4	7.7
China	18.4	25.6
Russia	13.9	4.5
South Korea	13.5	14.4
South Africa	7.4	7.0

Sector Allocations	RAE (%)	Benchmark (%)
Financials	27.6	24.5
Energy	18.3	7.9
Materials	16.6	7.4
Information Technology	8.5	23.2
Telecommunication Services	7.4	5.9
Utilities	6.9	2.9
Industrials	4.2	5.8
Consumer Discretionary	4.1	10.2
Consumer Staples	3.5	7.2
Real Estate	2.1	2.6
Health Care	0.2	2.5

Market Cap Weights (\$mm)	RAE (%)	Benchmark (%)
> 50,000	9.2	18.2
10,000 - 50,000	36.4	30.3
2,000 - 10,000	29.4	40.0
0 - 2,000	24.7	11.5

As of 31 December 2016

*As of 30 September 2016

The representative account information presented is provided as supplemental information to the PIMCO RAE Fundamental Emerging Markets Composite performance presentation included in the Appendix. Refer to Appendix for additional performance and fee, index, representative account, and risk information.

RAE Fundamental Emerging Markets investment guidelines

INVESTMENT UNIVERSE AND PORTFOLIO CONSTRUCTION

Eligible Securities	All common (and preferred shares where equivalent to common) equity securities traded on primary exchanges, issued by companies that are assigned to countries classified by RA as developed and emerging markets
Float adjustment	Company-level free float factor is calculated and applied as an adjustment to the company's fundamental score (total market cap of shares in free float/ total market cap of the company)
Liquidity	Target weight of each security is reduced, if necessary, to keep expected rebalances at no more than six times its volume weight. Volume weighted portfolio is based on company's aggregate median daily trading volume
Portfolio turnover	20-40% expected annual turnover
Emerging Market universe	Portfolio construction process begins by weighting a universe of investable, tradable and sufficiently liquid emerging market stocks based on their fundamental size as indicated by each company's sales, cash flow, dividends, and book value and then selecting the top 89%.
Max position size	Greater of either 2% or fundamental weight +1%
Min position size	Immaterially small weights less than 2bps are excluded
Active insights	RAE's active insights have the ability to adjust stock weights from 0% to 3x when a company is identified as an extreme outlier (very poor financial health, strong price momentum, etc.)

Refer to Appendix for additional investment strategy, index, portfolio structure and risk information.

Select and weight stocks by non-price measures of company size

EXAMPLE: Fundamental weight of AngloGold

	SALES (5-year trailing, \$B)	CASH FLOW (5-year trailing, \$B)	DIVIDENDS (5-year trailing, \$B)	BOOK VALUE (current, \$B)
AngloGold	\$1.7	\$2.0	\$0.1	\$2.9
MSCI Emerging Market Index total	\$1,063	\$707	\$113	\$2,850
AngloGold % of index	0.16%	0.28%	0.08%	0.10%



$$\text{Fundamental Weight} = (0.16\% + 0.28\% + 0.08\% + 0.10\%) / 4 = 0.16\%$$

PIMCO RAE begins with a fundamentally weighted portfolio and then incorporates active insights in an effort to enhance returns

SOURCE: Research Affiliates

Hypothetical example for illustrative purposes only. Not indicative of the past or future performance of any PIMCO product. Refer to Appendix for additional hypothetical example, index, investment strategy, issuer and risk information.

RAE's quality insight aims to avoid value traps by screening for financial health

Intuitive measures of quality get to a sensible score of a company's health

- Using multiple metrics within three broad categories (distress, accounting, and growth) avoids reliance on any single metric
- A company that scores very poorly on any one metric is penalized more or removed from the portfolio

Low Distress




- 1) Debt Coverage Ratio
- 2) External Financing
- 3) Payout Ratio
- 4) Volatility of Stock Returns

Conservative Accounting



- 1) Net Operating Assets
- 2) Accruals
- 3) Change in Accruals
- 4) Volatility of Cash Flow to Gross Margin

Strong Growth Prospects



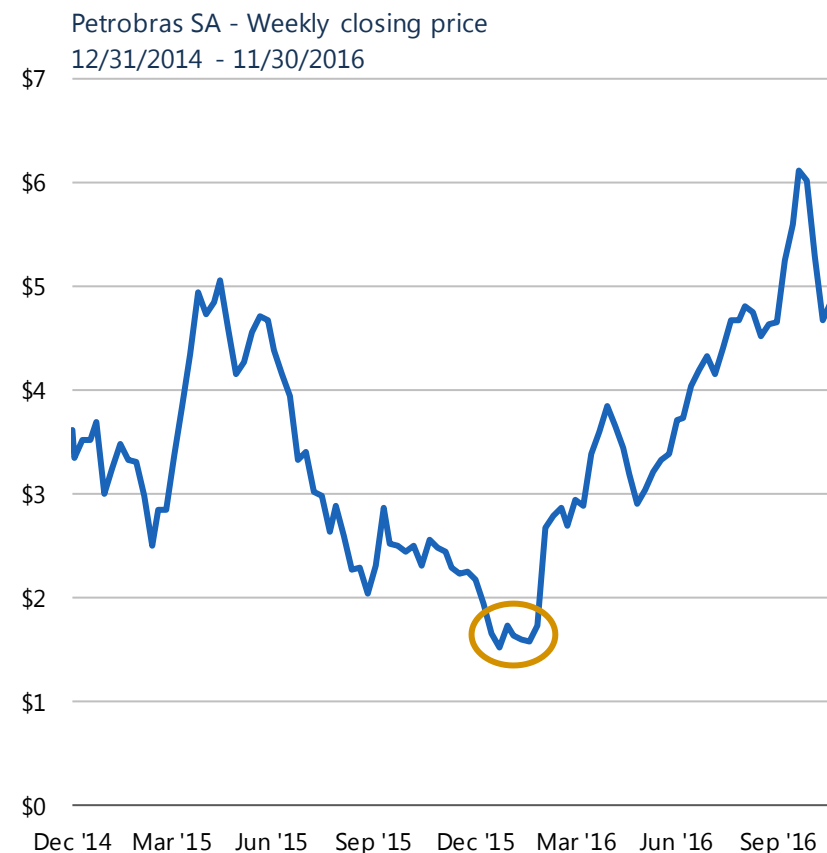
- 1) Margins / Profitability
- 2) Stability of Earnings and Cash Flows
- 3) Growth of Earnings and Cash Flows
- 4) Inventory Management

Example – This insight reduced the weight of Russian energy firm Surgutneftegas this year in an attempt to avoid what could have been a “value trap”

Sample for illustrative purposes only. Refer to Appendix for additional investment strategy, issuer, and risk information.

RAE's momentum insight seeks to reduce the risk of trading against momentum

- The market can be slow to react to new information. Consequently, stocks often exhibit persistence in their relative out/underperformance
- A simple rebalancing strategy's **buy low and sell high process typically results in trading against market momentum**
- RAE incorporates momentum into the portfolio construction process to help reduce the risk of:
 - Catching a falling knife
 - Taking profits early and missing additional upside
- **RAE's momentum insight tend to result in neutral exposure to the momentum factor**



Example – This insight reduced the weight of Brazilian energy firm Petrobras earlier this year in an attempt to avoid what looked like a “falling knife” and allowed the firm’s weight to rise during the year as its short term momentum flipped from negative to positive

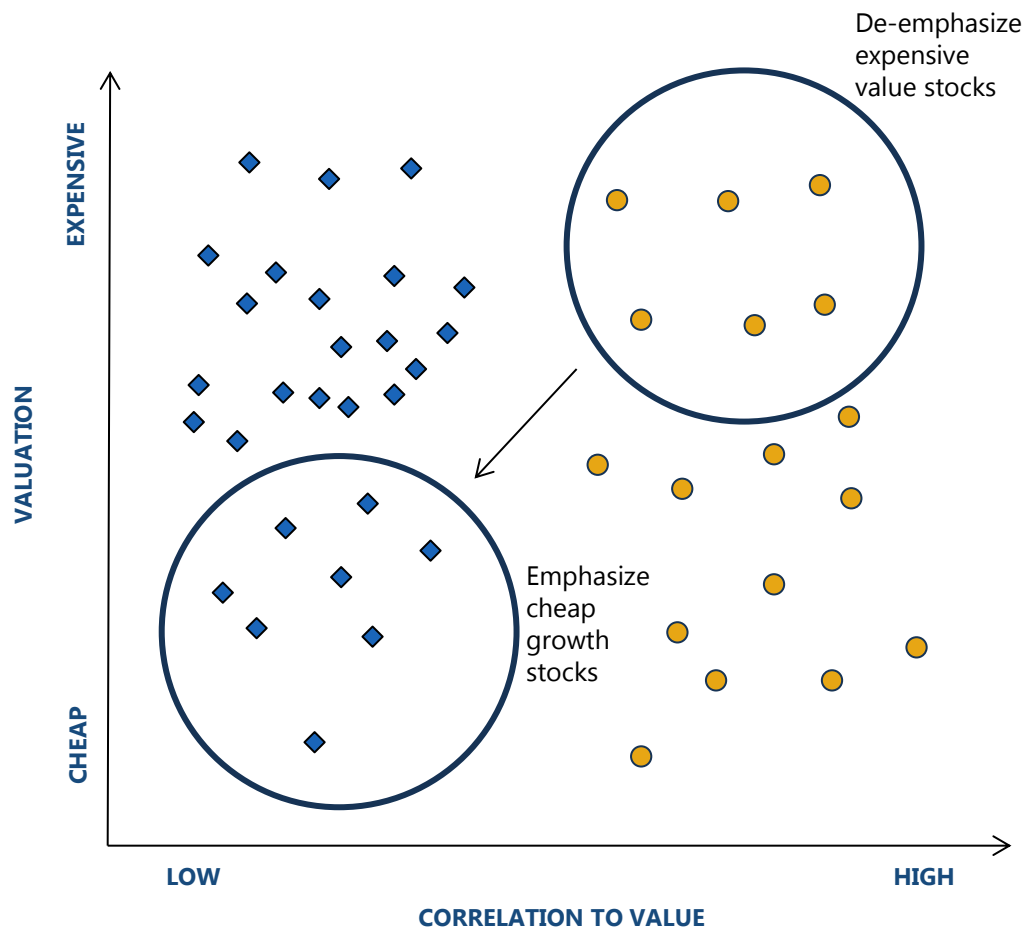
SOURCE: Research Affiliates

Sample for illustrative purposes only.

Refer to Appendix for additional investment strategy, issuer and risk information.

RAE's diversification of style insight seeks to reduce the portfolio's reliance on the value factor for excess returns

- Value stocks tend to be correlated and clustered in certain sectors of the market. This often results in a portfolio that is highly exposed to the value factor
- RAE seeks to diversify active risk by **redistributing active weights** from expensive value stocks to cheap growth stocks
- The diversification of style insight contributes to **RAE's dynamic value bias**, as the strategy increases exposure to value when it is cheap and decreases exposure when value is expensive



Example – This insight reduced the weight of Indian industrial firm Tata Motors because its price appeared high relative to its correlation to value

Sample for illustrative purposes only. Not indicative of the past or future performance of any PIMCO product.
SOURCE: Research Affiliates. A stock's sensitivity to value is measured using the Fama-French value risk factor (HML).
Refer to Appendix for additional investment strategy, issuer and risk information.

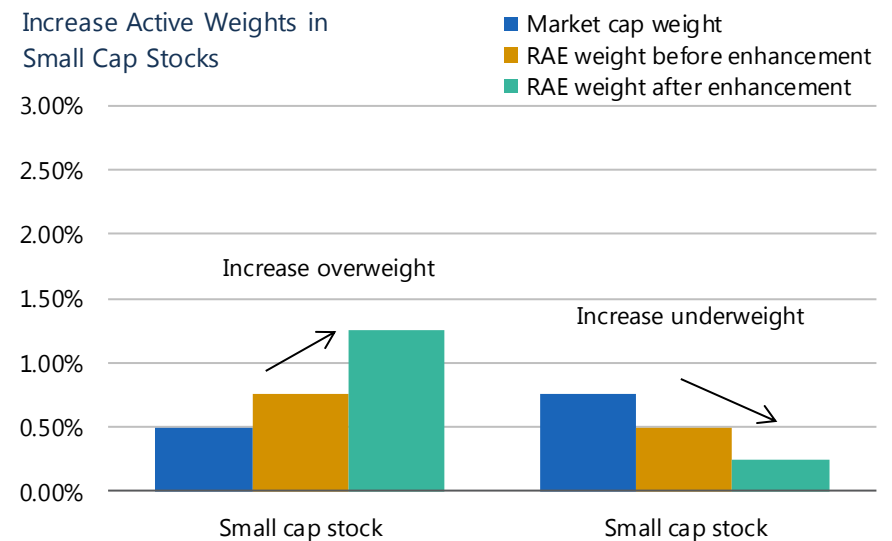
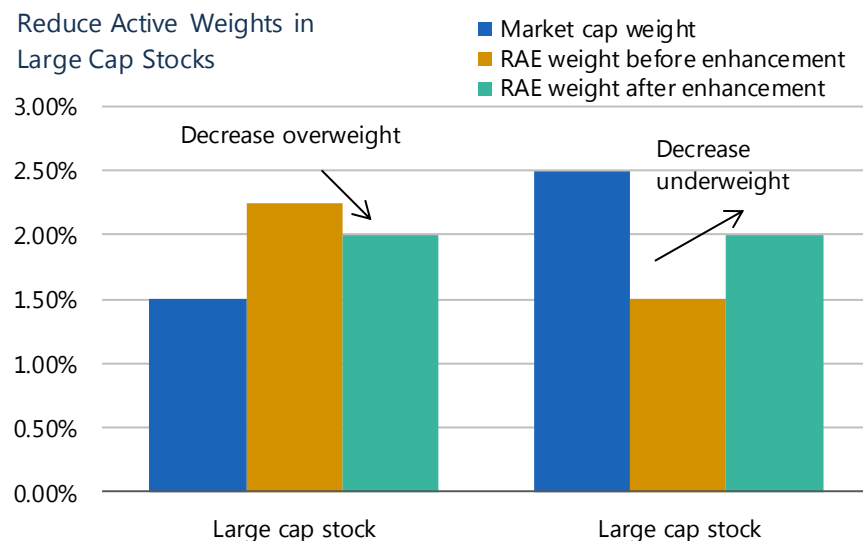
RAE's diversification of size insight aims to increase active weights in less efficient areas of the market

- Fundamental weighting typically results in significant active weights in large cap stocks. Large cap stocks are often more efficiently priced than small caps, offering less benefit when prices mean revert
- **RAE redistributes the portfolio's active weights** from large cap stocks into smaller cap stocks that are more likely to be mispriced
- Because RAE redistributes both overweights and underweights across the portfolio, this insight does not meaningfully impact the portfolio's weighted average market cap

Reduce Active Weights in Large Cap Stocks



Increase Active Weights in Small Cap Stocks



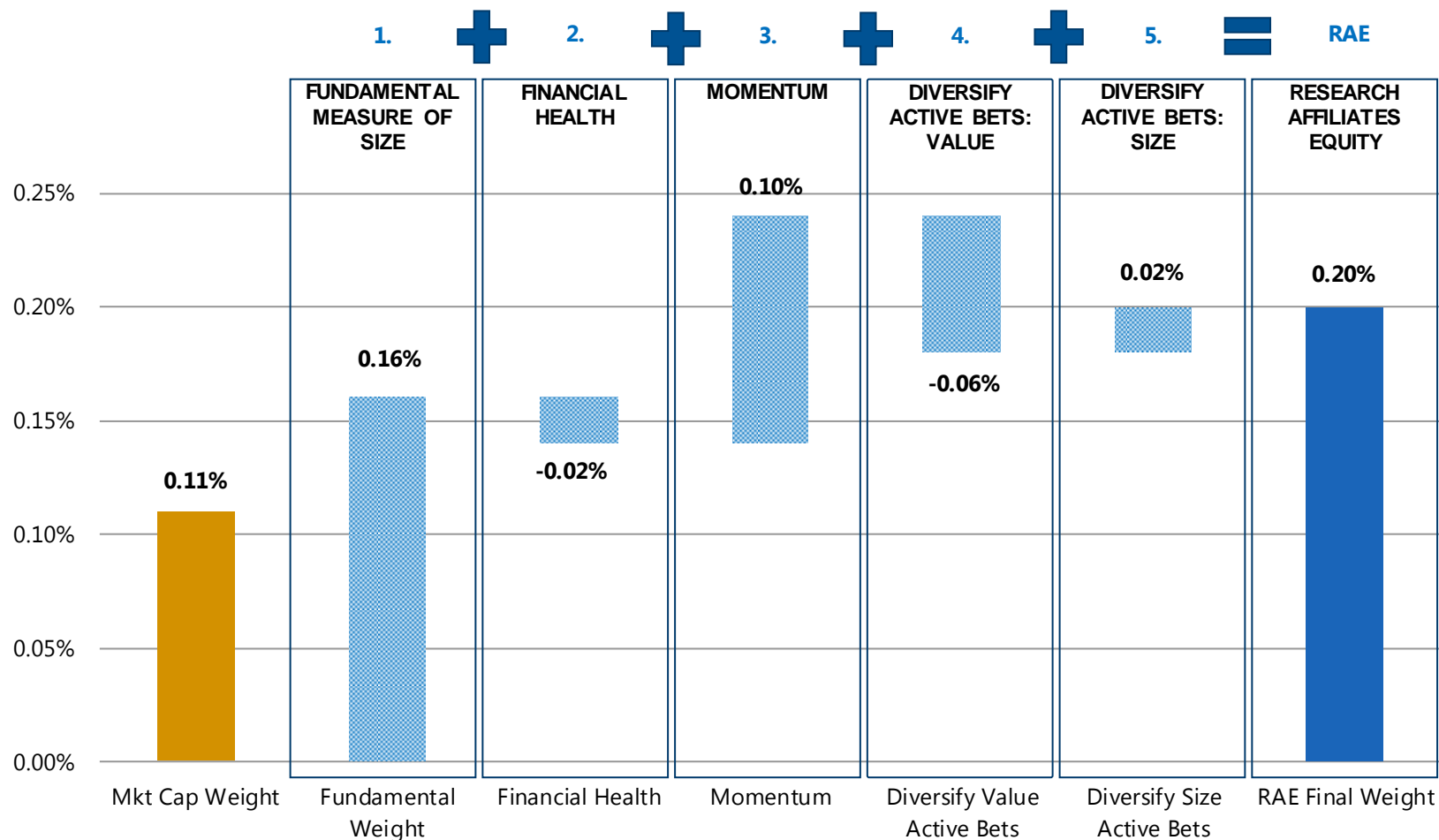
Example – This insight reduced the weight of Chinese technology firm Tencent because its fundamental weight was considerably smaller than its cap weight

SOURCE: Research Affiliates

Hypothetical example for illustrative purposes only. Not indicative of the past or future performance of any PIMCO product. Refer to Appendix for additional hypothetical example, investment strategy, issuer and risk information.

RAE begins with fundamental weighting and adds insights

Weight Changes From Each Step in The Investment Process: AngloGold



Hypothetical example for illustrative purposes only. Not indicative of the weighting of the stock in any PIMCO portfolio. This information is dated and should not be relied upon for investment decisions.

Refer to appendix for additional hypothetical example, investment strategy, issuer, model and risk information.

Appendix

PERFORMANCE AND FEE

Past performance is not a guarantee or a reliable indicator of future results. Certain performance figures do not reflect the deduction of investment advisory fees (for Pacific Investment Management Company LLC described in Part 2 of its Form ADV) in the case of both separate investment accounts and mutual funds; but they do reflect commissions, other expenses (except custody), and reinvestment of earnings. Such fees that a client may incur in the management of their investment advisory account may reduce the client's return. For example, over a five-year period, annual advisory fees of 0.425% would reduce compounding at 10% annually from 61.05% before fees to 57.96% after fees. The "net of fees" performance figures reflect the deduction of actual investment advisory fees but do not reflect the deduction of custodial fees. All periods longer than one year are annualized. Separate account clients may elect to include PIMCO sector funds in their portfolio; sector funds may be subject to additional terms and fees. For a copy of net of fees performance, unless included otherwise, please contact your PIMCO representative.

COMPOSITE

Composite performance is preliminary until the 12th business day of the month.

CORRELATION

The correlation of various indexes or securities against one another or against inflation is based upon data over a certain time period. These correlations may vary substantially in the future or over different time periods that can result in greater volatility.

CHART

Performance results for certain charts and graphs may be limited by date ranges specified on those charts and graphs; different time periods may produce different results.

HYPOTHETICAL EXAMPLE

No representation is being made that any account, product, or strategy will or is likely to achieve profits, losses, or results similar to those shown. Hypothetical or simulated performance results have several inherent limitations. Unlike an actual performance record, simulated results do not represent actual performance and are generally prepared with the benefit of hindsight. There are frequently sharp differences between simulated performance results and the actual results subsequently achieved by any particular account, product or strategy. In addition, since trades have not actually been executed, simulated results cannot account for the impact of certain market risks such as lack of liquidity. There are numerous other factors related to the markets in general or the implementation of any specific investment strategy, which cannot be fully accounted for in the preparation of simulated results and all of which can adversely affect actual results.

INDEX

It is not possible to invest directly in an unmanaged index.

INVESTMENT STRATEGY

There is no guarantee that these investment strategies will work under all market conditions or are suitable for all investors and each investor should evaluate their ability to invest long-term, especially during periods of downturn in the market. No representation is being made that any account, product, or strategy will or is likely to achieve profits, losses, or results similar to those shown.

ISSUER

References to specific securities and their issuers are not intended and should not be interpreted as recommendations to purchase, sell or hold such securities. PIMCO products and strategies may or may not include the securities referenced and, if such securities are included, no representation is being made that such securities will continue to be included.

MODEL PORTFOLIO

No guarantee is being made that the structure of other similar portfolios will remain the same or that similar results will be achieved.

Appendix

OUTLOOK

Statements concerning financial market trends or portfolio strategies are based on current market conditions, which will fluctuate. There is no guarantee that these investment strategies will work under all market conditions or are suitable for all investors and each investor should evaluate their ability to invest for the long term, especially during periods of downturn in the market. Outlook and strategies are subject to change without notice.

REPRESENTATIVE ACCOUNT

This account was chosen because it represents the largest account in the respective composite. No guarantee is being made that the structure or actual account holdings of any account will be the same or that similar returns will be achieved. PIMCO may or may not own the securities referenced and, if such securities are owned, no representation is being made that such securities will continue to be held.

RISK

In managing the strategy's investments in Fixed Income Instruments, PIMCO utilizes an absolute return approach; the absolute return approach does not apply to the equity index replicating component of the strategy. Absolute return portfolios may not necessarily fully participate in strong (positive) market rallies. Investing in the **bond market** is subject to risks, including market, interest rate, issuer, credit, inflation risk, and liquidity risk. The value of most bonds and bond strategies are impacted by changes in interest rates. Bonds and bond strategies with longer durations tend to be more sensitive and volatile than those with shorter durations; bond prices generally fall as interest rates rise, and the current low interest rate environment increases this risk. Current reductions in bond counterparty capacity may contribute to decreased market liquidity and increased price volatility. Bond investments may be worth more or less than the original cost when redeemed. Investing in **foreign denominated and/or domiciled securities** may involve heightened risk due to currency fluctuations, and economic and political risks, which may be enhanced in emerging markets. **Mortgage and asset-backed securities** may be sensitive to changes in interest rates, subject to early repayment risk, and while generally backed by a government, government-agency or private guarantor there is no assurance that the guarantor will meet its obligations. **High-yield, lower-rated, securities** involve greater risk than higher-rated securities; portfolios that invest in them may be subject to greater levels of credit and liquidity risk than portfolios that do not. **Equities** may decline in value due to both real and perceived general market, economic, and industry conditions. **Derivatives** may involve certain costs and risks such as liquidity, interest rate, market, credit, management and the risk that a position could not be closed when most advantageous. Investing in derivatives could lose more than the amount invested. Investors should consult their investment professional prior to making an investment decision.

STRATEGY AVAILABILITY

Strategy availability may be limited to certain investment vehicles; not all investment vehicles may be available to all investors. Please contact your PIMCO representative for more information.

This material contains the current opinions of the manager and such opinions are subject to change without notice. This material has been distributed for informational purposes only and should not be considered as investment advice or a recommendation of any particular security, strategy or investment product. Information contained herein has been obtained from sources believed to be reliable, but not guaranteed. No part of this material may be reproduced in any form, or referred to in any other publication, without express written permission. PIMCO is a trademark of Allianz Asset Management of America L.P. in the United States and throughout the world. ©2017, PIMCO

PIMCO RAE FUNDAMENTAL EMERGING MARKETS COMPOSITE

	COMPOSITE RETURN (%) BEFORE FEES	COMPOSITE RETURN (%) AFTER FEES	BENCHMARK ^a RETURN (%)	COMPOSITE DISPERSION ^b BEFORE FEES	COMPOSITE 3-YR STD DEV ^c BEFORE FEES	BENCHMARK 3-YR STD DEV ^c	NUMBER OF PORTFOLIOS	TOTAL ASSETS (USD) MILLIONS	PERCENTAGE OF FIRM ASSETS ^d	PIMCO RAE FUNDAMENTAL EMERGING MARKETS FEE SCHEDULE:	
Jun-Dec 06	23.52	23.52	23.04	N/A	N/A	N/A	Five or Fewer	12	N/A	First \$50 Million	0.500%
2007	45.89	44.62	39.39	N/A	N/A	N/A	Five or Fewer	42	N/A	Next \$50 Million	0.450%
2008	-53.30	-53.63	-53.33	N/A	N/A	N/A	Five or Fewer	23	N/A	Thereafter	0.400%
2009	93.94	92.60	78.51	N/A	35.36	32.34	Five or Fewer	65	N/A		
2010	21.11	20.34	18.88	N/A	34.99	32.58	Five or Fewer	136	N/A		
2011	-18.62	-19.01	-18.42	N/A	28.13	25.76	Five or Fewer	174	N/A		
2012	20.09	19.59	18.22	N/A	21.86	21.50	Five or Fewer	563	N/A		
2013	-3.74	-4.12	-2.60	N/A	19.63	19.04	Five or Fewer	748	N/A		
2014	-1.02	-1.39	-2.19	N/A	16.79	15.00	Five or Fewer	945	N/A		
2015	-22.93	-23.30	-14.92	N/A	16.36	14.06	Five or Fewer	375	<1		

a MSCI Emerging Markets Index

b Equal-weighted standard deviation of annual returns for all portfolios in the composite for the full year. Not statistically meaningful for periods shorter than a year or for years in which five or fewer portfolios were included for the full year.

c The three-year annualized ex-post standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period.

d Composite assets prior to June 2015 were not managed by PIMCO and are not included in firm assets.

Pacific Investment Management Company LLC (PIMCO) is an investment adviser registered with the Securities and Exchange Commission that provides global investment solutions to institutions, individuals, and government entities worldwide. For GIPS compliance purposes, PIMCO has been defined to include its investment management activities as well as those of its subsidiaries, which include PIMCO Australia Pty Ltd, PIMCO Canada Corp., PIMCO Europe Ltd, PIMCO Japan Ltd, PIMCO Asia Pte Ltd, and PIMCO Asia Limited, as well as those of its affiliate PIMCO Deutschland GmbH. In March 2012, the firm was redefined to include assets managed by PIMCO on behalf of Allianz's affiliated companies. In addition, in January 2010, the firm definition was expanded to include fixed income assets managed in collaboration with Allianz Global Investors using the PIMCO investment process. Prior to 2010, country-specific limitations restricted the full implementation of the PIMCO investment process for these assets. A complete list of composite descriptions is available upon request.

PIMCO claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. PIMCO has been independently verified for the period January 1987 through December 2015 by PricewaterhouseCoopers LLP. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The PIMCO RAE Fundamental Emerging Markets Composite has been examined for the period January 2015 through December 2015. Benchmark returns and composite returns after fees were not examined and are not covered by the report of independent accountants. The verification and performance examination reports are available upon request.

The PIMCO RAE Fundamental Emerging Markets Composite includes all discretionary, fee-paying, USD-based accounts managed to the PIMCO RAE Fundamental Emerging Markets strategy. The PIMCO RAE Fundamental Emerging Markets strategy applies the Research Affiliates (the strategy's sub-adviser) Fundamental Index concept to listed equities in emerging markets. An index based on market capitalization will overweight overvalued stocks and underweight undervalued stocks, resulting in a performance drag. The Fundamental Index methodology attempts to capture the benefits of indexing and avoid the performance drag associated with cap-weighting by selecting and weighting stocks in an index using fundamental measures of company size (e.g., cash flow, book value, sales, and dividends, etc.). The enhanced Fundamental Index strategy incorporates additional factors (e.g., quality of earnings, financial distress, etc.) along with more frequent rebalancing in comparison to a passive strategy. Prior to June 2015, the minimum account size for inclusion in the composite was \$3 million. The composite creation date is May 2015.

The MSCI (Morgan Stanley Capital International) Emerging Markets Index is a free float-adjusted market capitalization index that is designed to measure emerging market equity performance. The MSCI Emerging Markets Index consists of the following 21 emerging market country indices: Brazil, Chile, China, Columbia, Czech Republic, Egypt, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey.

Valuations are computed and performance is reported in U.S. dollars. Returns are presented gross and net of management fees and include the reinvestment of all income. Net results reflect the deduction of actual management fees and, in some instances, custodial and administrative fees. As of year-end 2006, the composite consisted entirely of non-fee-paying accounts. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

Performance presented prior to June 2015 represents the historical track record of the sub-adviser and should not be interpreted as the actual historical performance of PIMCO. PIMCO has adhered to the performance record portability requirements outlined in the GIPS standards in regard to the presentation and linking of this performance track record.

Past performance is not a guarantee or a reliable indicator of future results.

PIMCO RAE FUNDAMENTAL U.S. COMPOSITE

	COMPOSITE RETURN (%) BEFORE FEES	COMPOSITE RETURN (%) AFTER FEES	BENCHMARK ^a RETURN (%)	COMPOSITE DISPERSION ^b BEFORE FEES	COMPOSITE 3-YR STD DEV ^c BEFORE FEES	BENCHMARK 3-YR STD DEV ^c	NUMBER OF PORTFOLIOS	TOTAL ASSETS (USD) MILLIONS	PERCENTAGE OF FIRM ASSETS ^d
2006	19.99	19.16	15.79	N/A	N/A	N/A	Five or Fewer	358	N/A
2007	3.84	3.46	5.49	N/A	7.70	7.68	10	1,288	N/A
2008	-36.27	-36.42	-37.00	N/A	15.36	15.08	10	1,877	N/A
2009	27.46	27.13	26.46	N/A	21.16	19.63	10	2,376	N/A
2010	18.96	18.64	15.06	N/A	23.53	21.85	8	2,575	N/A
2011	2.26	2.07	2.11	N/A	20.41	18.71	8	2,335	N/A
2012	16.78	16.59	16.00	N/A	15.31	15.09	8	2,811	N/A
2013	36.86	36.55	32.39	N/A	12.21	11.94	11	4,101	N/A
2014	12.35	12.18	13.69	N/A	9.32	8.97	11	4,301	N/A
2015	-2.77	-2.97	1.38	N/A	10.75	10.47	8	1,782	<1

PIMCO RAE FUNDAMENTAL U.S. LARGE FEE SCHEDULE:

First \$50 Million	0.300%
Next \$50 Million	0.250%
Thereafter	0.200%

a S&P 500 Index

b Equal-weighted standard deviation of annual returns for all portfolios in the composite for the full year. Not statistically meaningful for periods shorter than a year or for years in which five or fewer portfolios were included for the full year.

c The three-year annualized ex-post standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period.

d Composite assets prior to June 2015 were not managed by PIMCO and are not included in firm assets.

Pacific Investment Management Company LLC (PIMCO) is an investment adviser registered with the Securities and Exchange Commission that provides global investment solutions to institutions, individuals, and government entities worldwide. For GIPS compliance purposes, PIMCO has been defined to include its investment management activities as well as those of its subsidiaries, which include PIMCO Australia Pty Ltd, PIMCO Canada Corp., PIMCO Europe Ltd, PIMCO Japan Ltd, PIMCO Asia Pte Ltd, and PIMCO Asia Limited, as well as those of its affiliate PIMCO Deutschland GmbH. In March 2012, the firm was redefined to include assets managed by PIMCO on behalf of Allianz's affiliated companies. In addition, in January 2010, the firm definition was expanded to include fixed income assets managed in collaboration with Allianz Global Investors using the PIMCO investment process. Prior to 2010, country-specific limitations restricted the full implementation of the PIMCO investment process for these assets. A complete list of composite descriptions is available upon request.

PIMCO claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. PIMCO has been independently verified for the period January 1987 through December 2015 by PricewaterhouseCoopers LLP. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The PIMCO RAE Fundamental U.S. Composite has been examined for the period January 2015 through December 2015. Benchmark returns and composite returns after fees were not examined and are not covered by the report of independent accountants. The verification and performance examination reports are available upon request.

The PIMCO RAE Fundamental U.S. Composite includes all discretionary, fee-paying, USD-based accounts managed to the PIMCO RAE Fundamental U.S. strategy. The PIMCO RAE Fundamental U.S. strategy applies the Research Affiliates (the strategy's sub-adviser) Fundamental Index concept to large U.S. listed equities. An index based on market capitalization will overweight overvalued stocks and underweight undervalued stocks, resulting in a performance drag. The Fundamental Index methodology attempts to capture the benefits of indexing and avoid the performance drag associated with cap-weighting by selecting and weighting stocks in an index using fundamental measures of company size (e.g., cash flow, book value, sales, and dividends, etc.). The enhanced Fundamental Index strategy incorporates additional factors (e.g., quality of earnings, financial distress, etc.) along with more frequent rebalancing in comparison to a passive strategy. The composite creation date is May 2015.

The S&P 500 Index is an unmanaged market index generally considered representative of the stock market as a whole. The index focuses on the large-cap segment of the U.S. equities market.

Valuations are computed and performance is reported in U.S. dollars. Returns are presented gross and net of management fees and include the reinvestment of all income. Net results reflect the deduction of actual management fees and, in some instances, custodial and administrative fees. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

Certain accounts included in the composite historically were charged a bundled fee which was inclusive of management fees and trading expenses. For accounts that were charged a bundled fee, gross-of-fees results have been reduced by the bundled fee excluding the management fee, while net-of-fees results have been reduced by the entire bundled fee. The percentage of the composite assets comprised of accounts that paid bundled fees as of each year-end was as follows: 2006: 0.00%, 2007: 2.56%, 2008: 0.98%, 2009: 0.87%, 2010: 0.90%, 2011: 0.96%, 2012: 0.89%, 2013: 0.83%, 2014: 0.82%, 2015: 0.00%.

Performance presented prior to June 2015 represents the historical track record of the sub-adviser and should not be interpreted as the actual historical performance of PIMCO. PIMCO has adhered to the performance record portability requirements outlined in the GIPS standards in regard to the presentation and linking of this performance track record.

Past performance is not a guarantee or a reliable indicator of future results.

PIMCO RAE FUNDAMENTAL INTERNATIONAL COMPOSITE

	COMPOSITE RETURN (%) BEFORE FEES	COMPOSITE RETURN (%) AFTER FEES	BENCHMARK ^a RETURN (%)	COMPOSITE DISPERSION ^b BEFORE FEES	COMPOSITE 3-YR STD DEV ^c BEFORE FEES	BENCHMARK 3-YR STD DEV ^c	NUMBER OF PORTFOLIOS	TOTAL ASSETS (USD) MILLIONS	PERCENTAGE OF FIRM ASSETS ^d	PIMCO RAE FUNDAMENTAL INTERNATIONAL FEE SCHEDULE:
2006	27.43	27.06	26.34	N/A	N/A	N/A	Five or Fewer	124	N/A	First \$50 Million 0.350%
2007	13.81	13.32	11.17	N/A	N/A	N/A	Five or Fewer	377	N/A	Next \$50 Million 0.300%
2008	-38.50	-38.85	-43.38	N/A	17.69	19.24	Five or Fewer	233	N/A	Thereafter 0.250%
2009	35.73	35.04	31.78	N/A	23.71	23.58	Five or Fewer	311	N/A	
2010	6.74	6.37	7.75	N/A	26.94	26.23	Five or Fewer	378	N/A	
2011	-10.93	-11.13	-12.14	N/A	24.63	22.43	Five or Fewer	912	N/A	
2012	18.32	18.12	17.32	N/A	20.59	19.37	Five or Fewer	1,302	N/A	
2013	29.04	28.79	22.78	N/A	17.42	16.25	Five or Fewer	1,709	N/A	
2014	-6.00	-6.19	-4.90	N/A	14.34	13.03	Five or Fewer	1,424	N/A	
2015	-6.62	-6.81	-0.81	N/A	13.92	12.46	Five or Fewer	1,291	<1	

a MSCI EAFE Net Dividend Index

b Equal-weighted standard deviation of annual returns for all portfolios in the composite for the full year. Not statistically meaningful for periods shorter than a year or for years in which five or fewer portfolios were included for the full year.

c The three-year annualized ex-post standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period.

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The PIMCO RAE Fundamental International Composite includes all discretionary, fee-paying, USD-based accounts managed to the PIMCO RAE Fundamental International strategy. The PIMCO RAE Fundamental International strategy applies the Research Affiliates (the strategy's sub-adviser) Fundamental Index concept to internationally listed equities. An index based on market capitalization will overweight overvalued stocks and underweight undervalued stocks, resulting in a performance drag. The Fundamental Index methodology attempts to capture the benefits of indexing and avoid the performance drag associated with cap-weighting by selecting and weighting stocks in an index using fundamental measures of company size (e.g., cash flow, book value, sales, and dividends, etc.). The enhanced Fundamental Index strategy incorporates additional factors (e.g., quality of earnings, financial distress, etc.) along with more frequent rebalancing in comparison to a passive strategy. Prior to June 2015, the minimum account size for inclusion in the composite was \$3 million. The composite creation date is May 2015.

The MSCI EAFE Net Dividend Index is an unmanaged index of issuers in countries of Europe, Australia, and the Far East represented in U.S. Dollars on an unhedged basis.

Valuations are computed and performance is reported in U.S. dollars. Returns are presented gross and net of management fees and include the reinvestment of all income. Net results reflect the deduction of actual management fees, including performance based fees, and, in some instances, custodial and administrative fees. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

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PIMCO RAE FUNDAMENTAL GLOBAL COMPOSITE

	COMPOSITE RETURN (%) BEFORE FEES	COMPOSITE RETURN (%) AFTER FEES	BENCHMARK ^a RETURN (%)	COMPOSITE DISPERSION ^b BEFORE FEES	COMPOSITE 3-YR STD DEV ^c BEFORE FEES	BENCHMARK 3-YR STD DEV ^c	NUMBER OF PORTFOLIOS	TOTAL ASSETS (USD) MILLIONS	PERCENTAGE OF FIRM ASSETS ^d	PIMCO RAE FUNDAMENTAL GLOBAL FEE SCHEDULE:	
2010	13.16	13.16	12.67	N/A	N/A	N/A	Five or Fewer	<1	N/A	First \$50 Million	0.350%
2011	-6.28	-6.82	-7.35	N/A	N/A	N/A	Five or Fewer	94	N/A	Next \$50 Million	0.300%
2012	18.05	17.66	16.13	N/A	17.89	17.13	Five or Fewer	296	N/A	Thereafter	0.250%
2013	29.11	28.68	22.80	N/A	14.66	13.94	Five or Fewer	371	N/A		
2014	2.48	2.18	4.16	N/A	11.56	10.50	Five or Fewer	615	N/A		
2015	-6.66	-6.95	-2.36	N/A	11.72	10.79	Five or Fewer	837	<1		

a MSCI All Country World Index Net USD

b Equal-weighted standard deviation of annual returns for all portfolios in the composite for the full year. Not statistically meaningful for periods shorter than a year or for years in which five or fewer portfolios were included for the full year.

c The three-year annualized ex-post standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period.

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The PIMCO RAE Fundamental Global Composite includes all discretionary, fee-paying, USD-based accounts managed to the PIMCO RAE Fundamental Global strategy. The PIMCO RAE Fundamental Global strategy applies the Research Affiliates (the strategy's sub-adviser) Fundamental Index concept to global equities, including emerging markets. An index based on market capitalization will overweight overvalued stocks and underweight undervalued stocks, resulting in a performance drag. The Fundamental Index methodology attempts to capture the benefits of indexing and avoid the performance drag associated with cap-weighting by selecting and weighting stocks in an index using fundamental measures of company size (e.g., cash flow, book value, sales, and dividends, etc.). The enhanced Fundamental Index strategy incorporates additional factors (e.g., quality of earnings, financial distress, etc.) along with more frequent rebalancing in comparison to a passive strategy. The composite creation date is May 2015.

The MSCI All Country World Index Net USD is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets. The index consists of 45 country indices comprising 24 developed and 21 emerging market country indices.

Valuations are computed and performance is reported in U.S. dollars. Returns are presented gross and net of management fees and include the reinvestment of all income. Net results reflect the deduction of actual management fees and, in some instances, custodial and administrative fees. As of year-end 2010, the composite consisted entirely of non-fee-paying accounts. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

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Past performance is not a guarantee or a reliable indicator of future results.

PIMCO RAE FUNDAMENTAL GLOBAL EX-U.S. COMPOSITE

	COMPOSITE RETURN (%) BEFORE FEES	COMPOSITE RETURN (%) AFTER FEES	BENCHMARK ^a RETURN (%)	COMPOSITE DISPERSION ^b BEFORE FEES	COMPOSITE 3-YR STD DEV ^c BEFORE FEES	BENCHMARK 3-YR STD DEV ^c	NUMBER OF PORTFOLIOS	TOTAL ASSETS (USD) MILLIONS	PERCENTAGE OF FIRM ASSETS ^d	PIMCO RAE FUNDAMENTAL GLOBAL EX-U.S. FEE SCHEDULE:
Mar-Dec 10	15.51	15.33	16.86	N/A	N/A	N/A	Five or Fewer	58	N/A	First \$50 Million 0.400%
2011	-12.32	-12.67	-13.71	N/A	N/A	N/A	Five or Fewer	103	N/A	Next \$50 Million 0.350%
2012	18.36	17.95	16.83	N/A	N/A	N/A	Five or Fewer	227	N/A	Thereafter 0.300%
2013	24.39	23.21	15.29	N/A	17.37	16.23	Five or Fewer	282	N/A	
2014	-5.54	-5.93	-3.87	N/A	14.25	12.81	Five or Fewer	254	N/A	
2015	-10.89	-11.20	-5.66	N/A	13.93	12.13	Five or Fewer	239	<1	

a MSCI All Country World Index ex-U.S. Net Total Return

b Equal-weighted standard deviation of annual returns for all portfolios in the composite for the full year. Not statistically meaningful for periods shorter than a year or for years in which five or fewer portfolios were included for the full year.

c The three-year annualized ex-post standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period.

d Composite assets prior to June 2015 were not managed by PIMCO and are not included in firm assets.

Pacific Investment Management Company LLC (PIMCO) is an investment adviser registered with the Securities and Exchange Commission that provides global investment solutions to institutions, individuals, and government entities worldwide. For GIPS compliance purposes, PIMCO has been defined to include its investment management activities as well as those of its subsidiaries, which include PIMCO Australia Pty Ltd, PIMCO Canada Corp., PIMCO Europe Ltd, PIMCO Japan Ltd, PIMCO Asia Pte Ltd, and PIMCO Asia Limited, as well as those of its affiliate PIMCO Deutschland GmbH. In March 2012, the firm was redefined to include assets managed by PIMCO on behalf of Allianz's affiliated companies. In addition, in January 2010, the firm definition was expanded to include fixed income assets managed in collaboration with Allianz Global Investors using the PIMCO investment process. Prior to 2010, country-specific limitations restricted the full implementation of the PIMCO investment process for these assets. A complete list of composite descriptions is available upon request.

PIMCO claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. PIMCO has been independently verified for the period January 1987 through December 2015 by PricewaterhouseCoopers LLP. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The PIMCO RAE Fundamental Global ex-U.S. Composite has been examined for the period January 2015 through December 2015. Benchmark returns and composite returns after fees were not examined and are not covered by the report of independent accountants. The verification and performance examination reports are available upon request.

The PIMCO RAE Fundamental Global ex-U.S. Composite includes all discretionary, fee-paying, USD-based accounts managed to the PIMCO RAE Fundamental Global ex-U.S. strategy. The PIMCO RAE Fundamental Global ex-U.S. strategy applies the Research Affiliates (the strategy's sub-adviser) Fundamental Index concept to foreign developed and emerging markets equities. An index based on market capitalization will overweight overvalued stocks and underweight undervalued stocks, resulting in a performance drag. The Fundamental Index methodology attempts to capture the benefits of indexing and avoid the performance drag associated with cap-weighting by selecting and weighting stocks in an index using fundamental measures of company size (e.g., cash flow, book value, sales, and dividends, etc.). The enhanced Fundamental Index strategy incorporates additional factors (e.g., quality of earnings, financial distress, etc.) along with more frequent rebalancing in comparison to a passive strategy. The composite creation date is May 2015.

The MSCI All Country World Index ex-U.S. Net Total Return is an unmanaged index generally considered representative of the global stock market, excluding the United States.

Valuations are computed and performance is reported in U.S. dollars. Returns are presented gross and net of management fees and include the reinvestment of all income. Net results reflect the deduction of actual management fees and, in some instances, custodial and administrative fees. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

Performance presented prior to June 2015 represents the historical track record of the sub-adviser and should not be interpreted as the actual historical performance of PIMCO. PIMCO has adhered to the performance record portability requirements outlined in the GIPS standards in regard to the presentation and linking of this performance track record.

Past performance is not a guarantee or a reliable indicator of future results.

PIMCO RAE FUNDAMENTAL U.S. SMALL COMPOSITE

	COMPOSITE RETURN (%) BEFORE FEES	COMPOSITE RETURN (%) AFTER FEES	BENCHMARK ^a RETURN (%)	COMPOSITE DISPERSION ^b BEFORE FEES	COMPOSITE 3-YR STD DEV ^c BEFORE FEES	BENCHMARK 3-YR STD DEV ^c	NUMBER OF PORTFOLIOS	TOTAL ASSETS (USD) MILLIONS	PERCENTAGE OF FIRM ASSETS ^d
2006	18.68	17.67	18.37	N/A	N/A	N/A	Five or Fewer	39	N/A
2007	-5.16	-5.48	-1.57	N/A	N/A	N/A	Five or Fewer	97	N/A
2008	-35.77	-36.01	-33.79	N/A	19.30	19.85	8	499	N/A
2009	34.74	34.27	27.16	N/A	25.54	24.83	8	637	N/A
2010	29.51	29.06	26.85	N/A	28.38	27.69	8	806	N/A
2011	-4.76	-5.02	-4.18	N/A	25.60	24.99	8	736	N/A
2012	19.44	19.12	16.35	N/A	20.25	20.20	8	870	N/A
2013	44.44	44.05	38.82	N/A	16.79	16.45	8	1,301	N/A
2014	4.81	4.53	4.89	N/A	13.45	13.12	8	1,382	N/A
2015	-6.76	-7.10	-4.41	N/A	14.20	13.96	Five or Fewer	237	<1

PIMCO RAE FUNDAMENTAL U.S. SMALL FEE SCHEDULE:

First \$50 Million	0.400%
Next \$50 Million	0.350%
Thereafter	0.300%

a Russell 2000 Index

b Equal-weighted standard deviation of annual returns for all portfolios in the composite for the full year. Not statistically meaningful for periods shorter than a year or for years in which five or fewer portfolios were included for the full year.

c The three-year annualized ex-post standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period.

d Composite assets prior to June 2015 were not managed by PIMCO and are not included in firm assets.

Pacific Investment Management Company LLC (PIMCO) is an investment adviser registered with the Securities and Exchange Commission that provides global investment solutions to institutions, individuals, and government entities worldwide. For GIPS compliance purposes, PIMCO has been defined to include its investment management activities as well as those of its subsidiaries, which include PIMCO Australia Pty Ltd, PIMCO Canada Corp., PIMCO Europe Ltd, PIMCO Japan Ltd, PIMCO Asia Pte Ltd, and PIMCO Asia Limited, as well as those of its affiliate PIMCO Deutschland GmbH. In March 2012, the firm was redefined to include assets managed by PIMCO on behalf of Allianz's affiliated companies. In addition, in January 2010, the firm definition was expanded to include fixed income assets managed in collaboration with Allianz Global Investors using the PIMCO investment process. Prior to 2010, country-specific limitations restricted the full implementation of the PIMCO investment process for these assets. A complete list of composite descriptions is available upon request.

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The PIMCO RAE Fundamental U.S. Small Composite includes all discretionary, fee-paying, USD-based accounts managed to the PIMCO RAE Fundamental U.S. Small strategy. The PIMCO RAE Fundamental U.S. Small strategy applies the Research Affiliates (the strategy's sub-adviser) Fundamental Index concept to small-cap U.S. listed equities. An index based on market capitalization will overweight overvalued stocks and underweight undervalued stocks, resulting in a performance drag. The Fundamental Index methodology attempts to capture the benefits of indexing and avoid the performance drag associated with cap-weighting by selecting and weighting stocks in an index using fundamental measures of company size (e.g., cash flow, book value, sales, and dividends, etc.). The enhanced Fundamental Index strategy incorporates additional factors (e.g., quality of earnings, financial distress, etc.) along with more frequent rebalancing in comparison to a passive strategy. The composite creation date is May 2015.

The Russell 2000 Index is an unmanaged index generally representative of the 2,000 smallest companies in the Russell 3000 Index, which represents approximately 10% of the total market capitalization of the Russell 3000 Index.

Valuations are computed and performance is reported in U.S. dollars. Returns are presented gross and net of management fees and include the reinvestment of all income. Net results reflect the deduction of actual management fees and, in some instances, custodial and administrative fees. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

Performance presented prior to June 2015 represents the historical track record of the sub-adviser and should not be interpreted as the actual historical performance of PIMCO. PIMCO has adhered to the performance record portability requirements outlined in the GIPS standards in regard to the presentation and linking of this performance track record.

Past performance is not a guarantee or a reliable indicator of future results.



MEMORANDUM

Date: January 25, 2017
To: CCCERA Board of Retirement
From: Timothy Price, Chief Investment Officer
Subject: Passive US Equity Manager Search

Overview and Recommendation

At the October 26, 2016 meeting, the Board approved a passive US equity search intended to fulfill a portion of the Phase 2 asset allocation targets. The search was assigned to Verus. Notably, this is one of the first searches conducted by Verus for CCCERA utilizing the approved lists generated by the firm's Manager Research Group (MRG). The Verus research process is described later in this memo.

Verus is presenting their final recommendation for index and selected manager and is asking for the Board to approve the managers as vetted and selected by Verus. Verus is recommending that the Board use a commingled fund managed by BlackRock that tracks the Russell 1000 Index.

The CCCERA Investment Staff has conducted an independent review of the BlackRock Russell 1000 strategy and is comfortable with both the selected index and manager. If the Board approves of the proposed solution, staff will conduct an on-site review and negotiate an appropriate investment agreement.

Phase 2 Asset Allocation Targets

The Board approved the Phase 2 Targets late last year. Phase 2 largely addresses the restructuring of the Growth sub-portfolio (Phase 1 addressed the implementation of the Liquidity sub-portfolio and Phase 3 deals with the build out of the Diversifying sub-portfolio). We made a concerted effort to implement the new asset allocation with a minimum of turnover in the manager roster. The long-term public markets exposure of the new asset allocation calls for 6% US Equity, 10% International (Developed) Equity and 10% Emerging Market Equity. The table below outlines the long-term target allocations to public markets. However, there will be several years of larger allocations to public equities as we build out the new private markets allocations. The structure of these “parking place” allocations will be addressed during the Phase 3 implementation later this year.

Our current roster of managers included several managers who already invest across several of these asset classes, as shown below:

Manager	US Equity	International Equity	EM Equity	Target Allocation
TBD Passive US Equity	100%	0%	0%	\$70 mm
Artisan Global Opportunities	60	35	5	\$300 mm
First Eagle Global Value	60	35	5	\$300 mm
William Blair Intl Growth	0	80	20	\$300 mm
Pyrford Intl Value	0	90	10	\$300 mm
TBD EM Equity Manager 1	0	0	100	\$300 mm
TBD EM Equity Manager 2	0	0	100	\$300 mm
Total Public Equities	23.0%	38.5%	38.5%	\$1.87 bb

Verus Manager Research Group Methodology

Verus conducts investment manager research through their Manager Research Group (MRG). The MRG screens each asset class in order to fully review that asset class and ultimately compile the firm’s “focus list” managers. For traditional mandates, such as the two searches under consideration today, they primarily utilize the eVestment Alliance database which has over 2,600 investment management firms and over 11,700 products.

The database screens typically entail firm/product assets under management, product availability (open versus closed), mandate characteristics such as market capitalization or style, and track record length (which varies based on asset class, in particular if an asset class is prone to capacity

constraints). The MRG then applies two levels of subjective review. First for organizational concerns, in which they identify firms known to have had troubles with management, ownership or personnel departures. Second for excess returns relative to the benchmark – this is done subjectively so that the returns on a 5-, 7-, and/or 10-year returns can be assessed. The focus of the performance assessment is on whether there has been added value over a longer-term market cycle. The final subjective screen is more difficult, and requires reviewing all facets including investment vehicles (minimums and vehicle types), retail versus institutional focus, “asset gatherer” versus “asset manager”, relative fees, professional depth and turnover statistics, strategy purity, client diversification, reliability of composite, and additional performance analytics.

MRG meets with hundreds of managers throughout the year across every asset class, and the screening process is used to help prioritize their time, but not necessarily to limit the range of managers interviewed. If a manager is identified through either personal interaction or the screening process, they will be interviewed more thoroughly and if they’re a strong candidate, an on-site visit is conducted. After the MRG thoroughly vets the manager and it passes all concerns regarding organizational stability, investment professional depth and experience, philosophical soundness, investment process consistency, operational depth and historical return attribution analysis, the MRG will formally recommend to the Verus Investment Committee that it be added to the firm’s “focus list”. At this juncture a full written report is issued on the manager. Focus list managers receive a higher level of on-going scrutiny and monitoring by the MRG and analyst team. The ongoing efforts focus on style consistency and assuring that performance is in line with the style characteristics identified for each manager.

In selecting strategies, Verus evaluates the role of the new strategy within the context of the client’s total plan, specifically:

- Understand the specific need in the client portfolio: the risk factor exposures and market beta exposures needed, along with appropriate fee and cost levels
- Review Focus List strategies that will best meet the identified needs
- Understand the strategy’s expected contributions to total and active risk
- Understand the assessment regime through which the strategy will be viewed and ensuring time frame and approach are appropriate
- Set clear expectations and expected outcomes on multiple dimensions for both client and investment manager

BlackRock is an approved Focus List manager for passive US equity.



**PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS**



JANUARY 25, 2017

Public Equity Portfolio Structure – Passive US Equity

Contra Costa County Employees' Retirement Association

Table of Contents



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Executive summary 3

Approaches to passive US equity 5

Russell 1000 options 11

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Executive summary

Executive summary

- CCCERA will be allocating approximately \$70mm to a passive US Equity strategy during “phase 2” of implementation which will allow the Plan to gain low-cost exposure to US economic growth without the risks associated with active management.
- This deck examines the following decisions that are to be made in deciding how to best gain passive US Equity exposure, including:
 - Index selection
 - Manager selection
 - Vehicle selection
- The following are the key criteria to be considered in evaluating the various options:
 - Cost
 - Liquidity terms
 - Tracking error
 - Securities lending
- The presentation includes recommendations to:
 1. Select Blackrock to fulfill the Russell 1000 mandate; and
 2. Authorize Staff to negotiate and CEO to execute a contract with the selected investment manager.

Approaches to passive US Equity

Passive US equity – index options

	S&P 500	Russell 1000	Russell 3000	Wilshire 5000
Index Description	Index of ~500 large-cap US equities	Index comprised of ~1000 large-cap US equities	Index comprised of ~3000 US equities, often used as a benchmark for the entire US stock market	Index measuring the performance of all US equity securities with readily available price data
Weighting Methodology	Market Capitalization	Market Capitalization	Market Capitalization	Market Capitalization
Constituents	506	994	2955	3,515
Coverage of US Equity Market Cap (%)	80%	90%	98%	> 99%
Median Market Capitalization	\$18.0 bn	\$8.4 bn	\$1.5 bn	\$0.9 bn
Top 10 Constituents	18%	16%	15%	17%
Price to Earnings	24.2x	20.9x	21.2x	23.8x
Price to Book	2.8x	2.9x	2.8x	2.4x
Dividend Yield	2.1%	2.1%	2.0%	2.1%
PEG Ratio	3.1	3.1	3.2	3.7

Index characteristics as of 9/30/16.

Sources: S&P, Wilshire, Russell, eVestment

Passive US equity – index performance

	Trailing Period Returns - Through Q4 2016				
	1 Year	3 Year	5 Year	7 Year	10 Year
S&P 500	12.0	8.9	14.7	12.8	6.9
Russell 1000	12.1	8.6	14.7	12.9	7.1
Russell 3000	12.7	8.4	14.7	12.9	7.1
Wilshire 5000	13.4	8.8	14.7	13.0	7.2

	Calendar Year Returns									
	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
S&P 500	12.0	1.4	13.7	32.4	16.0	2.1	15.1	26.5	-37.0	5.5
Russell 1000	12.1	0.9	13.2	33.1	16.4	1.5	16.1	28.4	-37.6	5.8
Russell 3000	12.7	0.5	12.6	33.6	16.4	1.0	16.9	28.3	-37.3	5.1
Wilshire 5000	13.4	0.7	12.7	33.1	16.1	1.0	17.2	28.3	-37.2	5.6

	Standard Deviation					Sharpe Ratio				
	1 Year	3 Year	5 Year	7 Year	10 Year	1 Year	3 Year	5 Year	7 Year	10 Year
S&P 500	10.3	10.7	10.4	12.7	15.3	4.85	1.29	1.60	0.99	0.38
Russell 1000	10.8	10.8	10.5	12.9	15.6	4.45	1.23	1.57	0.97	0.38
Russell 3000	11.3	11.0	10.6	13.1	15.8	3.90	1.16	1.54	0.95	0.37
Wilshire 5000	11.1	10.9	10.6	13.0	15.7	4.20	1.22	1.57	0.97	0.38

Source: eVestment.

Passive US equity – investment vehicle criteria

— Construction methodology:

- Full replication vs. Statistical sampling
- Optimization

— Securities lending

— Liquidity terms

— Fees: Management, custody, administrative

Passive US equity – vehicle structures

— Commingled Fund:

- Generally use full replication (lower tracking error)
- Economies of scale (sharing of trading & admin costs, unit level crossing)

— Separate Account:

- May not be large enough for full replication (potentially higher tracking error)
- May have higher costs vs. commingled fund

— Use of overlay provider:

- Futures used to gain market exposure
- Most liquid option
- Higher fee (subject to overlay fee schedule)
- More suitable for gaining short-term exposure

Recommendation – index selection

Verus recommends selecting the Russell 1000 index for the following reasons:

- The Russell 1000 index's risk/return characteristics are in line with the exposures modeled in the FFP 4-yr asset allocation (US large cap equity); and
- Relative to the other US large cap equity option (S&P 500), the Russell 1000 provides:
 - Greater coverage of the US equity market (90% vs. 80%);
 - Lower concentration amongst top holdings (16% vs. 18%);
 - Increased diversification (994 constituents vs. 506); and
 - Exposure to the smaller end of the large cap universe (median market cap of \$8.4 bn vs. \$18.0 bn)

Russell 1000 index fund providers

Russell 1000 index implementation options

	AllianceBernstein	BlackRock	Northern Trust	Rhumblin	State Street (SSGA)
Strategy Assets (Separate Accts. / Commingled)	\$2.5 bn (separate account only)	\$56.6 bn (\$12.4 bn / \$44.1 bn)	\$28.0 bn (\$4.1 bn / \$24.0 bn)	\$7.7 bn (\$6.8 bn / \$950 mm)	\$29.7 bn (\$13.7 bn / \$16.0 bn)
Strategy Inception	12/2000	1/1987	11/1997	12/1996	7/1992
Separate Account Fees (excludes custody)	First \$300 mm: 4 bps Next \$200 mm: 3 bps Balance: 2 bps	All assets: 10 bps \$125k annual minimum fee	First \$100 mm: 6 bps Balance: 4 bps \$50k annual minimum fee (subject to waiving if funding is near \$75mm)	First \$25 mm: 6 bps Next \$25 mm: 5 bps Balance: 4 bps	n/a*
Separate Account Construction Methodology	Replication if assets > \$100 mm	Depends on size, and cost/tracking error considerations	Replication if assets > \$50 mm	Replication if assets > \$25 mm	n/a*
Commingled Fund Fees	n/a	All assets: 2 bps Plus admin expenses (Actual: 0.49 bp, Cap: 2 bp)	All assets: 2 bps Plus admin expenses (Actual: 0.76 bp, Cap: 1 bp)	First \$25 mm: 5 bps Next \$25 mm: 4 bps Balance: 3 bps Plus admin expenses (1 bp in 2015)	First \$50 mm: 6 bps Next \$50 mm: 4 bps Balance: 3 bps Plus operating expenses (1-2 bps)
Commingled Fund Liquidity Terms	n/a	Daily	Daily	Daily	Daily
Commingled Methodology	n/a	Replication	Replication	Replication	Replication

Sources: Strategy Assets & Inception: eVestment; Fees & Methodology: managers

* State Street does not recommend a separate account for this mandate at the target asset level.

Russell 1000 index fund – manager performance

Excess returns relative to Russell 1000 index, gross of fees

	Trailing Period Excess Returns - through 3Q16				
	1 Year	3 Year	5 Year	7 Year	10 Year
AllianceBernstein	-0.09	-0.03	-0.06	-0.04	0.01
BlackRock	0.01	-0.01	-0.01	0.00	--
Northern Trust	0.02	0.00	-0.01	-0.01	--
Rhumblin	-0.06	-0.04	-0.06	-0.05	0.09
State Street	0.04	0.04	0.02	0.03	--

	Calendar Year Excess Returns									
	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
AllianceBernstein	0.04	-0.05	-0.10	-0.08	0.03	-0.03	0.03	0.16	0.06	0.00
BlackRock	0.01	-0.02	-0.02	0.00	0.00	0.02	--	--	--	--
Northern Trust	0.02	-0.01	-0.02	0.00	0.00	-0.03	0.04	--	--	--
Rhumblin	0.03	-0.04	-0.12	-0.07	0.03	-0.10	0.57	0.39	0.00	0.01
State Street	0.08	0.01	-0.01	0.05	-0.01	0.05	0.03	--	--	--

Performance shown for each manager's non-securities lending commingled fund, except for AllianceBernstein which only offers separate accounts.

Recommendation & next steps

Verus recommends BlackRock's Russell 1000 commingled fund (non-lending) for the following reasons:

- BlackRock's fund is the lowest fee option; and
- The fund's track record has demonstrated the ability to closely track the benchmark.

Next steps:

1. Select Blackrock to fulfill the Russell 1000 mandate; and
2. Authorize Staff to negotiate and CEO to execute a contract with the selected investment manager.

Notices & disclosures

Past performance is no guarantee of future results. *The information presented in this report is provided pursuant to the contractual agreement (the “Contract”) by and between Contra Costa Employees’ Retirement Association (“Client”) and Verus Advisory, Inc. (“Company”). In the event of conflict between the terms of this disclosure and the Contract, the Contract shall take precedence. Client is an institutional counter-party and in no event should the information presented be relied upon by a retail investor.*

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Contra Costa County Employees' Retirement Association

BlackRock ETFs and Index Investments

*Scott Dohemann, Managing Director
Samantha Taylor, Vice President*

25 January 2017



BLACKROCK®

Table of contents

I. BlackRock Overview

II. Index Investments Overview

III. Index Investments Philosophy and Process

IV. Performance Attribution

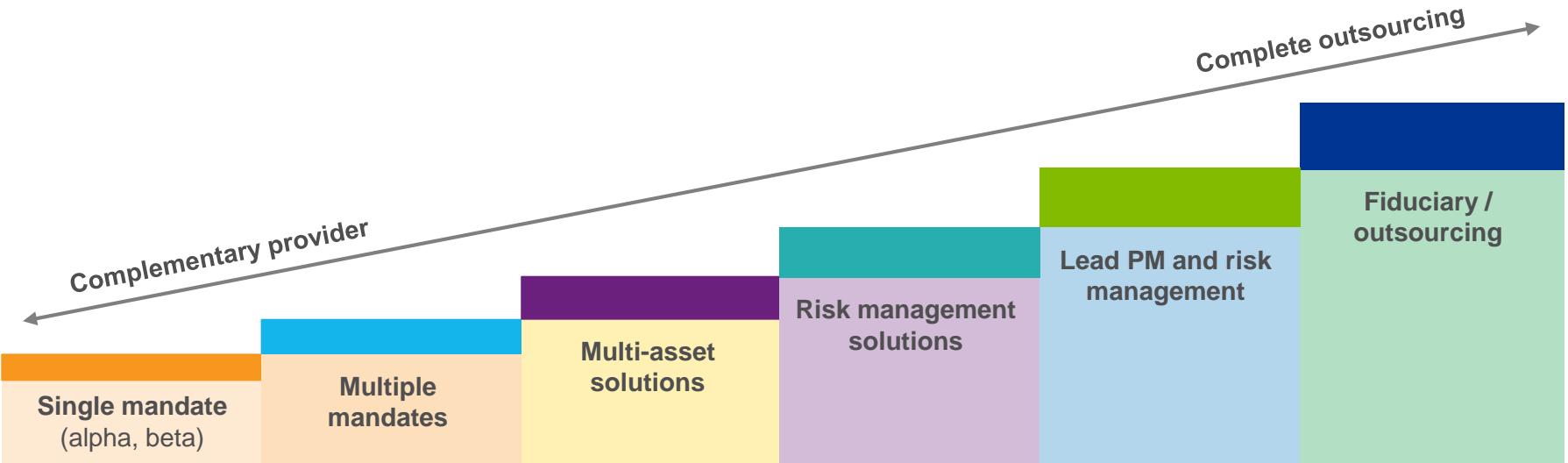
BlackRock Overview

BlackRock: Clients are our sole focus

We aspire to be the most respected investment and risk manager in the world for clients

- Understand the outcome each client is looking to achieve
- Recognize the core of any investment solution is performance
- Protect our clients' interests through our investments in risk management, analytics and systems

We seek to provide what investors need – from a single asset class mandate to full outsourcing



Firm culture and structure reinforce our client-centric approach

Independent asset manager focused only on clients

- Established in 1988 and public since 1999 (NYSE: BLK)
- Independent Board of Directors
- No proprietary trading
- Group dedicated to corporate governance

Deep understanding of regulatory requirements

- Manage portfolios for clients subject to varied and complex regulatory regimes
- Operate on behalf of investors under more than 80 regulatory authorities worldwide
- Significant experience managing portfolios for official institutions and governments

BlackRock Solutions® foundation for managing risk

- Deliberate, diversified and scaled risk enables us to invest with conviction in pursuit of alpha
- Internally developed risk tools and analysis offered directly to clients as a service
- Reinforces transparency and our responsibility to clients

History of innovation and evolution to better serve investors

1970s	<ul style="list-style-type: none"> • Pioneered index and quantitative investing
1980s	<ul style="list-style-type: none"> • Created the First Term Trust (closed-end fund) • Initiated fixed income and international indexing
1990s	<ul style="list-style-type: none"> • Created the industry's first target date fund • Introduced exchange-traded funds under World Equity Benchmark Shares (WEBS) brand (now iShares® ETFs)
2000s	<ul style="list-style-type: none"> • Launched BlackRock Solutions® for risk management and advisory services • Enhanced capabilities by strengthening equities, and adding alternatives, real estate, passive, and scientific investments • Launched Financial Markets Advisory business
2010s	<ul style="list-style-type: none"> • Engaged by US and European governments for critical risk assessments and banking sector stabilization strategies • Launched BlackRock Investment Institute • Introduced Global Capital Markets desk • Launched first target maturity fixed income ETF • Created an index to track sovereign credit risk (BlackRock Sovereign Risk Index)

Timeline includes history from predecessor entities

Depth of investment resources maximizes performance potential

Organization drives idea and analysis sharing

- 129 investment teams located in 21 countries* connect through a common culture and operating platform
- The BlackRock Investment Institute (BII), our internal investor forum, facilitates sharing and debates insights
- Daily global meeting for BlackRock's 1,800+ investment professionals to discuss markets, portfolio positioning and ongoing trends
- Chief Investment Officers ensure rigorous, deliberate and repeatable investment processes

Investors potential benefit from scale of infrastructure

- Global trading function seeks to enable increased access to liquidity and produces trading efficiencies, improving execution
- Capital Markets Group leverages scale and breadth of platform to help maximize allocations and to seek alpha opportunities in primary markets
- Dedicated Risk & Quantitative Analysis (RQA) professionals partner with portfolio teams to monitor and analyze risk
- Proprietary **Aladdin**[®] platform integrates portfolio management, risk analytics, trading and operations

Built to generate alpha

Collective expertise

Investment
Research

Daily
Global Meeting

BlackRock
Investment
Institute

Chief Investment
Officers

Global infrastructure

Trading

Dedicated Capital
Markets

Aladdin[®]

Risk &
Quantitative
Analysis

As of 30 September 2016
* As of 30 June 2016

Positioned to address client needs

Breadth of capabilities enables outcome-based solutions tailored to individual client objectives

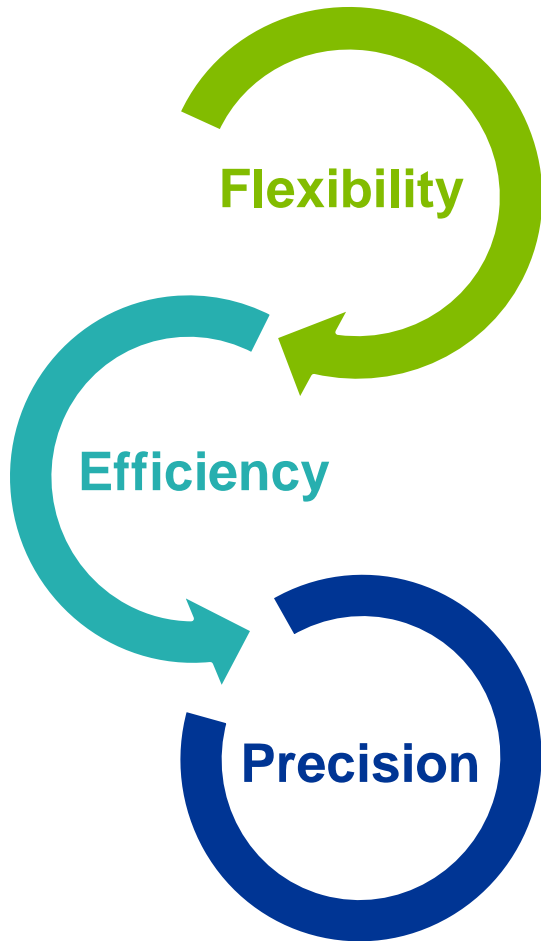


AUM As of 30 September 2016

* The alternatives AUM may include committed capital, in addition to invested capital, which remains subject to drawdown

BlackRock Index Investments Overview

BlackRock's Index proposition



- ▶ Provide you with a broad range of market exposures together with a flexible range of product features
- ▶ An evolving range of products and solutions designed to help meet your needs today and in the future
- ▶ Partner with you to address your unique investment challenges through our customisation and solutions capabilities
- ▶ Disciplined investment approach focused on delivering optimal tracking, enhanced returns and lowering the total cost of ownership
- ▶ Scale, breadth and diversity of our clients and strategies helps us to minimise transaction costs and seek to preserve the value of your investments
- ▶ Design products and solutions that consider the factors that impact your investment results from tax-efficiency to access and liquidity.
- ▶ Our investment professionals are focused on delivering consistent performance and efficient outcomes
- ▶ Extensive trading, risk and operational platform positioned to seek efficient tracking as well as enhanced returns
- ▶ Investment track record spanning four decades that has seen investors entrust us with \$3.3 trillion of AUM as of 30 September 2016

Seeking to deliver high quality, cost effective access to a broad range of market opportunities

BlackRock's Index Equity Platform

Global leader in Index Equity assets¹

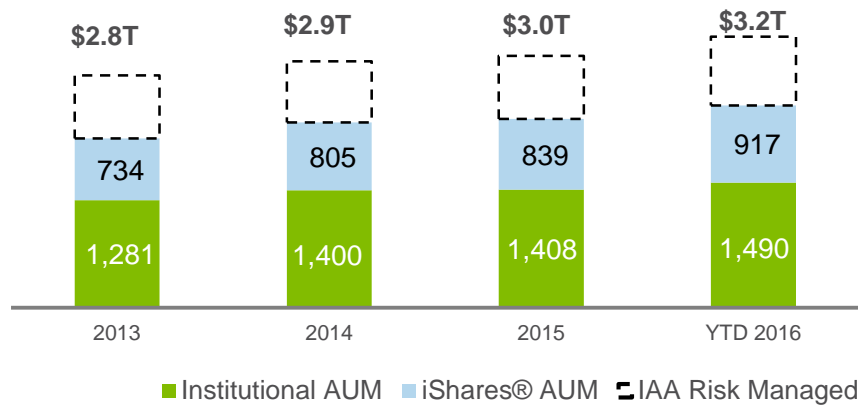
- We seek to deliver consistent performance with efficient outcomes for our clients
- Thousands of skillful and thoughtful decisions made each year for swift response to market trends and client demands

Extensive and flexible platform for index strategies

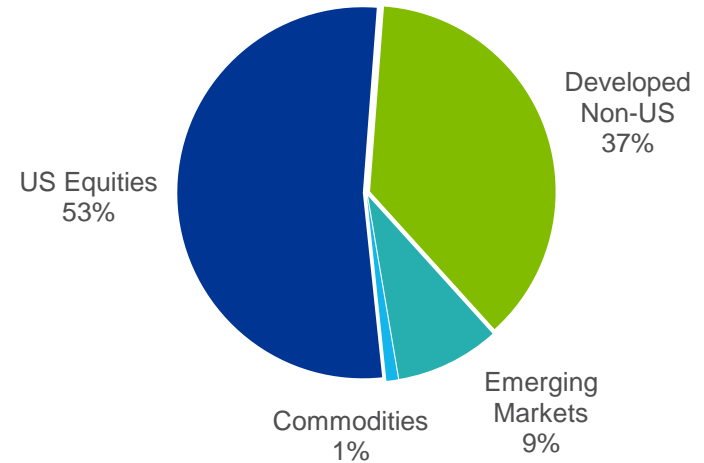
- Over 2,000 funds managed against 650+ benchmarks
- Daily liquidity with T-1 notification (for US equities) and T-2 notification (for non US equities)²
- Modular fund structure and asset allocation platform facilitates custom and outcome oriented solutions

Total Index Equity risk managed assets of \$3.2 trillion USD

In billions USD



Distribution of assets by region of mandate



Source: BlackRock, Inc. and its affiliates (together "BlackRock") as of 30 September 2016

1 In terms of AUM. Source: Pensions & Investments

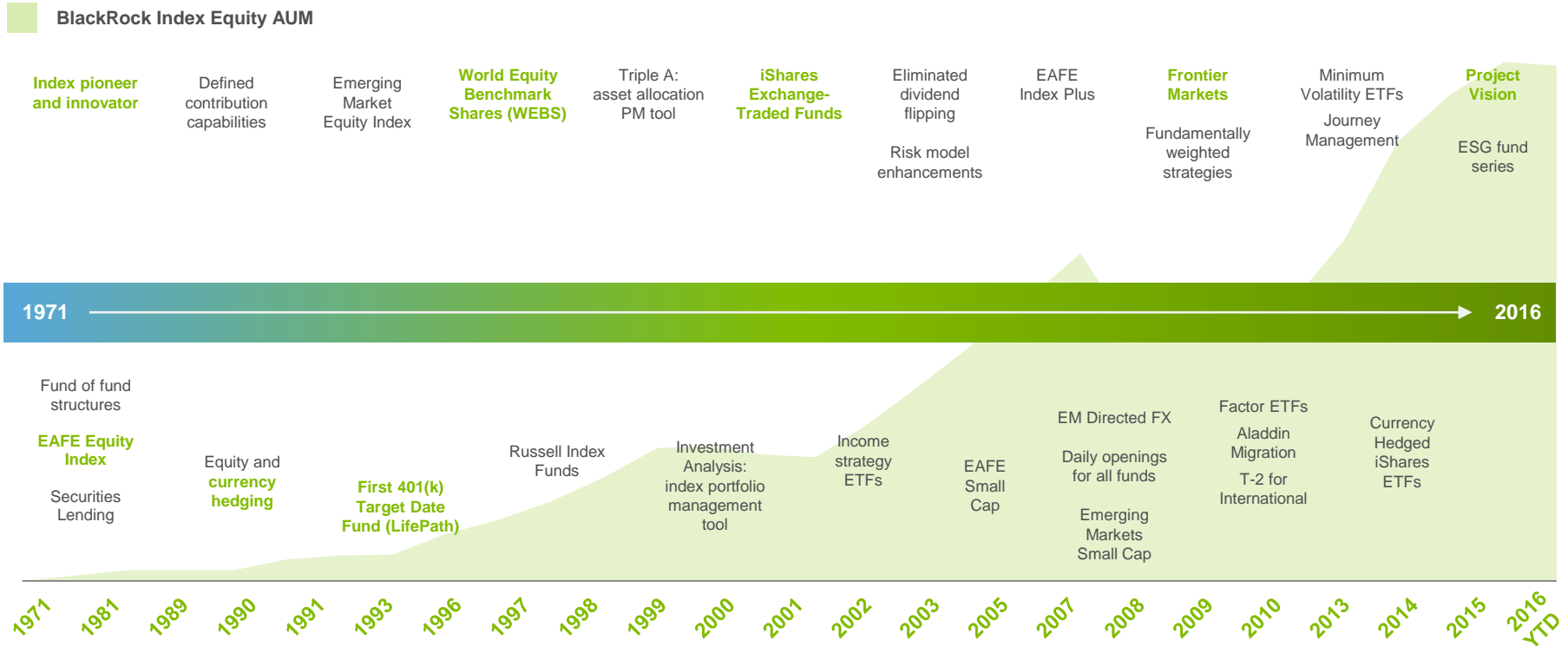
2 Frontier markets commingled fund and currency hedged funds are currently open bi-monthly and monthly, respectively

Over 45 years of experience driving index forward

We constantly reinvest in and reinvent our business so our clients have access to high quality index solutions

- ▶ Drive the industry forward through our ability to create specialized, innovative investments afforded by our scale and depth of expertise
- ▶ Forge new ground for clients — first manager to offer opportunities in equity index developed, emerging, and frontier markets
- ▶ Evolve capabilities to continuously deliver on emerging trends — smart beta, global benchmarking, overlay strategies
- ▶ Serve as an index advocate on behalf of clients and as a key partner to index providers seeking our practitioner knowledge

45 years of Index Equity — Continual evolution of products, technology and capabilities



Americas – Investments Pillar

ETF and Index Investments Business

Investments Pillar Leadership

Manish Mehta

Global Head of Investments, Products, and Markets

Americas Portfolio Management

Alan Mason
Head of Americas Portfolio Management

Global Research

Ananth Madhavan
Global Head of ETF and Index Investment Research

Global Strategy

Kristen Dickey
Head of Global Product Strategy

Portfolio Management

Research

Strategy

Institutional Portfolio Management

iShares Portfolio Management

Index Asset Allocation

Index Research

Investment Research

Global Strategy

U.S. & Developed

Rachel Aguirre
Co-Head of Institutional Portfolio Management

Index Plus & Emerging

Creighton Jue, CFA
Co-Head of Institutional Portfolio Management

U.S. & Canada

Greg Savage, CFA
Co-Head of iShares Portfolio Management

Developed & Emerging

Jennifer Hsui, CFA
Co-Head of iShares Portfolio Management

DB & DC

Amy Whitelaw
Head of Index Asset Allocation

Stephanie Allen
Global Head of Index Research

Matthew Lee, Ph.D.
Global Head of Investment Research

Americas

Scott Dohemann, CFA
Head of U.S. Product Strategy

Christian De Leon

Kevin Kim

Timothy Murray, CFA

Jacqueline Ramkumar

U.S.

+ 7 Portfolio Managers

Index Plus

+ 2 Portfolio Managers

U.S.

+ 6 Portfolio Managers

International Developed

+ 5 Portfolio Managers

Defined Benefit

+ 3 Portfolio Managers

Index Research

+ 10 Index Researchers

Research Officers

+ 2 Research Officers

International Developed

+ 8 Portfolio Managers

FX / Synthetics

+ 5 Portfolio Managers

Canada

+ 4 Portfolio Managers

International Emerging

+ 4 Portfolio Managers

Defined Contribution

+ 6 Portfolio Managers

International Emerging

+ 5 Portfolio Managers

EMEA

Andrew Graver*
Head of EMEA Index Strategy

Rita Gemelou*

Flora Herries*

Norbert van Veldhuizen*

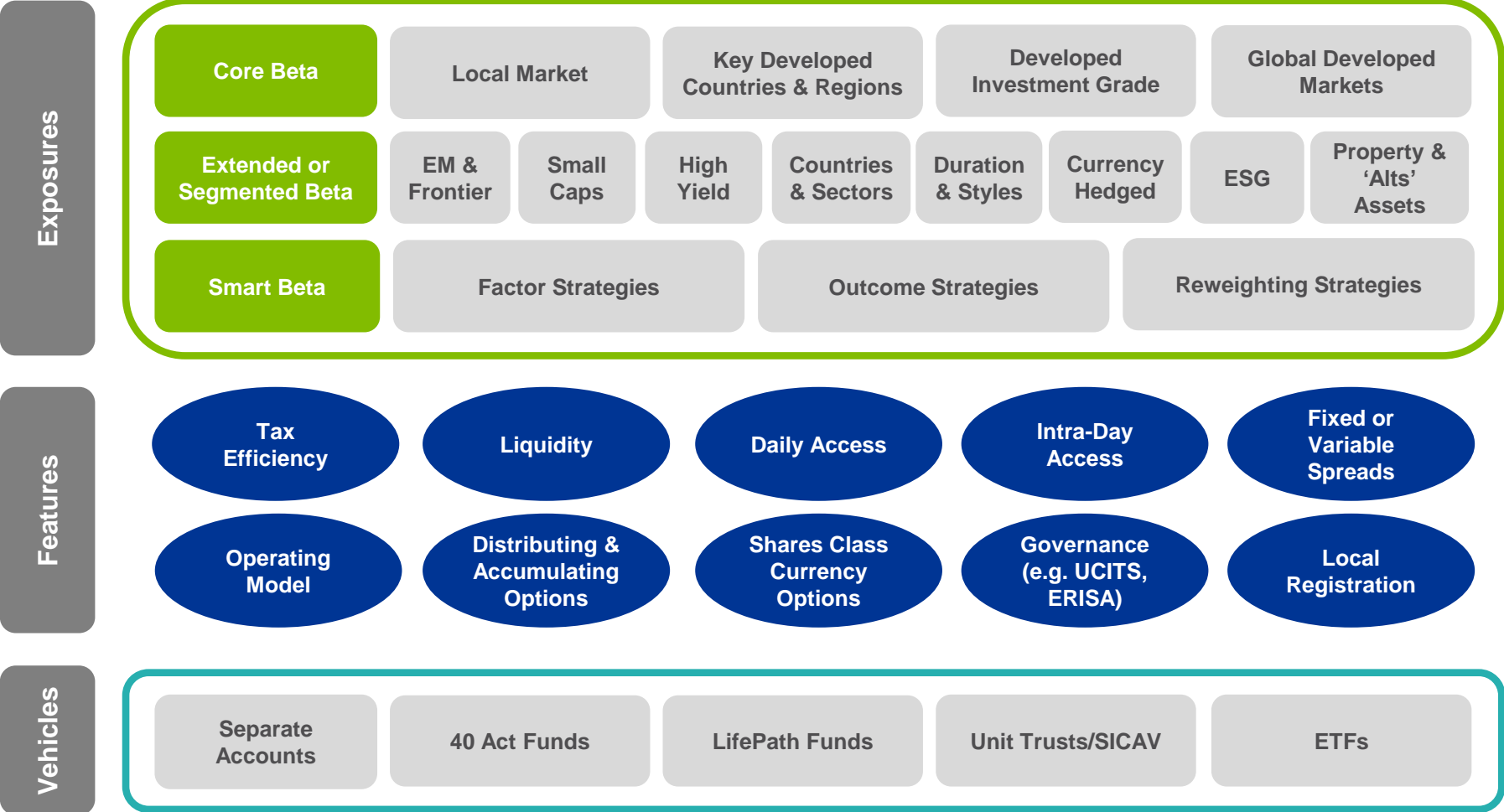
APAC

Ben Garland, CFA*
Head of APAC Index Strategy

Colin Zhang*

As of November 2016
* Located outside of the US

An extensive and flexible range of index capabilities

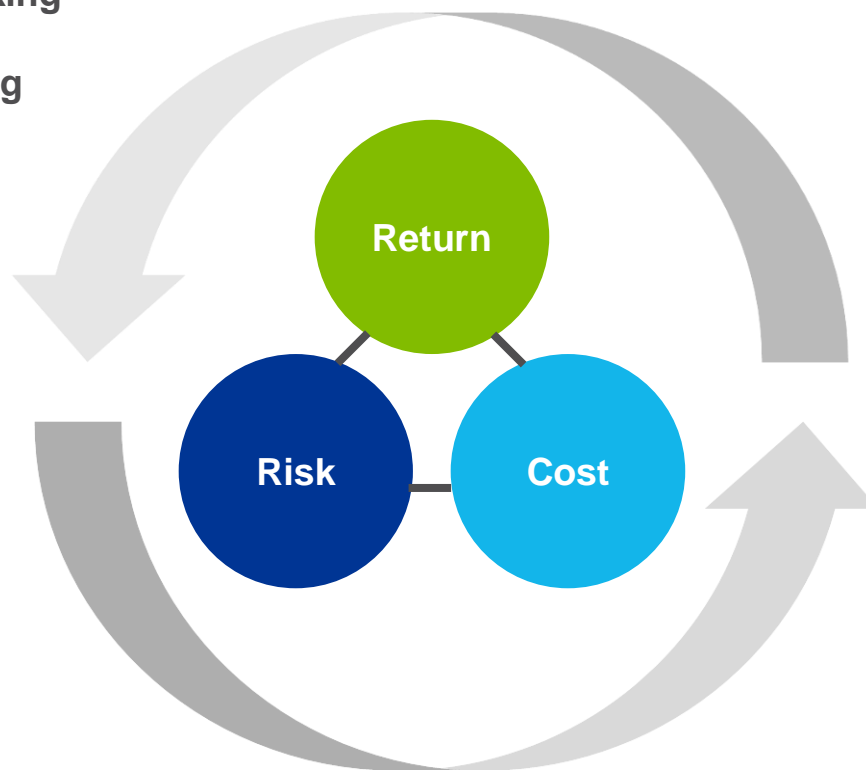


Matching the exposures you want with the features you need

BlackRock Index Investments Philosophy and Process

An approach that seeks to deliver efficient investment outcomes

BlackRock's disciplined, pragmatic and adaptable approach to index tracking is focused on optimally managing and balancing return, risk and cost.



Total Performance Management

Return Enhancements

- ▶ Seeks to deliver incremental value and strong performance
- ▶ Deep knowledge of financial markets and indices

Risk Management

- ▶ Risk managed process that seeks to consistently deliver optimal tracking outcomes
- ▶ Market leading risk analytics and investment tools provided by our Aladdin® platform

Cost Efficiency

- ▶ Preserve value for clients through our intelligent approach to index events
- ▶ Extensive global trading platform helps ensure cost are low and we have optimal access to liquidity

Index investment management cycle – dedicated expertise and resources

Performance & Oversight

- Review cumulative effect of investment decisions to help identify factors contributing to/subtracting from portfolio performance
- Risk & Quantitative Analysis Team (RQA) monitors dozens of risk factors globally on a continuous basis

Benchmark Knowledge

- Detailed knowledge of index methodologies
- Experience with predicting and projecting index changes
- Focused on optimal treatment of corporate actions
- Continual research into index events



Efficient Trading

- Building smart trading strategies designed to access optimal liquidity
- Industry's largest internal market place for potential netting of client flows
- Focused trading research and systems

Portfolio Construction

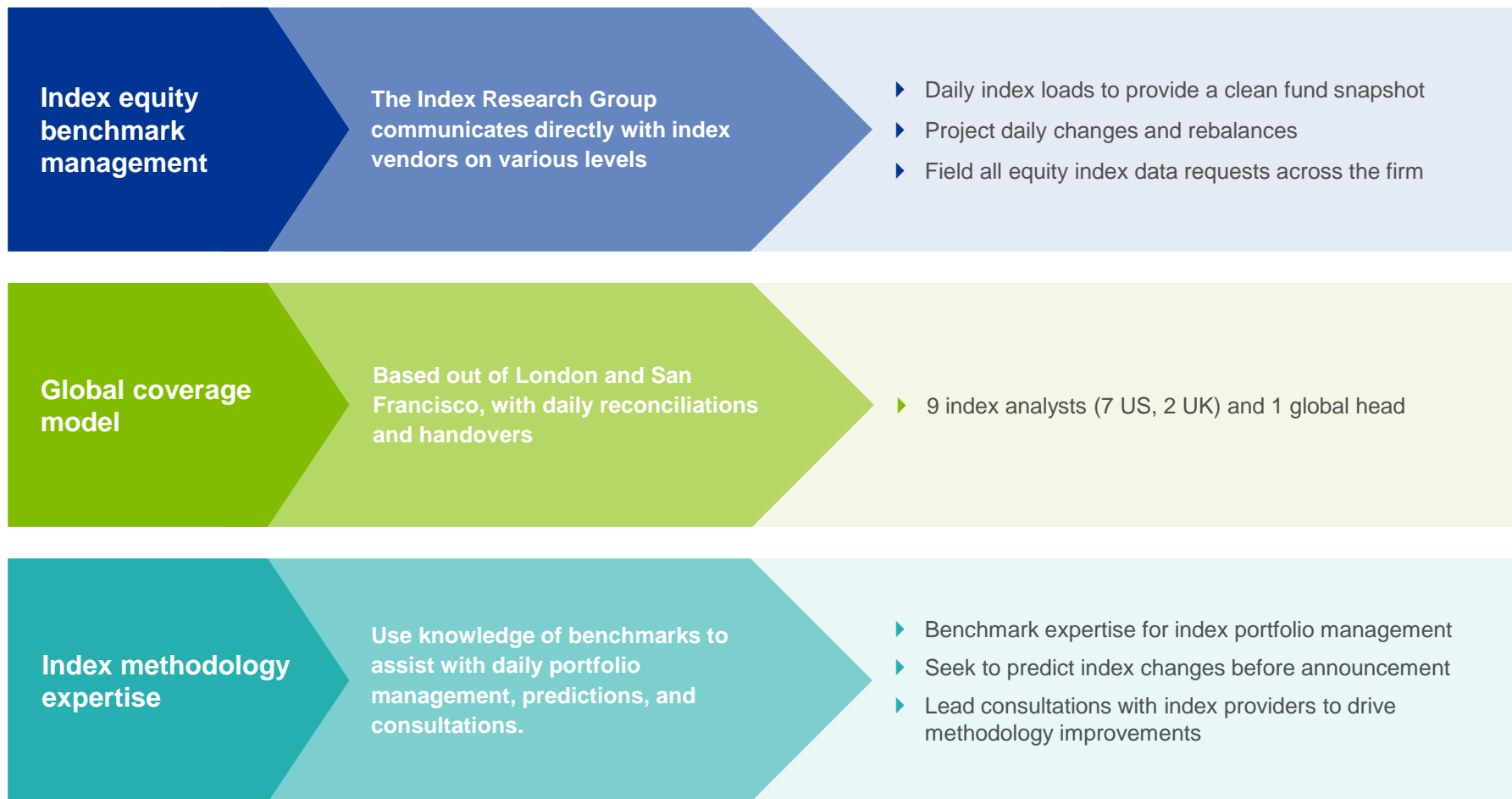
- Significant investment in technology
- Market leading portfolio and risk tools provided by our Aladdin® platform
- Integrated cost and liquidity analysis
- Knowledge of optimisation challenges

Index investment management cycle

Benchmark knowledge

Benchmark knowledge

EII Strategies has a dedicated Index Research team



Index investment management cycle

Portfolio construction

Portfolio construction

Over 140 Investment professionals dedicated to overseeing 2,000 Funds managed against 650+ benchmarks. Thousands of investment decisions made every year around:

- Optimizing versus full replication
- Equitizing cash
- Trading around periodic index changes
- Corporate action elections
- Investing / divesting based on client and participant instruction

BlackRock's proprietary portfolio management applications, Portfolio Construction and Index Pro, provide a seamless platform, where by every step of the investment process is handled electronically from the time a client order is placed to the time any required trades go out to market

	Active	Bench	PI	%Exp	%New %Exp	%MV	%New %MV
Cash & Pk	406,722,616	0.0000%	0.3819%	0.8807%	0.3819%	0.8807%	0.8807%
Cash & Cash Equivale	406,722,616	0.0000%	0.3819%	0.8807%	0.3819%	0.8807%	0.8807%
Other Payables/Receivables	46,619,763	0.0000%	0.3010%	0.1010%	0.3010%	0.1010%	0.1010%
Energy	-1,787,374	7.1850%	7.1812%	7.1812%	-0.0039%	-0.0039%	0
Materials	2,745,970	3.2266%	3.2386%	3.2386%	0.0060%	0.0060%	0
Industrials	443,266	10.6020%	10.6030%	10.6030%	0.0010%	0.0010%	0
Consumer Discretionary	20,283,204	12.6973%	12.7417%	12.7417%	0.0442%	0.0442%	0
Consumer Staples	-42,216,601	9.5689%	9.4553%	9.4553%	-0.1133%	-0.1133%	0
Health Care	2,295,562	14.1285%	14.1337%	14.1337%	0.0052%	0.0052%	0
Financials	180,611,028	17.0458%	17.0377%	17.0377%	-0.3919%	-0.3919%	0
Information Technology	8,424,295	19.5060%	19.5265%	19.5265%	0.0205%	0.0205%	0
Telecommunication Service	817,829	2.5311%	2.5325%	2.5325%	0.0013%	0.0013%	0
Utilities	4,498,429	3.5023%	3.5120%	3.5120%	0.0096%	0.0096%	0
No Sector Assigned	0	0.0000%	0.8666%	0.8666%	0.8666%	0.8666%	0.8666%

Portfolio	Name	New %Exp Pf (4dps)	%Exp Bench (4dps)	New %Exp Active (4dps)	New Qty Active	Sector Level 1 (Immed)	Bench
R.IGROWB	3D SYSTEMS CORP	0.0053%	0.0053%	0.0003%	524	Technology	
R.IGROWB	3M CO	1.0249%	1.0252%	-0.0002%	-31	Producer Durables	
R.IGROWB	A.O. SMITH CORP.	0.0589%	0.0596%	-0.0007%	-187	Producer Durables	
R.IGROWB	AARONS INC.	0.0025%	0.0023%	0.0001%	123	Consumer Discretionary	
R.IGROWB	ABBVIE INC	0.9637%	0.9633%	0.0004%	152	Health Care	
R.IGROWB	ACADIA HEALTHCARE CO INC	0.0348%	0.0356%	-0.0008%	-279	Health Care	

Full Name	Tolerance Status	Benchmark	New Active Risk (2dps)	Active Risk (2dps)	New EQNoETF Active Risk (2dps)	EQNoETF Active Risk (2dps)	NAV	% New Spend... Cash & CE (4dps)	% Spendable Cash & CE (4dps)	23
Russell 1000 Defensive Index in EUR	In	RUS100DEF	19.45	19.45	18.91	18.91	966,926,739	1.9171%	1.9171%	41
Russell 1000 CUSTOM Index	In	RS1000CTOB	2.57	2.57	0.70	0.70	478,012,682	0.0607%	0.0607%	34
Russell 1000 Growth Index	In	RS1000G	2.19	2.19	0.93	0.93	2,241,153,483	1.0359%	1.0359%	54
Russell 1000 Index (Gross Total Return)	In	RS1000V	1.98	1.98	0.66	0.66	2,039,263,726	1.0553%	1.0553%	17
Russell 1000 Value Index (Total Return)	In	RS1000V	7.23	7.23	0.93	0.93	2,156,397,933	1.9140%	1.9140%	
Russell 1000 Value xTobacco xFirearms Custom Ind...	In	RUS90TXFA	3.01	3.01	0.89	0.89	988,958,144	0.0600%	0.0600%	
Russell 1000 Index (Gross Total Return)	In	RS1000	1.65	1.65	1.48	1.48	459,712,944	1.8423%	1.8423%	
Russell 1000 Growth Index	In	RS1000G	7.64	7.64	8.29	8.29	2,830,116,867	0.0854%	0.0854%	
Russell 1000 Value Index (Total Return)	In	RS1000V	13.08	13.08	13.34	13.34	2,692,370,378	0.0390%	0.0390%	
Russell 1000 Index (Gross Total Return)	Out	RS1000	132.07	131.58	132.65	132.65	103,513,821	0.8440%	0.8385%	
Russell 1000 Index (Gross Total Return)	In	RS1000	9.77	9.77	9.99	9.99	2,632,528,184	2.4859%	2.4859%	
Russell 1000 Index (Gross Total Return)	In	RS1000	1.19	1.19	0.90	0.90	570,811,395	1.6865%	1.6865%	
Russell Top 200 Total Return Index	In	RST200TR	2.69	2.69	0.10	0.10	1,332,421,954	2.6598%	2.6598%	
Russell 1000 Growth Index	In	RS1000G	2.36	2.36	0.89	0.89	4,700,727,362	0.0853%	0.0853%	
Russell 1000 Index (Gross Total Return)	In	RS1000	1.17	1.17	0.80	0.80	7,060,033,238	1.9342%	1.9342%	
Russell 1000 Value Index (Total Return)	In	RS1000V	3.17	3.17	1.95	1.95	4,668,989,978	0.0388%	0.0388%	

Screenshots are for illustrative purposes only.

Index investment management cycle

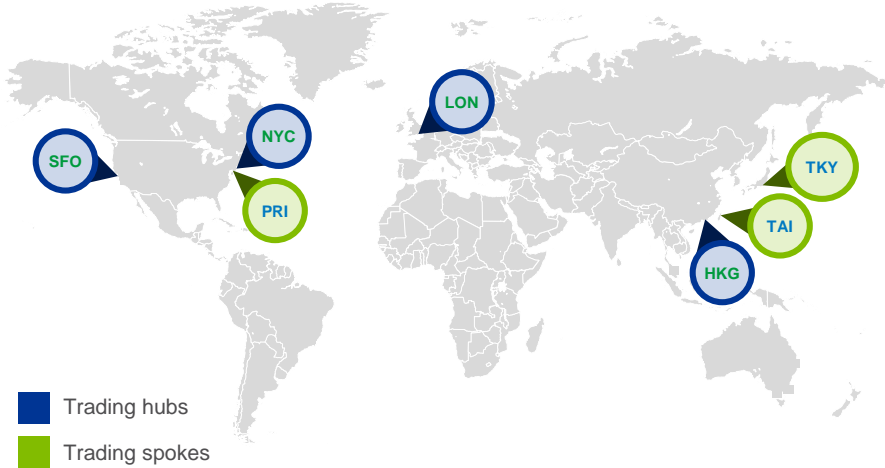
Efficient trading

Efficient trading

Over 50 equity traders across four trading hubs and three spokes

- Leverage traders' local market expertise
- Benefit from execution in appropriate time zone
- Common technology enables us to pass the book with embedded business continuity plan

BlackRock's global coverage



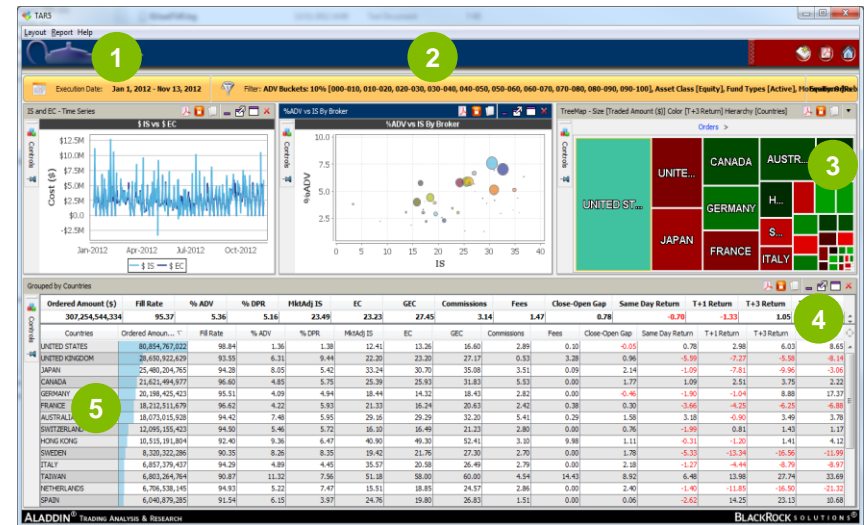
24 hour a day, 5.5 day per week coverage

Data as of 30 September 2016
Screenshots are for illustrative purposes only.

Proprietary applications are used to monitor expected trading costs and actual trading costs

1. Ability to specify date range
2. Custom filters to drill into specific trading activity
3. Data visualization provides intuitive execution insights
4. Extensive library of metrics and analytics for evaluating trading performance
5. Enable breakdown of TCA across order, execution, broker, or asset-level characteristics and dimensions

BlackRock's proprietary applications



Index investment management cycle

Performance & oversight

Performance and oversight of portfolios occurs through the following steps

- Daily Portfolio Management review
- Monthly IRC review with senior management
- Independent review from BlackRock's Risk and Quantitative Analysis Group

The following additional systematic checks occur for all portfolios and accounts

New account set-up

- ▶ As part of the account set-up process, the OnBoarding group identifies client guidelines / restrictions
- ▶ Any guidelines / restrictions are then coded onto various PM and Trading systems

Front-end compliance

- ▶ On a real time basis prior to executions, the front-end compliance systems checks for restrictions and violations
- ▶ Violating trades would be blocked from proceeding

Back-end compliance

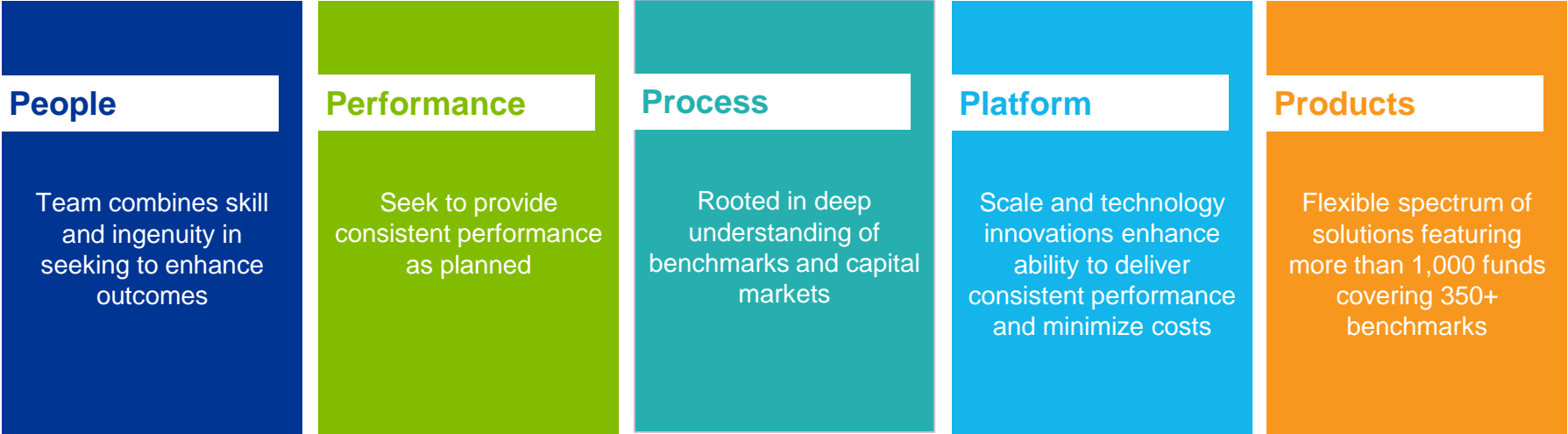
- ▶ Monitoring reports are generated daily as part of the "Green Package" reporting process
- ▶ Warnings and violations are distributed electronically to the relevant investment professions

Key takeaway

Our approach to Index: anything but passive

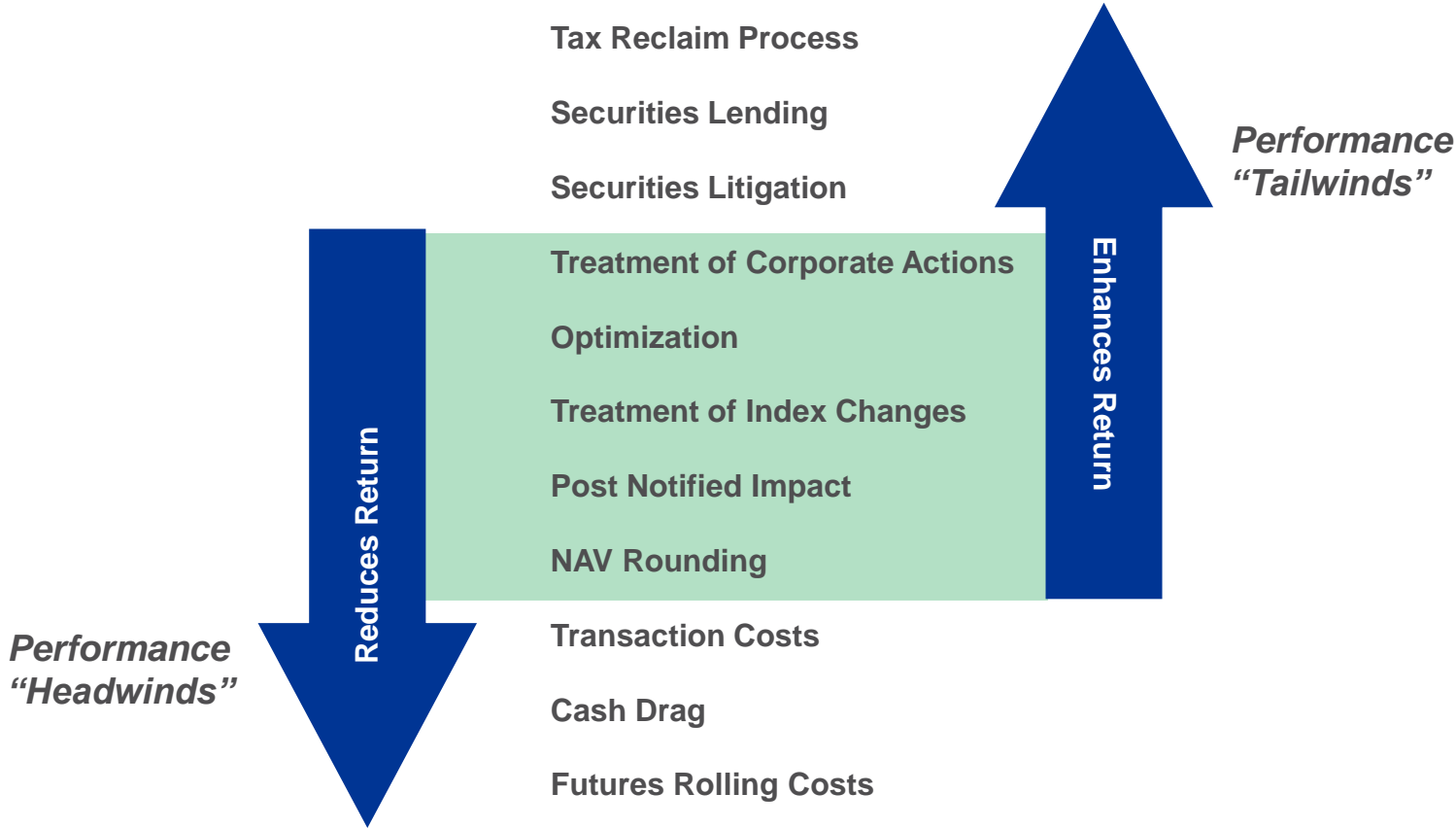
Investors today demand more efficient returns and innovative ways to use index products

BlackRock's Index approach is focused on:



Performance attribution

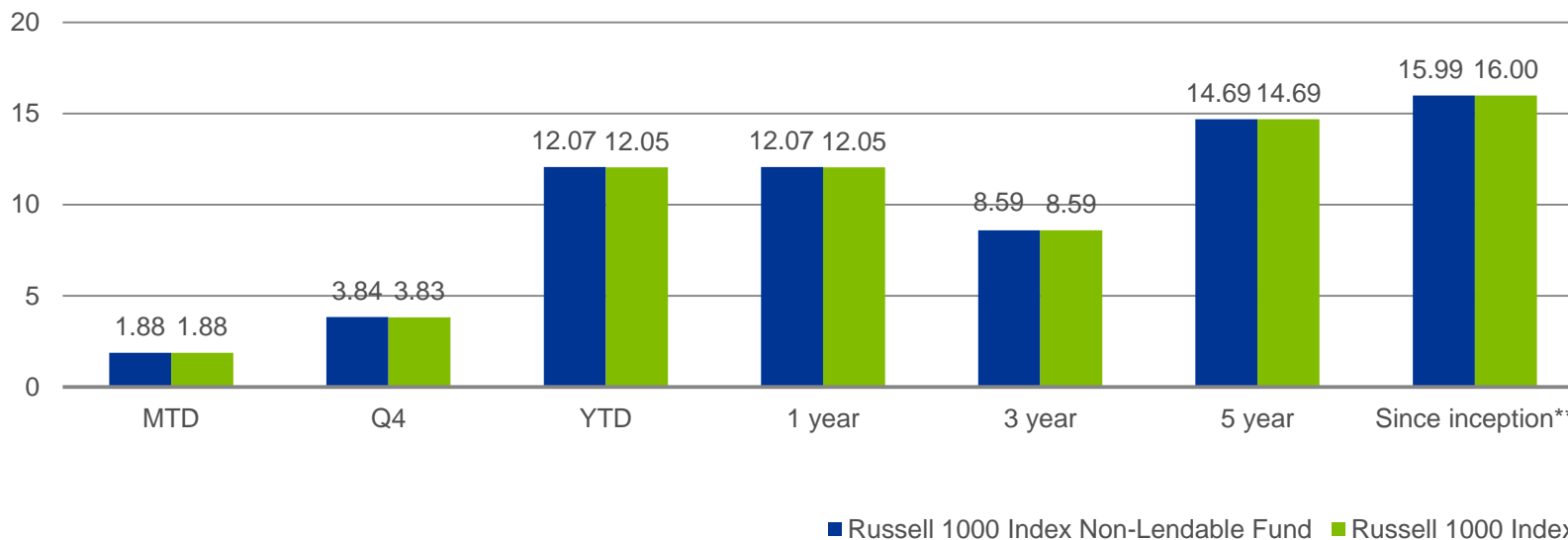
Major sources of tracking error: Global & domestic index funds



Russell 1000[®] Index Non-Lendable Fund Performance

As of 31 December 2016

Gross total return in USD (annualized* %)



	MTD %	Q4 %	YTD %	1-yr %	3-yr %	5-yr %	Since incept %
Tracking difference (Gross vs. Benchmark)	0.00	0.01	0.02	0.02	0.00	0.00	-0.01

* Period returns for less than a year are cumulative

** Fund inception date 23 January 2009

The Fund's net asset value does not include an accrual for the investment management fee but does include an accrual for fund level administrative costs and, if applicable, certain third party acquired fund fees and expenses. If the Fund's net asset value did include an accrual for the investment management fee, the Fund's returns would be lower. **Past performance is not necessarily an indicator of future performance.** Performance is for the Russell 1000[®] Index Non-Lendable Collective Trust Fund.

Russell 1000[®] Equity Index Non-Lendable Fund

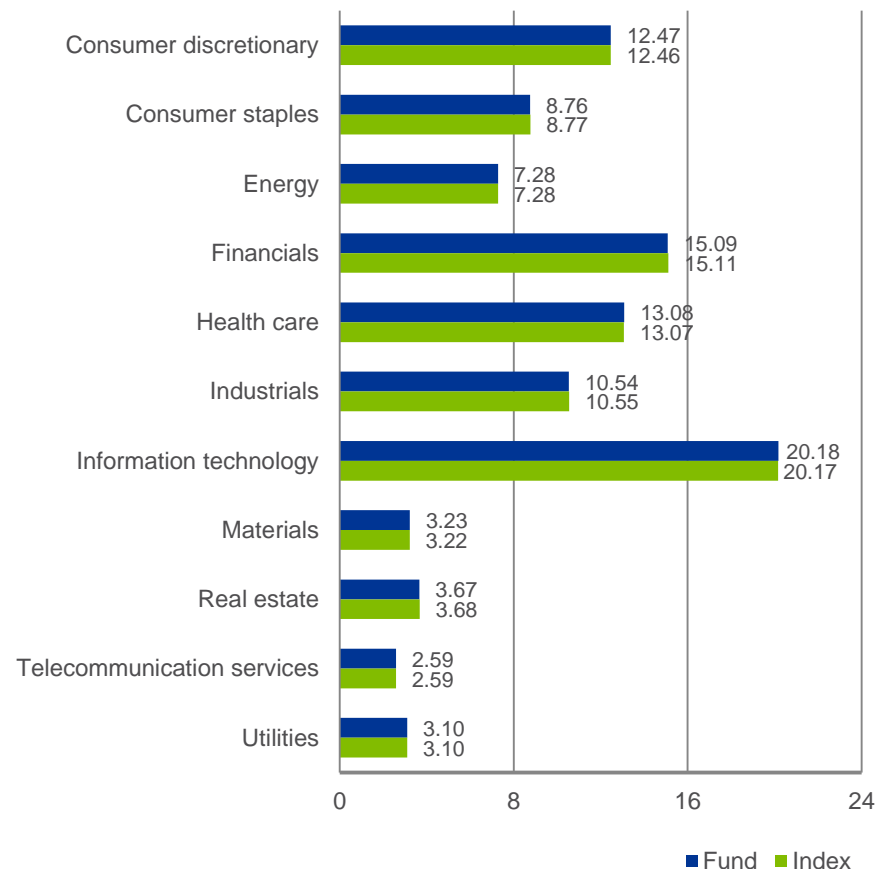
Characteristics

As of 31 December 2016

Characteristics	
Strategy	Russell 1000 [®] Index
Total fund assets	\$29.07B
Number of holdings	997

Top 10 holdings		
	Fund %	Index %
Apple Inc.	2.95	2.95
Microsoft Corporation	2.19	2.19
Exxon Mobil Corporation	1.75	1.75
Johnson & Johnson	1.47	1.47
JPMorgan Chase & Co.	1.46	1.46
Berkshire Hathaway Inc. Class B	1.43	1.43
Amazon.com, Inc.	1.36	1.35
General Electric Company	1.35	1.35
AT&T Inc.	1.22	1.22
Facebook, Inc. Class A	1.20	1.20

Sector diversification



Data is subject to change. Portions of the above characteristics are based on benchmark data as the portfolio fully replicates benchmark and is for analytical purposes only. Index data may differ to those published by the Index due to different classification criteria. Breakdowns may not sum to total due to rounding, exclusion of cash, STIF, and statistically immaterial factors. The above information is based on the Russell 1000 Equity Index Non-Lendable Collective Trust Fund's portfolio characteristics. Sources: BlackRock, FactSet

Platform offerings: Index strategies

Equity

US Equity Index Funds

S&P Indexes

- S&P 500
- S&P/Citigroup Value
- S&P/Citigroup Growth
- S&P 400 Mid Cap
- S&P 500 Dividend Aristocrats
- S&P 500 Equal Weighted

Dow Jones Indexes

- US Equity Market (DJ Total Stock Market)
- Extended Market (DJ Completion Total Sk Mkt)

Russell Indexes

- Russell 3000
- Russell 2500
- Russell 1000
- Russell 1000 Value
- Russell 1000 Growth
- Russell 2000
- Russell 2000 Value
- Russell 2000 Growth

MSCI Indexes

- MSCI US
- MSCI US IMI
- MSCI US Small Cap

Developed International Index Funds

- MSCI Canada Index
- MSCI EAFE ex-Japan
- MSCI EMU and EMU IMI
- MSCI EAFE Hedged
- MSCI Europe
- MSCI Pac Rim
- MSCI World
- MSCI World ex-US
- Russell Developed ex-US Large Cap

Developed International Index Funds (cont.)

MSCI EAFE Index

- | | | |
|-----------|-------------|-------------|
| Australia | Hong Kong | Norway |
| Austria | Ireland | Portugal |
| Belgium | Italy | Singapore |
| Denmark | Israel | Spain |
| Finland | Japan | Sweden |
| France | Netherlands | Switzerland |
| Germany | New Zealand | UK |

Integrated International Broad and Small Cap Index Strategies

- MSCI ACWI and ACWI IMI
- MSCI ACWI ex-US & ACWI ex US IMI
- MSCI Global Investable Market Indices
- MSCI EAFE Small Cap
- MSCI Canada Small Cap
- MSCI World Small Cap
- World ex-US Small Cap
- MSCI Emerging Markets Small Cap
- MSCI ACWI ex US Small Cap

Emerging Markets Index Funds

MSCI EM Index

- | | | |
|------------|-------------|--------------|
| Brazil | Hungary | Russia |
| Chile | India | South Africa |
| China | Indonesia | South Korea |
| Colombia | Malaysia | Taiwan |
| Czech Rep. | Peru | Thailand |
| Egypt | Philippines | Turkey |
| Greece | Poland | Qatar |
| UAE | | |

BlackRock Frontier Markets Fund (countries included)

- | | | |
|------------|------------|-----------|
| Argentina | Kazakhstan | Pakistan |
| Bahrain | Kenya | Romania |
| Bangladesh | Kuwait | Slovenia |
| Botswana | Lebanon | Sri Lanka |
| Bulgaria | Lithuania | Tunisia |
| Croatia | Mauritius | Vietnam |
| Estonia | Morocco | |
| Ghana | Nigeria | |
| Jordan | Oman | |

Frontier Markets ex-GCC Fund

Index Plus Strategies

- | | |
|--------------|-----------------------|
| S&P 500 | EM |
| Russell 1000 | World ex-US Small Cap |
| EAFE | ACWI ex-US |
| World ex-US | World ex-US IMI |

Non-Lending Funds

- | | |
|--------------------------------|-----------------------|
| S&P 100 | |
| S&P 500 | |
| S&P 400 | |
| Russell 1000, V, G | EM |
| Russell 2000 | EM IMI |
| Russell 2500 | EM Small Cap |
| Russell 3000 | ACWI |
| Russell Midcap | ACWI ex-US |
| EAFE | ACWI ex-US IMI |
| EAFE Small Cap | World |
| Canada | World ex-US |
| Canada Small Cap | World ex-US Small Cap |
| Russell Developed ex-US Lg Cap | |

Alternatives

US Commodity Funds

- S&P GSCI Total Return Indexes
- Bloomberg Commodity Index
- Commodity Smart Beta

Real Estate Investment Trust (REITs) and Infrastructure Indices

- DJ US Real Estate Securities Index (RESI)
- MSCI US REIT Index
- FTSE EPRA/NAREIT Developed ex-US Index
- FTSE EPRA/NAREIT Developed Index
- DJ Brookfield Global Infrastructure Developed REIT — Non-lending
- Global Real Estate — Non-lending

Smart Beta

- Russell Defensive Indices
- FTSE RAFI Indices
- FTSE EDHEC Efficient US
- MSCI Minimum Volatility Indices
- MSCI Diversified Multi-Factor Indices
- Equal and GDP-Weighted Indices
- MSCI USA Risk-Weighted Index
- MSCI USA Value Index
- MSCI USA Momentum Index

SRI Thematic

- US Large Cap Carbon Efficient
- Developed ex-Fossil Fuel
- MSCI Ex-Controversial Weapons
- MSCI AC Asia ex
- Japan/EM/Europe/World (Small Cap)
- ESG Screened
- MSCI World Minimum Volatility ESG

Custom Strategies available

As of 30 September 2016

Important Notes

The opinions expressed are as of January 2017 and may change as subsequent conditions vary. The information and opinions contained in this material are derived from proprietary and non-proprietary sources deemed by BlackRock, Inc. and/or its subsidiaries (together, "BlackRock") to be reliable, are not necessarily all inclusive and are not guaranteed as to accuracy. There is no guarantee that any forecasts made will come to pass. Any investments named within this material may not necessarily be held in any accounts managed by BlackRock. Reliance upon information in this material is at the sole discretion of the reader. Past performance is no guarantee of future results.

Past performance does not guarantee future results.

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Agenda

2 Sessions Available: June 13–14, 2017 | June 15–16, 2017

Meeting Date
01/25/17
Agenda Item
#10 a & b

Optional 

Tuesday, June 13, 2017

Morning Sessions

7:00 AM - 7:30 AM	<p>Breakfast & Welcome Packet Pickup</p> <p>Join us for breakfast and stop by the Artisan Partners Registration Desk (located outside of the Imperial Ballroom on the 7th floor) to receive your welcome packet, which will include your name badge and event tickets. Event staff will also be available to answer any questions you may have.</p> <p>Location: The Pfister Hotel—Imperial Ballroom</p>
7:30 AM - 11:10 AM	<p>Investment Team Presentations</p> <p>Join the leaders of Artisan Partners' autonomous investment teams as they share their unique perspectives on different facets of the global investment landscape.</p> <p>Location: The Pfister Hotel—Imperial Ballroom</p> <p>Speakers: <u>James Hamel</u>, <u>James Kieffer</u>, <u>Bryan Krug</u>, <u>Christopher Smith</u></p> <p>Hosts: <u>Eric Colson</u></p>

Afternoon Sessions - Track 1

11:15 AM - 4:15 PM	<p>Industry & Investment Topics</p> <p>Join us for afternoon sessions focused on relevant industry and investment topics. Attendees will have the opportunity to engage with Artisan Partners' executive management team as well as senior members of the investment teams. A more detailed agenda will be provided in the coming months. Lunch will be served beginning at 11:15 a.m.</p> <p>Location: The Pfister Hotel—Imperial Ballroom</p>
2:30 PM - 4:00 PM	<p>Artisan Partners Office Tours</p> <p>Meet in the Rouge Room in the lobby of The Pfister Hotel to walk to Artisan Partners' office.</p> <p>Location: Artisan Partners Office—875 E. Wisconsin Avenue, Suite 800</p>

Afternoon Sessions - Track 2

11:15 AM - 7:00 PM	<p>U.S. Open Championship®</p> <p>Be our guest at the U.S. Open Championship hosted at Erin Hills Golf Course—one of the top public access courses in the U.S.—located 37 miles from our downtown Milwaukee office. Meet in the Rouge Room in the lobby of The Pfister Hotel for transportation to Erin Hills. Lunch will be served in the hospitality tent beginning at noon.</p> <p>Location: Erin Hills Golf Course—Artisan Partners' Hospitality Tent</p>
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Evening Events

5:00 PM - 10:00 PM **Dinner at The Harley-Davidson Museum®**

Enjoy a casual dinner and drinks at MOTOR® Bar & Restaurant, take a tour the Harley-Davidson Museum®, and experience the rumble of a Harley through the Harley-Davidson® JUMPSTART™ Rider Experience which combines a Harley-Davidson motorcycle and a specially-designed, stationary support stand.

Location: MOTOR® a restaurant and bar at the Harley-Davidson Museum®

Wednesday, June 14, 2017

Morning Sessions

7:00 AM - 7:30 AM **Breakfast & Welcome Packet Pickup**

Join us for breakfast and stop by the Artisan Partners Registration Desk (located outside of the Grand Ballroom East on the 7th floor) to receive your welcome packet, which will include your name badge and event tickets. Event staff will also be available to answer any questions you may have.

Location: The Pfister Hotel—Grand Ballroom East

7:30 AM - 11:10 AM **Investment Team Presentations**

Join the leaders of Artisan Partners' autonomous investment teams as they share their unique perspectives on different facets of the global investment landscape. Location: The Pfister Hotel—Grand Ballroom East

Speakers: [Mark Yockey](#),
[Andrew Euretig](#),
[David Samra](#),
[Maria Negrete-Gruson](#),
[Lewis Kaufman](#)

Hosts: [Eric Colson](#)

Afternoon Sessions - Track 1

11:15 AM - 4:15 PM **Industry & Investment Topics**

Join us for afternoon sessions focused on relevant industry and investment topics. Attendees will have the opportunity to engage with Artisan Partners' executive management team as well as senior members of the investment teams. A more detailed agenda will be provided in the coming months. Lunch will be served beginning at 11:15 a.m.

Location: The Pfister Hotel—Grand Ballroom East

2:30 PM - 4:00 PM **Artisan Partners Office Tours**

Meet in the Rouge Room in the lobby of The Pfister Hotel to walk to Artisan Partners' office.

Location: Artisan Partners Office—875 E. Wisconsin Avenue, Suite 800

Afternoon Sessions - Track 2

- 11:15 AM - 7:00 PM **U.S. Open Championship®**
 Be our guest at the U.S. Open Championship hosted at Erin Hills Golf Course—one of the top public access courses in the U.S.—located 37 miles from our downtown Milwaukee office. Meet in the Rouge Room in the lobby of The Pfister Hotel for transportation to Erin Hills. Lunch will be served in the hospitality tent beginning at noon.
 Location: Erin Hills Golf Course—Artisan Partners' Hospitality Tent
- 12:30 PM - 1:30 PM **Erin Hills History**
 Hear about the history of Erin Hills Golf Course and how it became the host of the 117th U.S. Open Championship®.
 Location: Erin Hills Golf Course—Artisan Partners' Hospitality Tent
Speakers: [Andrew Ziegler](#)

Thursday, June 15, 2017

Morning Sessions

- 7:00 AM - 7:30 AM **Breakfast & Welcome Packet Pickup**
 Join us for breakfast and stop by the Artisan Partners Registration Desk (located outside of the Imperial Ballroom on the 7th floor) to receive your welcome packet, which will include your name badge and event tickets. Event staff will also be available to answer any questions you may have.
 Location: The Pfister Hotel—Imperial Ballroom
- 7:30 AM - 11:10 AM **Investment Team Presentations**
 Join the leaders of Artisan Partners' autonomous investment teams as they share their unique perspectives on different facets of the global investment landscape.
 Location: The Pfister Hotel—Imperial Ballroom
Speakers: [Mark Yockey](#),
[Andrew Euretig](#),
[Daniel O'Keefe](#),
[Maria Negrete-Gruson](#),
[Lewis Kaufman](#)
Hosts: [Eric Colson](#)

Afternoon Sessions - Track 1

- 11:15 AM - 4:15 PM **Industry & Investment Topics**
 Join us for afternoon sessions focused on relevant industry and investment topics. Attendees will have the opportunity to engage with Artisan Partners' executive management team as well as senior members of the investment teams. A more detailed agenda will be provided in the coming months. Lunch will be served beginning at 11:15 a.m.
 Location: The Pfister Hotel—Imperial Ballroom
- 2:30 PM - 4:00 PM **Artisan Partners Office Tours**
 Meet in the Rouge Room in the lobby of The Pfister Hotel to walk to Artisan Partners' office.
 Location: Artisan Partners Office—875 E. Wisconsin Avenue, Suite 800

Afternoon Sessions - Track 2

- 11:15 AM - 7:00 PM **U.S. Open Championship®**
- Be our guest at the U.S. Open Championship hosted at Erin Hills Golf Course—one of the top public access courses in the U.S.—located 37 miles from our downtown Milwaukee office. Meet in the Rouge Room in the lobby of The Pfister Hotel for transportation to Erin Hills. Lunch will be served in the hospitality tent beginning at noon.
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- Hear about the history of Erin Hills Golf Course and how it became the host of the 117th U.S. Open Championship®.
Location: Erin Hills Golf Course—Artisan Partners' Hospitality Tent
- Speakers:** [Andrew Ziegler](#)

Evening Events

- 5:00 PM - 10:00 PM **Dinner at Miller Park**
- Join us for a proper Wisconsin tailgate experience at Miller Park, home of the Milwaukee Brewers baseball team. Enjoy a casual dinner and drinks at the Gehl Club overlooking the field, take a behind-the-scenes tour of the stadium, and meet the Famous Racing Sausages™.
Location: Gehl Club at Miller Park

Friday, June 16, 2017

Morning Sessions

- 7:00 AM - 7:30 AM **Breakfast & Welcome Packet Pickup**
- Join us for breakfast and stop by the Artisan Partners Registration Desk (located outside of the Grand Ballroom East on the 7th floor) to receive your welcome packet, which will include your name badge and event tickets. Event staff will also be available to answer any questions you may have.
Location: The Pfister Hotel—Grand Ballroom East
- 7:30 AM - 11:10 AM **Investment Team Presentations**
- Join the leaders of Artisan Partners' autonomous investment teams as they share their unique perspectives on different facets of the global investment landscape. Location: The Pfister Hotel—Grand Ballroom East
- Speakers:** [James Hamel](#),
[James Kieffer](#),
[Bryan Krug](#),
[Christopher Smith](#)
- Hosts:** [Eric Colson](#)

Afternoon Sessions - Track 1

- 11:15 AM - 4:15 PM **Industry & Investment Topics**

Join us for afternoon sessions focused on relevant industry and investment topics. Attendees will have the opportunity to engage with Artisan Partners' executive management team as well as senior members of the investment teams. A more detailed agenda will be provided in the coming months. Lunch will be served beginning at 11:15 a.m.

Location: The Pfister Hotel—Grand Ballroom East

2:30 PM - 4:00 PM

Artisan Partners Office Tours

Meet in the Rouge Room in the lobby of The Pfister Hotel to walk to Artisan Partners' office.

Location: Artisan Partners Office—875 E. Wisconsin Avenue, Suite 800

Afternoon Sessions - Track 2

11:15 AM - 7:00 PM

U.S. Open Championship®

Be our guest at the U.S. Open Championship hosted at Erin Hills Golf Course—one of the top public access courses in the U.S.—located 37 miles from our downtown Milwaukee office. Meet in the Rouge Room in the lobby of The Pfister Hotel for transportation to Erin Hills. Lunch will be served in the hospitality tent beginning at noon.

Location: Erin Hills Golf Course—Artisan Partners' Hospitality Tent

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FORUM2017

March 4 - 7, 2017 | San Antonio, Texas

Bridging the Gap. Together.



Meeting Date

01/25/17

Agenda Item

#10 c

Saturday, March 04, 2017

Teen and Children's Dinner & Activities

6:00 PM - 9:30 PM

Commonfund Forum provides dinner and supervision for children of registrants attending the Saturday banquet and keynote address. Children from pre-school age to teens are welcome. We'll have age appropriate activities and movies for all.

Cocktail Reception

6:30 PM - 7:30 PM

Opening cocktail reception

Welcome Dinner and Keynote Address

7:30 PM - 9:30 PM

Dr. Mohamed A. El-Erian presents: The Only Game in Town

World renowned economist Dr. Mohamed A. El-Erian will explain why he believes our current economic path is coming to an end and what it means for investors. The signposts are all around us: sluggish growth, rising inequality, stubbornly high pockets of unemployment, and jittery financial markets, to name a few. Soon we will reach a fork in the road: One path leads to renewed growth, prosperity, and financial stability, the other to recession and market disorder.

In *The Only Game in Town*, Mr. El-Erian casts his gaze toward the future of the global economy and markets, outlining the choices we face both individually and collectively in an era of economic uncertainty and financial insecurity. Beginning with their response to the 2008 global crisis, El-Erian explains how and why our central banks became the critical policy actors—and, most important, why they cannot continue in this role alone. They saved the financial system from collapse in 2008 and a multiyear economic depression, but lack the tools to enable a return to high inclusive growth and durable financial stability. The time has come for a policy handoff, from a prolonged period of monetary policy experimentation to a strategy that better targets what ails economies and distorts the financial sector—before we stumble into another crisis. Using a mix of insights from economics, finance, and behavioral science, El-Erian gives us the tools we need to properly understand this turning point, prepare for it, and come out of it stronger.

Sunday, March 05, 2017

Breakfast

7:15 AM - 8:15 AM

Networking breakfast

Join your fellow attendees for an informal breakfast buffet and networking discussion.

General Session | The Global Economy: Living in a Low Growth World

8:30 AM - 9:45 AM

The general rule of thumb for institutional investors is to generate a minimum 8 percent annual investment return (or 5 percent real return) in order to fund spending/liability streams while still maintaining long-term purchasing power or intergenerational equity. But, in today's environment of low global growth and historically low interest rates is this return assumption still realistic? Our opening general session will bring together leading economists and experts to assess the outlook for global economies, market expectations and, most important, define the operating environment in which investors will have to achieve their investment goals over the next few years.

Moderator: Zanny Minton Beddoes, Editor-in-Chief, the Economist

Panelists: Michael Strauss, Chief Economist, Commonfund; Robert J. Gordon, economist and author; Robert Kahn, Senior Fellow for International Economics, Council on Foreign Relations; Graciela Laura Kaminsky, Professor of Economics, George Washington University

General Session | U.S. Investing: Finding Returns in Today's Markets

10:00 AM - 11:00 AM

While secular trends impact broad and long-term portfolio positioning, it is often cyclical and tactical insights that can contribute substantially to performance. From taking advantage of valuation inequities to niche strategies, the astute investor can, within their risk tolerances, generate outperformance. In this session, managers from some of the industry's top institutional investment firms provide their insights to where near and intermediate term opportunities may lie.

Moderator: Mark Anson, Commonfund CIO

Panelists: John L. Bellows, Portfolio Manager/Research Analyst, Western Asset Management Co.; Ben Funnell, Portfolio Manager, MAN GLG

General Session | Long-Term Trends for Long-Term Investors

11:15 AM - 12:15 PM

Nonprofit institutions have the distinct advantage of having the longest time horizon of any investors – often perpetuity. This affords an opportunity to consider investments based on secular trends that may take years to play out but can also prove to be very profitable. In this session, our panelists share their expert insights into some of the most compelling long-term trends they see developing in the global capital markets, both public and private.

Moderator: Zanny Minton Beddoes, Editor, the Economist

Panelists: Anja Manuel, EM Expert, author, former diplomat, principal at RiceHadleyGates LLC; Dr. Vikram Mansharamani, investor, author and Yale Lecturer; Dr. Miriam Schmitter, Managing Director, Commonfund Capital

Featured Luncheon Speaker | Dr. Laurie Santos: Monkeynomics

12:30 PM - 2:00 PM

Psychologist Dr. Laurie Santos is an expert on human cognition, its origins, and the evolutionary biases that influence our all-too imperfect life choices.

Dr. Santos' entertaining and compelling "monkeynomics" experiments demonstrate that primates — our closest animal relatives — have much to teach us about our own economic decision-making. Both monkeys and humans know a bargain when they see one, tend to spend rather than save, and allow context and risk aversion influence choice — often irrationally.

From her research, Santos speaks to how we are biologically programmed to be motivated by sex, to be deeply influenced by other people — and to repeat our mistakes. And while Santos often uses subjects from the animal kingdom to help explain our sometimes-illogical behaviors, she also provides advice on how to engage our uniquely human faculties to counteract evolution, choose more wisely, and live happier lives.

General Session | Investing in Energy Transitions

2:30 PM - 3:30 PM

Notwithstanding the significant fall in oil prices we have seen over the past year, there is little doubt that global demand for energy and natural resources will continue to grow over the long-term. However, it is also clear that the sources to meet that demand are changing, in some cases rapidly. The key for investors is finding the opportunities that present the attractive combination of low cost, scalability and market adoption. At the same time, sustainability is a key concern when considering investments in natural resources broadly, and the most successful investors in the years to come will incorporate sustainable approaches. Join this session for a better understanding of the macro and micro factors impacting energy and natural resources investing in the years ahead.

Moderator: Adi Ignatius, editor-in-chief, Harvard Business Review

Panelists: Ethan Levine, Director, Commonfund Capital; Forest L. Reinhardt, John D. Black Professor at Harvard Business School; Jackie Forrest, ARC Financial; David Baldwin, Co-President, SCF Partners

Special Session: Commonfund Capital Performance Review

4:00 PM - 5:00 PM

This session, primarily for existing investors in the programs of Commonfund Capital, will provide a review of recent fund performance and attribution across all our active investment programs. We will review benchmark data, traditional measures such as IRR and multiples – and will discuss how best to use Public Market Equivalents (PME) to judge long-term performance in the context of your overall portfolio.

Presented by: Senior members of the Commonfund Capital team

Dinner at Your Leisure

6:30 PM - 9:00 PM

For Sunday evening at Commonfund Forum 2017 attendees are welcome to relax and enjoy the restaurant options at the JW Marriott San Antonio Hill Country as well as the range of local restaurants in San Antonio.

On-site restaurant options include:

- Cibolo Moon – Texas-style cuisine infused with Mexican influences
- 18 Oaks – Fine dining at the Club House, featuring prime cuts and traditional steak-house fare
- High Velocity Sports Bar – Regional food and drink specialties with high-tech video walls playing your favorite sporting event

Monday, March 06, 2017

Breakfast**7:00 AM - 8:00 AM****Monday Networking Breakfast**

Join your fellow attendees for an informal breakfast buffet and networking discussion.

Special Breakfast Session: Insights on Open Private Capital Investment Programs**7:00 AM - 8:00 AM**

As institutional investors seek growth in an uncertain and potentially volatile global equity market, the importance of allocations to strategies in private equity, venture capital and natural resources is magnified. This in-depth session by the investment team of Commonfund Capital will provide details on the new private capital programs currently being raised (available for existing and new investors) and distinct point of view that will guide each of these programs.

Presented by Commonfund Capital team members: Peter Burns, President and CEO, Commonfund Capital; Mark Hoeing, Managing Director; Kent Scott, Managing Director; Miriam Schmitter, Managing Director; Cari Lodge, Managing Director; Ralph Money, Managing Director

General Session | CIO Roundtable: Is the Endowment Model a Crowded Trade?**8:15 AM - 9:15 AM**

Certain core tenets of the endowment model have been under stress for the last several years. Investors are questioning whether significant allocations to hedge funds are still appropriate, whether active management can consistently outperform passive approaches and whether broad diversification is still the only investing "free lunch". Challenges to where growth will come from in portfolios as well as the role of volatility damping strategies remain paramount as well. Our distinguished panel of CIOs will share their perspectives on portfolio management, the efficacy of the endowment model going forward and, most importantly, how long term investors can apply core principles to the needs of their institutions and beneficiaries.

Moderator: Mark Anson, Chief Investment Officer, Commonfund

Panelists: Mark A. Schmid, Chief Investment Officer, University of Chicago; Jennifer Paquette, former Chief Investment Officer, Colorado PERA

Breakout Sessions I**9:30 AM - 10:15 AM**

Late Cycle Real Estate Opportunities

In the extreme low rate environment of the past few years commercial real estate, both public and private, has performed exceptionally well. As we enter the later stage of the current economic expansion in the U.S. investors are wondering what to expect from core, value added and opportunistic investments going forward? Our panel of experts will assess the state of U.S. and global real estate today and looking forward, with a particular focus on where invested capital is most likely to be rewarded over the medium and long term.

Moderator: Paul Von Steenburg, Managing Director, Commonfund

Panelists: John Carrafiell, Co-Founder, Green Oak Real Estate; Eugene A. Gorab, President & CEO, Greenfield Partners, LLC; Joey Lansing, Principal, Senior Portfolio Manager, Harrison Street Real Estate

Focus on Fundraising

For institutions that seek to expand their endowments, gifts from donors have long been recognized as a key source of endowment growth. In the current environment of low economic growth and muted investment returns, a strategic approach to development becomes even more critical. In this session, our experts will discuss trends and best practices in institutional fund-raising, focusing on the power of a close integration of the investment, financial management and fund-raising functions.

Moderator: Bill Jarvis, Executive Director, Commonfund Institute

Panelists: Mark Dollhopf, President, Dollhopf Associates, LLC; John Lippincott, Senior Consultant and Principal, Marts & Lundy

Making Working Capital Work Again

Structural and operational changes are unfolding for money market funds and cash investments with recent SEC reforms being the last component in a seven year process. Endowments and foundations that manage operating cash have had an extremely difficult time earning returns from their operating assets. Money market and traditional short-dated fixed income instruments will likely continue to be challenged in the coming years, with additional pressure stemming from a restart of the process to normalize interest rates by the Federal Reserve. Our panel will review the state of treasury operations among nonprofit institutions and offer strategic ideas to: (1) oversee new risks created by reforms, (2) manage operating assets that are targeted to their liquidity needs, and (3) incorporate portfolio concepts that target risk adjusted returns.

Moderator: John Speare

Panelists: Michael Strauss, Chief Economist, Commonfund; Dana Moreau, Chief Risk Officer, Commonfund; Scott D. Pavlak, Head of Short Duration Fixed Income, Logan Circle Partners

Featured Speaker | Charles Best, founder, donorschoose.org

10:30 AM - 11:30 AM

No More Gatekeepers

Charles shares how, as a 24-year-old teacher at a Bronx high school, he created a model of giving hailed as "the future of philanthropy" by The New York Times. His story covers the high school wrestling coach who inspired him to become a teacher, the most humiliating mistake he ever made getting DonorsChoose.org off the ground, and the most poignant moments, such as the projects teachers created to recover from the 9/11 attacks on the World Trade Center. Today, teachers at half of all the public schools in America have created projects on DonorsChoose.org, and more than a million people have given \$200 million.

Charles connects this story to the rise of Kickstarter and Etsy, sites that—like DonorsChoose.org—enable anyone to go public with their originality. These sites signal a profound change in how long you have to wait, and who you have to know, and how lucky you have to be, to bring a good idea to life. They represent a new kind of marketplace where gatekeepers no longer stand in your way.

Texas Hill Country Picnic Lunch**12:00 PM - 1:00 PM**

Enjoy lunch on the JW Marriott event lawn.

General Session | The Importance of Changing Market Structures**1:15 PM - 2:15 PM**

In the years since the financial crisis the investment industry and the global capital markets have undergone a tremendous period of change, resulting in a very different operating environment. These changes introduce a series of opportunities and risks that fiduciaries and their investment providers must not only understand, but also prepare for. Our experts will explain the key changes and risks, why they matter and how to address them through investment policy design and ongoing management of portfolios.

Moderator: Catherine Keating, President and CEO, Commonfund

Panelists: Larry Leibowitz, former CEO, Incapture Technologies and former COO NYSE Euronext; Chris Concannon, President and COO, CBOE Holdings, Inc.; Lori Heinel, Deputy Global CIO, State Street Global Advisors

General Session | Private Capital Annual Meeting: Frameworks for Long-Term Success**2:45 PM - 5:00 PM**

As institutional investors seek to achieve long-term objectives in an environment of lowered expectations, the importance of allocations to illiquid strategies in private equity, venture capital and natural resources is magnified. This in-depth session by the investment team of Commonfund Capital will present their outlook for these strategies globally, the themes that we see in the market and the opportunities for investment. We'll also be joined by managers who will provide their perspective and examples of current investments.

Host: Peter Burns, President, Commonfund Capital

Presenters: Senior Members of the Commonfund Capital Team. This session will also feature panel discussions with guest managers.

Children & Teen Dinner and Activities**6:00 PM - 9:30 PM**

Commonfund Forum provides dinner and supervision for children of registrants attending the Saturday banquet and keynote address. Children from pre-school age to teens are welcome. We'll have age appropriate activities and movies for all.

Dinner and Entertainment

7:30 PM - 9:30 PM

Details to be announced.

Tuesday, March 07, 2017

Featured Breakfast Speaker: Peter Zeihan, geopolitical strategist and author**7:15 AM - 8:45 AM****"The Accidental Super Power"**

Near the end of the Second World War, the Americans made a bold strategic gambit that rewired the international system. Empires were abolished and replaced by a global arrangement enforced by the U.S. Navy. With the oceans safe for the first time in history, markets and resources were made available for everyone. Enemies became partners. We think of this system as normal – it is not. We live in an artificial world on borrowed time.

International strategist Peter Zeihan will examine how the hard rules of geography are eroding the American commitment to free trade; how much of the planet is aging into a mass retirement that will enervate markets and capital supplies; and how, against all odds, it is the ever-ravenous American economy — alone among the developed nations — that is rapidly approaching energy independence. Combined, these factors are doing nothing less than overturning the global system and ushering in a new (dis)order. Mr. Zeihan will explain how for most, this is a disaster in waiting, but not for America and, why geography will matter more than ever in a de-globalizing world.

Breakout Sessions II**9:00 AM - 10:00 AM****Sourcing Uncorrelated Alpha with Niche Strategies**

Alpha is the holy grail of active investing –immensely powerful but also elusive. However, it's not sufficient to just find managers that can produce alpha, in order to gain all the benefits it must also be uncorrelated to the other sources of alpha in your investment portfolio. This presents a significant challenge for institutional investors who must pick through thousands of hedge funds to find the few that can deliver the goods. In this session, managers with niche strategies will discuss how their unique processes have the potential to produce uncorrelated alpha for long term investors.

Moderator: David Scarozza, Head of Equities, Commonfund

Panelists: Emidio Sciulli, Partner and Portfolio manager, Man AHL Group; Pooja Malik, Partner, Nipun Capital, L.P.; Paul Britton, founder, Capstone Investment Advisors

Big Data: 5 Key Insights from the Commonfund Benchmark Studies

How can you move the drivers of your institution's investment decision-making process from opinion to fact? Since the early 2000s, Commonfund Institute's annual research publications – the Benchmarks Studies, the NACUBO-Commonfund Study of Endowments, and the Council on Foundations-Commonfund Study of Foundations – have been the acknowledged authority on the investment practices of U.S. educational institutions, private and community foundations, operating charities and healthcare organizations. This trove of objective, comprehensive information reveals the state of current practice and shows what has worked and what has not for institutions such as your own. Our presenters will share with you examples of how you can use the Institute's work to guide your own organization's decisions on investment and governance practice.

Presentation by Bill Jarvis, Executive Director, Commonfund Institute and Keith Luke, President, Commonfund Securities

General Session | Private Equity – The “Ultimate Active Management” Investment Strategy

10:15 AM - 11:15 AM

Leading practitioners will discuss private equity today, the ultimate active management investment strategy. Through board leadership, strategic guidance and operating influence, today's private equity firms can transform an operating company with the goal of increasing revenue, profits, and shareholder value. Given low expectations for public markets going forward, the opportunities presented by private equity may prove to be a critical contributor to investment returns in the years ahead. Our experts will provide their perspective on everything from current valuations to the most compelling opportunities they see going forward.

Moderator: Peter Burns, President & CEO, Commonfund Capital

Panelists: Gary Wilson, Executive Chairman, Endless, LLP; Cari Lodge, Managing Director, Commonfund

Breakout Sessions III

11:30 AM - 12:15 PM

Evolving Challenges in Nonprofit Governance

Nonprofit governance, once a relatively static discipline has become a far more dynamic challenge over the years, driven by a more aggressive legislative and regulatory environment, increased transparency and greater activism among a broad range of stakeholders. In this session, our experts will discuss the new role of the board being defined by these challenges and offer prescriptive advice from his experience with higher education, healthcare and other organizations in the nonprofit sector.

Moderator: Sharad Samy, Commonfund General Counsel

Panelists: Thomas K. Hyatt, Partner, Dentons US LLP; Paul Mourning, Partner, Cadwalader

Cheaper, Faster, Better – New Portfolio Construction Tools and Techniques

The investing world is always evolving and to achieve success as investors we must evolve along with it. Our research and experience has identified important new approaches to how we can build portfolios designed to better isolate portfolio risk, identify uncorrelated sources of return more effectively and, potentially, lower costs. In this session we will share some of the proprietary tools and techniques we are putting in place that are designed to produce greater investment persistence and repeatable positive performance for investors.

Presented by Kris Kwait, Managing Director, Head of Investments and John Delano, Managing Director, Commonfund

Investment Implementation Models: To Each His/Her Own

In today’s complex investment environment the proliferation of global asset classes, strategies and providers presents a significant challenge to boards and investment committees charged with the fiduciary oversight of endowments. Add in the difficulty in attracting and retaining internal investment talent and the pressures of keeping up with peers and it’s no wonder that many institutions struggle to find an investment governance structure that really works well for them. In this session, investors from three different institutions will share the solution that they have employed, the factors that led to their decision and the pitfalls to avoid along the way.

Moderator: Tim Yates, Managing Director, Head of Strategic Solutions, Commonfund

Panelists: William J. Long, Board Chair, Satellite Healthcare; John R. Luthi, Director of Investments, Bucknell University; Maxey Roberts, Managing Director, University of South Alabama Foundation

Closing Featured Luncheon Speaker: Gordon Brown, former Prime Minister of the United Kingdom

12:30 PM - 2:00 PM

Is Brexit the Beginning of the End for the European Union?

Gordon Brown, former Prime Minister of Great Britain and Northern Ireland will discuss the implications of Brexit, for the United Kingdom, the European Union and the rest of the world. He will explore how and why the referendum happened and how political leaders and pollsters miscalculated and got it so wrong. Looking forward, is the world’s fifth-largest economy turning its back on the globe’s largest trading block, Europe? Many fear it may prove to be the destabilizing domino that knocks other, less robust, nations like Greece, Italy, Spain and possibly even France from the European Union. Importantly, its impact will also be felt across the capital markets for years to come, affecting economies, companies and investment portfolios. Mr. Brown will share his insights to help us better understand what to expect and how to prepare for it.

The Pension Bridge Annual

Four Seasons Hotel, San Francisco



Meeting Date
01/25/17
Agenda Item
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April 18th & 19th, 2017

www.pensionbridge.com



The Pension Bridge Annual Conference provides the highest level of education and networking to the institutional investment community. A mix of Public Funds, Corporate Funds, Foundations, Endowments, Union Funds, Taft-Hartleys, Family Offices, Sovereign Wealth Funds, Consultants and Investment Managers will come together for this exclusive event.

The Pension Bridge Annual provides the industry's only controlled attendance structured event. This helps The Pension Bridge to maintain the best conference ratio in the industry. **There will be over 200 Pension Fund Representatives and Non-Discretionary Consultants in attendance. We have allowed for only 100 Manager Firms.** This better than 2:1 ratio, combined with participation from the most influential industry figures, creates a more enjoyable environment for all.

Learn from the experts about the most important issues, challenges, trends, opportunities and strategies that will shape our industry for today and the future:

- The Canadian Model – What U.S. Structural Changes are Necessary for Long-Term Fiscal Sustainability?
- Macroeconomic View of the Economy
- How to Increase Returns in a Low Return Environment
- Understanding Risk Parity and LDI Asset Allocation Models – which one will be Most Effective?
- Best Practices for Constructing a Liability Hedging Portfolio
- What should Boards Consider when Adopting a Risk Culture?
- What are the Top Pension Risks to be Most Wary of?
- Key Considerations for a Risk Allocation Framework Approach
- Executive Director's/CEO's View on the Current and Future State of the Industry
- Smart Beta Strategies – Proceed with Caution
- The Benefits and Criticisms of Multi-Asset Strategies
- The Changing Landscape of Fixed Income and the Shift into Next Generation Strategies
- In-Depth Analysis of Emerging Markets
- As a Plan Sponsor, Should You Consider Implementing a Currency Hedging Program?
- Recent Developments and Approaches to ESG
- Most Attractive Sectors, Strategies and Geographies within Opportunistic/Special Situations
- A Close-Up Look at the Hedge Fund Industry – Current and Future Trends
- How should a Credit Portfolio Should be Structured?
- Best Approach to Commodities with the Current Deflationary Cycle
- Best Opportunities in Energy and Infrastructure
- Is a Real Estate Correction on the Horizon? Strategies with the Biggest Risk/Reward
- How to Protect your Private Equity Portfolio and Avoid Getting Involved in Expensive Deals
- Perspectives from Influential Pension Plan CIOs
- Finding the Best Non-Correlated Investments to Prevent Portfolio Drawdowns
- A Glimpse of what our Industry will look like in the Future
- Strategies that will Outperform in the Next Few Years



We remain in a low growth, low return environment with unfavorable demographics. The Pension Bridge Annual will uncover various structural transformations and investment ideas that will be beneficial for long-term fiscal sustainability.

In addition to the listed themes above, we will be covering many more challenging issues that are crucial to the investment decision making process during these uncertain economic times. We will learn from the best about how to adapt in our industry which is always evolving and transforming.

The Pension Bridge Annual has two goals in mind. First is to provide the **highest level of education** with the top speaker faculty. This highly regarded group will bring forth influential insights and concepts. The second goal is to help **build relationships** between the pension plans, consultants and investment managers. We have provided the best possible environment for this event which is designed to be conducive for networking. We will cap off the event with a fun and enjoyable networking outing necessary for maintaining relationships and connecting with your peers and prospective business contacts.

We look forward to a strong event and a very productive one from both an educational and relationship perspective. We have structured this conference in a manner that will be most productive and beneficial for you. We hope that you will join us to be amongst your industry peers to learn about the most up-to-date insights, investment strategies and trends.

Tuesday, April 18th

7:00 AM – Breakfast

Sponsored By:



8:05 AM – Opening Remarks

8:15 AM – Keynote Speaker - Best Practices in Pension Fund Management: The Canadian Model

The industry is dealing with a low return environment along with rising longevity and unfavorable demographics. With many asset classes fully priced in this low growth environment, investors have entered into a world of complacency. Adaptation and structural transformation are required for pension fiscal sustainability and the long-term fund management process.

- Statistical Success of the Canadian Model with Assets Managed Internally
- Key Components – Keep Fees to a Minimum, Hunt for Cash Flow, Innovative Private and Co-Investment Deals, Reluctance to Overpay
- Difficulty for U.S. Shifting to Canadian Model – Independence Requirement and the Restrictions from Political Appointees and ERISA
- Budget and Resources as a Concern – Salary Structure, Investing in Talent Pool
- Are there Ways to Overcome the Skepticism that the Canadian Model can be Imported to the U.S.? Which of the Barricades need to Come Down for Implementation?
- Which Program or Asset Class might be Best to Start with for the Transition to In-House Investment Management? Which Allocations are Best Served by an Outsourced Specialist Fund Manager?
- Understanding the Necessary Industry Changes Required for Fiscal Sustainability, regardless of model – Compensation Linked to Performance, Transparency and a Long-Term Strategic Vision

Speaker:

Jim Keohane, CFA, President & Chief Executive Officer, Healthcare of Ontario Pension Plan, (HOOPP)

8:45 AM – Macroeconomic View – State of the Markets

- Current Macro Environment
- Recent Public Equity and Fixed Income Returns
- Bull Market Length and Returns
- High Valuations
- Reasons for Remaining in a Long-Term Low Return Environment
- Global Working Age Population and Challenging Demographics
- China Credit Explosion as a Concern
- Taking Risk More Efficiently
- Asset Class Risk and Returns – Areas of Caution?
- Investment Ideas on how to Increase Returns
- How to Better Protect Capital in a Down Market

Speaker:

William J. Coaker Jr., CFA, MBA, Chief Investment Officer, San Francisco Employees' Retirement System

9:15 AM – Executive Director/CEO Roundtable

(A) Pension Health/Governance

- How are Demographics Affecting Retirement Systems?
- How do you approach Increases in Longevity and Costs for Healthcare Drugs for Retirees? Any possible Solutions?
- What does the Future hold for Raising the Retirement Age, Reducing Benefits and Increasing Employee Contributions?
- What can a Fund do to adequately Protect for Liquidity and Cash Flow Requirements?
- Does your Funded Status alter your Long Term Decisions with regards to Liquid or Illiquid Investments?
- Best Governance Practices to Keep Plans Optimally Invested, Managed, Funded, and in Regulatory Compliance
- Do you believe Plans in general will be able to Meet or Beat the Assumed Rate of Return over the next 10 Years?
- Should we be Spending Political Capital to Lower Assumed Rate of Return Targets?
- Dealing with Legislature – what is your Biggest Concern? Is Trust a Factor?
- Do you see the Benefits of Adopting a Hybrid DB/DC Plan? What are the Drawbacks?
- Explain the Argument as to why States should not offer a 401(k) DC Plan as a Solution
- Truth or Myth: Defined Benefit Plans are Expensive and Defined Contribution Plans are Cheap
- Thoughts on Outsourcing the CIO Function?
- How do you ensure your Board Members receive Continual Education of their Fiduciary Roles/Duties and keep them Updated on Risk Factors?
- Have you Educated Internally on the Risks or Steps for Cybersecurity Protection? Do you have Cybersecurity Questions or Guidelines in your Due Diligence of your Managers?
- What is your Biggest Threat to your DB Plan? What keeps you up at night?

(B) Long-Term Structural Changes for Fiscal Sustainability

- Do you see a Shift towards the Canadian Model with more Assets being Managed Internally to Lower Investment Costs? If so, which Mandates should be Outsourced to External Managers?
- Have we made Strides to Solve the Talent and Compensation Struggle? Will we see more Compensation-Based Pay to Attract and Retain Talent to be Competitive with the Private Sector?
- To Cut Costs, will we Shift towards Investing in Passive, Low-Cost Vehicles, Index Funds and ETFs over Actively Managed Funds?
- Will we see a Shift to Hunt for Long-Term Cash Flow Investments through Partnerships and Co-Investment Structures? Greater Competition to Follow?
- Requirement for Better Transparency
- Do you believe we'll see a Consolidation of Public Pension Plans Under One Entity, (such as INPRS or IMCO in Canada)? What are the Benefits?
- Making Governance more Effective – Identifying Key Board Member Roles with Expertise in Particular Areas with an Independent Board

Moderator:

Andrew Junkin, CFA, CAIA, President, Wilshire Consulting

Speakers:

Steve Yoakum, Executive Director, Public School and Education Employee Retirement Systems of Missouri, (PSRS/PEERS)

Brian Guthrie, Executive Director, Teacher Retirement System of Texas

Ruth Ryerson, Executive Director, Wyoming Retirement System

10:10 AM – Refreshment Break

10:40 AM – Risk Management and Adopting a Risk Culture

(A) Key Considerations for Managing Risks

- Overview of the Shift from an Asset Allocation-Centered Process to a more Comprehensive Risk
- Allocation-Based Process. Explain the Transformation to Risk Allocation Decisions
- What's the Biggest Challenge that has Prevented Wide-Spread Adoption of a Risk Allocation Framework? What are

the Characteristics a Plan would need in order to Implement this type of Approach? What's the most Important Change to make?

- What are the Key Challenges as it relates to Measuring Risk?
- How can considering Diversification and Risk Independently help Investors Build more Efficient Portfolios?
- What Developments have we seen for Combining Several Risk Premiums as a part of Portfolio Diversification?
- How has taking a Risk Allocation Approach changed the Structure of your Plan's Fixed Income Investments? Understanding Return Seeking Fixed Income and Traditional Risk Reducing Fixed Income
- What Irregularities have we seen in Portfolios as Asset Classes are Redrawn and Renamed via Risk Allocation? Are we still too heavy with the Equities Allocation?

(B) Top Pension Risks we should be Most Wary of

- Understanding Asset Class Correlation and Behavior Risk – Tendency of Interest Rate and Inflation Shocks Driving Both Equities and Bonds in the Same Direction, (Correlations Change)
- Drawdown Risk
- Transparency and Liquidity Risk – Basing it on a Cost/Benefit Evaluation
- What's the best Approach to Liquidity Risk as it applies to Meeting Future Cash Flow Obligations?
- Leverage Risk – what are the Best Approaches to keep these Risks within Acceptable Parameters?
- Monitoring Counterparty Risk being taken by Managers – any New Measures?
- Equity, Credit, Duration, Inflation/Deflation, Currency, Geopolitical Risk Considerations
- How does Stress Testing or Scenario Analysis factor into your Process?

(C) Communication

- How do you Communicate your Risk Tolerances with your Board, Managers and Media?
- How has the Role of Fiduciary Responsibility Changed in this new Era of Risk?
- What should Boards/Organizations Consider when Building a Risk Culture?
- How can Fiduciaries Adapt and Safeguard against today's Challenges?
- Have you Developed a Process for Monitoring Risk being taken by your Money Managers?
- How do you go about Educating a Board on Risk?
- What Metrics Aid in the Decision Making Process?
- How does a Plan's Size affect the Approach to Pension Risk Management?

Moderator:

Rob Feckner, President, Board of Administration, California Public Employees' Retirement System, (CalPERS)

Speakers:

Eugene L. Podkaminer, CFA, Senior Vice President, Capital Markets Research, Callan Associates, Inc.

Freeman Wood, Partner, North American Head, Mercer

Bruce H. Cundick, CFA, CPA, Chief Investment Officer, Utah Retirement Systems

11:30 PM – Keynote Speaker - Multi-Asset Strategies

(A) Construction and Skills

- Why is Multi-Asset Investing Attractive to Investors?
- What are the Common Sub-Asset Classes Included in Multi-Asset Strategies?
- Do these Strategies Reduce Correlation, Lower Volatility and Limit Downside Risk or Drawdown? If so, by How Much?
- How do Investors utilize Multi-Asset Strategies in their Portfolios?
- With Dynamic and Tactical Asset Allocation Skills yet to be Put to the Test in recent years, how do you see this Space Evolving in a more Treacherous/Volatile Market?
- Aside from Asset Allocation Skills, what other Skills are Required for the Ability to Generate Alpha and be Successful?
- Constructing the Portfolio – Risk Factor Approach
- How do you Measure Performance?

(B) Criticism

- Trailing Returns – Underperformance of Multi-Asset Strategies to the Traditional 60/40 Mix. Is it possible Central Bank Policy has Limited the Ability of Multi-Asset Managers?
- Do these Strategies Rely Too Heavily on Market Timing?
- Do you Agree or Disagree with the Willis Towers Watson Report saying Multi-Asset Managers have actually Harmed Performance via Tactical Asset Allocation Decisions?
- The Skill of Moving Opportunistically Between Markets, a Function of Asset Allocation Alpha is an All-to-Rare Commodity – any Truth to this?
- Do you believe that many Multi-Asset Funds have Not Sufficiently Incorporated Risk Controls into the Design of their Products as the Willis Towers Watson Report Noted?
- Reliance on Stable Correlation Relationships although there is No Certainty those Relationships will Persist
- Is Excessive Leverage a Concern?
- High Fees
- Is Transparency often Obscure or Hazy?

Speaker:

Myron Scholes, Ph.D., Chief Investment Strategist, Janus Capital Group

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12:00 Noon – Tail Risk Hedging

- Understanding Tail Risk Frequency, Severity and Impact – why are the Markets Vulnerable to a Substantial Decline Today?
- Understanding the Risk of Correlated Global Markets for Developed Countries
- Why is this a Good Time to Mitigate Equity Tail Risk?
- If Tail Risk Hedging is a Good Idea, why isn't Everyone Doing It?
- What are the Expected Costs of a Tail Risk Hedge vs. the Expected Benefits?
- Is Raising Cash a Proper Tail-Risk Strategy?
- Limits of Diversification and Beta Hedging
- Importance of Understanding where in the Market your Existential Tail Risks come from and how Big they Could Be – Analysis of your Liquidity and Leverage. What Liquidity Considerations should Investors pay attention to?
- Implicit vs Explicit Hedging – what are the Advantages and Disadvantages of each?
- What Types of Strategies and Approaches are used to Hedge?
- Using Information from the Derivatives Markets to assess Stress Points – where we are seeing Tail Risks building?
- Option Overlay Strategy – Cash Flow Generation in Down Markets but can you Maintain Upside Exposure in Rising Markets?
- Does the Growth in the VIX Universe pose a Risk?
- Active Management
- Pension Plans developing a Contingency Plan – What are the Best Practices to Navigate through Stressful Periods?
- Why is there often Difficulty Implementing a Tail Risk Program within the context of a Committee and how can we overcome this? Any other Implementation Challenges?
- Any Real World Experiences you can share among your Clients with Tail Risk Hedging?

Moderator:

Tim Barron, CAIA, Senior Vice President and Chief Investment Officer, Segal Marco Advisors

12:30 PM – Lunch

1:40 PM – Liability Driven Investment, (LDI)

- What is LDI and how is it Interpreted in the Market?
- What have Plans done to address the Hurdles of Low Pension Funded Status and Low Interest Rates over the past few years?
- Does LDI Make Sense Now Considering Current and Future Market Conditions? What is the Risk/Return?
- Reducing Funding Ratio Volatility
- Are Plan Liabilities the only appropriate Benchmark?
- Understanding the Components of Performance Measurement and Evaluation – Risk Budgeting, Scenario Analysis, Liquidity Analysis and Performance Reporting
- What are some Industry Trends that Clients should be aware of in the LDI Market?
- Beyond the Ability to Earn Excess Returns, what should Investors look for in Selecting LDI Managers?
- Understanding Implementation Approaches, Strategies and Issues. Are some Approaches More Appropriate in a Less Liquid Fixed Income World?
- Understanding that a Partial LDI Strategy only Partially Reduces the Pension Risk
- How to Implement LDI in a Pubic Fund Context – are the LDI Methods Applicable?
- Pension Risk Transfer – Lump Sum Payments, Buy-Outs, Buy-Ins. What Trends are we seeing?
- Will we see a Strategy More Common in Europe with Plan Sponsors Combining an LDI Strategy with the Purchase of Longevity Insurance to Further Reduce Risk?

Moderator:

Timothy F. McCusker, FSA, CFA, CAIA, Chief Investment Officer, Partner, NEPC, LLC

Speakers:

Brian McDonnell, Managing Director, Head of Global Pension Practice, Cambridge Associates

Kevin Zhu, Managing Director, Head of Portfolio Construction, OPTrust, OPSEU Pension Trust

2:15 PM – Risk Parity

- Risk Parity Explained
- Does Risk Parity Make Sense Now Considering Current and Future Market Conditions?
- Performance in the Past Decade and Longer – How does Risk Parity look over time Compared to Other Asset Mix Models?
- Scenario Analysis for Risk Parity Performance – (a) Gradual Rise in Interest Rates, (b) Sharp Decline in Equity Markets, (c) Global Commodity Deflation Continues, (d) Sharply Rising Inflation
- Is it possible that Bonds will become Less Likely to Protect against Volatility in Equities?
- Should we be Worried about Leverage or Leveraging the Inappropriate Assets? Is there an Over-Reliance on Bonds with Current Valuations?
- Do you Consider it a Drawback that there's Only a Positive Weight to an Asset with No Ability to go Short?
- Leverage and Illiquidity Do Not Mix – any Approaches to Avoid this Combination?
- Do you View it as a Flaw that Portfolio Construction Approaches only consider Volatility Risk, Not Tail Risk or Drawdown Risk?
- Can Tail Risk Parity be the newest Trend? Thoughts on the Concept of Measuring Expected Tail Loss rather than Volatility – Cheaper Hedges for Protection, Reducing Tail Risks while Retaining More Upside than Risk Parity?
- Aside from the Money Concentrated in the Top "Founding Firms," how should we Approach Managers with Short Track Records?

Speaker:

Steven J. Foresti, Chief Investment Officer, Wilshire Consulting

2:50 PM – Refreshment Break

3:20 PM – Unconstrained Fixed Income Strategies

- Assessing the Current Environment – Fed and Global Central Bank Policy, Interest Rates, Spreads, U.S. Dollar, Foreign Investment in US Treasuries, Global Fixed Income Landscape and Default Rate Expectations

- What are your Best Ideas for ways to Simplify the Sub-Allocations within the Fixed Income Space? Any preferred Allocation Breakdowns or Weightings?
- With the Proliferation of Products which are Diverse, what is the Return Objective?
- Portfolio Construction – Need for Increased Disaggregation of Alpha Sources
- Understanding Return Sources/Attribution and Correlation that Unconstrained Funds have had with other Fixed Income Sectors and Equity Markets
- Impact of the Non-Linearity of Risk Correlations and Volatility Not Being Stable through time. Is that something you look to Measure in case of Market Dislocations?
- How are you Taking Advantage of Current Market Dislocations?
- What are the Implications of Reduced Liquidity?
- From a Risk Factor Approach, what Asset Class replaces Duration as a Deflation Hedge in a Portfolio?
- Modern Risk Management – what Progress have we seen for Developing a Risk Premium Approach?
- Do you see a Supply/Demand Imbalance in Long-Duration Fixed Income?
- Using Structured Products, Swaps and Derivatives to Create Alpha and Hedge Volatility
- Opportunities in Global and Emerging Market Debt – why is it appealing?
- Emerging Markets Local Fixed Income – what are the Currency Risk Factors?
- What are your Expectations and Outlook for Corporate Debt?
- Bank Loans – Attractive or Not a Good Hedge in Rising Rate Environment?
- Are Taxable Municipals a good Alternative to Corporate Bonds?
- Landscape for MBS Market with GSE Reform Considerations
- Risk/Reward for TIPS, Interest Rate and Inflation Swaps, Inflation Bonds and Overlays
- Where do you see the Greatest Risks in the Debt Markets and what might be the Trigger Points that enhance that potential?
- Understanding how to Select Alternative Managers – Multi-Sector, Multi-Region and Multi-Currency Skill Set

Moderator:

Keith M. Berlin, Director of Global Fixed Income and Credit, Fund Evaluation Group

Speaker:

Leighton A. Shantz, CFA, Director of Fixed Income, Employees Retirement System of Texas

4:05 PM – Smart Beta – Proceed with Caution

Smart Beta maven Rob Arnott, one of the founders of this strategy, has voiced concern about a “reasonable probability of a smart-beta crash” and that many smart beta strategies are poised to go “horribly wrong.” Bill Sharpe, Nobel Laureate and the “inventor” of beta, stated that “smart beta makes me sick.” Rick Ferri, an index-investing pioneer, has referred to smart beta as “silly talk.” We’ll examine why the growing popularity of smart beta can result in possible unexpected returns.

- Smart Beta Flashy Name Misconception
- Misleading Marketing
- Limits of Diversification – Smart Beta often Promoted as a Good Diversifier but has exhibited a High Correlation with the S&P 500
- Lower Volatility Aspect – does it Reduce Risk if it still shows a High Correlation to S&P?
- The Likelihood of Selecting the Wrong Smart Beta Variation
- Excess Returns mean Extra Risk
- Factor Exposures often Create Undesirable Tilts
- Extended Periods of Underperformance with Hypothetical Back-Testing Prior to the Launch of Smart Beta
- High Fees
- Are High Valuation Levels Reducing the Potential for Future Performance?
- Should Liquidity be a Consideration with Some Products?
- What is your Best Advice when Allocating to Smart Beta?

4:20 PM – Environmental, Social and Governance, (ESG)

- What are the Recent Market Developments in ESG for the U.S. and Abroad?

- How do you Approach ESG from a Fiduciary Standpoint and for the Development of your Plan's Investment Beliefs?
- How should ESG be best Incorporated into the Investment and Due Diligence Process?
- Climate Change and Investment – what's the Relationship and how do you Integrate Climate Risks into your Process? What are the Alternatives to Divestment?
- What should Pension Funds be asking their Existing Active Managers in terms of whether they are looking at Climate Risk or Opportunity?
- What are the Perceived Obstacles to applying an ESG Framework to the Stock Selection Process?
- Considerations for Investing in a Passive ESG Index – thoughts on Low Carbon Index? Combining ESG with Smart Beta?
- Understanding UNPRI Principals. Will there come a time when Plan Sponsors Only Invest with UNPRI Investment Manager Signatory Firms?
- Do we have Proof that ESG Integration Adds Value?
- ESG Fund Performance vs. Traditional Funds
- What Progress have we seen with Portfolio Decarbonization?
- Will Supply Chain Management be the new Normal? – Looking past the Portfolio Company with a View on its Relationship with Large Enterprise Customers
- What are some ESG Misconceptions?
- Factors Needed to make ESG Mainstream and Integrated into Every Investment Process – Agreement on Weightings, Scoring and Definitions
- Relevant Benchmarks for ESG Risk Measurement and Assessing ESG Factors
- What type of ESG Research or Data is most helpful?

Moderator:

Alex Bernhardt, Principal, Head of Responsible Investment, U.S., Mercer

Speaker:

Travis Antoniono, Investment Officer, Corporate Governance, California State Teachers' Retirement System, (CalSTRS)

5:00 PM – Cocktail Reception

Wednesday, April 19th

7:00 AM – Breakfast

8:00 AM – Emerging Markets

- Macro Environment and Recent Developments
- Knowing the Historical Correlation of Commodity Prices and Emerging Markets, should we be Hesitant to Increase Allocations? Is there More Remaining in the Deflationary Cycle?
- What Factors do we need to see for us to Believe that Emerging Market Assets have Bottomed?
- How have EM Headwinds Impacted your Deployment?
- How have Emerging Market Economies fared under Global Central Bank Monetary Policy? Inflows?
- What would be the Effects on Emerging Markets if we see Weak or Negative Growth in the U.S or Instability in Eurozone, (including Brexit)?
- Given the Current Environment, will Emerging Markets Outperform Developed Markets?
- What are Realistic Return Expectations? How might that Differ based on Region?
- What is an Appropriate Long-Term Allocation to Emerging Markets?
- What Impact have we seen as a Result of the Strong U.S. Dollar?
- What can be done to Mitigate Currency Risks?
- How do Valuations look Relative to Risk?
- Outlook for China – are you Concerned about their Credit and Real Estate Bubbles?
- India to Benefit from its Fast Rate of Urbanization? Still in Need of Substantial Reform?
- Are you Investing in Higher Growth Markets such as Southeast Asia, Africa or Latin America? Which particular Countries? Do you see Higher Risk, Returns and Diversification Factors here?
- Which Markets in Frontier Countries can you Profit from Strong Growth and Access a Lower Correlation?
- The Case for Emerging Markets Corporate Debt
- What Metrics are you using to Determine Relative Value in Sovereign Bonds?
- Public vs. Private Emerging Markets – Benefits and Drawbacks of each
- Choosing an Emerging Markets Fund or Manager – should you be Investing by Region, Country or Sector?
- Active vs. Passive Debate

Moderator:

Bryan P. Shipley, CFA, CAIA, Co-Chief Investment Officer, Head of Traditional and Real Asset Investments, Principal, Arnerich Massena, Inc.

Speaker:

Kamal Suppal, CFA, Senior Research Consultant, Hedge Funds, NEPC, LLC

8:40 AM – Currency and Currency Alpha

(A) Currency Market Overview

- Central Bank Intervention and other Factors Driving Currencies. More or Less Volatility and Liquidity?
- What is the Relationship Between Volatility and Currency Returns?
- Can Currencies be Forecasted via Fundamentals, Cycles and Trends? If so, how can this Information be Incorporated into a Currency Hedging Program or into Active Currency Management?
- Benefits of Active Management
- Widely Confused Difference Between Currency Hedging and Currency as an Asset Class – how do they Differ in terms of Implementation Approaches?
- Different Skills Required for Currency Hedging vs. Currency Alpha – should a Different Manager be used for Each Approach or is it Possible to be Skilled in Both?

(B) Currency Overlay Hedging

- Given Plan Sponsors Non-U.S. Exposure, how do you know if you should Consider Implementing a Currency Hedging Program? What Factors should be considered in this Determination?
- How much of a Reduction in Portfolio Volatility and Risk should be Expected?

- Can it be More Beneficial to be Unhedged?
- Hedging Costs – how should this factor into your Decision?
- When Hedging against a Further Dollar Rise, what are the Risks if the Dollar has a Significant Decline?
- Various Implementation Approaches – Passive vs. Dynamic?

(C) Currency Alpha

- Goals of a Currency Program
- Benefits of Non-Correlated Returns to Equities, Fixed Income and Alternative Investments
- How does Investing in Currency Diversify and Reduce Risk? Natural Diversifier for the Duration Risk in Bonds?
- How do you Manage Risk Factors?
- What are the Return Expectations?
- When considering Investing in an Active Currency Strategy, what should you look for in a Manager?

Speaker:

Ian Toner, CFA, Managing Director, Verus

9:15 AM – Distressed Investing – Opportunistic and Special Situations

- Where are we in the Distressed Cycle? When will the Vast Sums of Undeployed Capital come in off the Sidelines?
- How does the Current Economic and Interest Rate Environment affect the Attractiveness of Distressed Strategies?
- What are your Expectations for Default Rates going forward? Has the Fed and Easy Credit Masked Fundamentals?
- Prevalent Covenant-Lite Deals – are we seeing Bubble Conditions setting us up for Problems during the Next Cycle?
- What are your thoughts on the Recent Leverage Trends?
- Has the Regulatory Environment Changed the Opportunity Set? Any Adverse Effects or Liquidity Issues it may cause?
- Scope of the Distressed Market and Segments – Corporate Credit, Structured Credit, Commercial Real Estate, Hard Assets, Liquidations, Segmentation by Deal Size, etc.
- Which Sectors, Strategies and Geographies will create the Best Opportunities? Any Areas that should be Avoided?
- What Distressed Opportunities are we seeing the Energy Sector?
- What's the Potential Impact of the Debt Piled up by Corporations for their Share Buybacks?
- Do you find Europe Attractive? What are the Opportunities and Risks? Any Countries, Sectors or Types of Deals that Stand Out?
- Marketable Distressed Strategies – how Correlated are they to Public Equities?
- How do Investors go about Choosing the Right Distressed Strategy, Investment Style and Approach?
- How will the Different Implementation Approaches affect Expected Returns? Control vs. Non-Control? Private vs. Public?
- Distressed Debt Vehicles in Hedge Fund Format vs. Private Equity Drawdown Structures – what are the Pros and Cons of Each?
- What Skill Sets/Characteristics should Pension Plans look for in a Distressed Manager?
- What are the Return and Risk Expectations?
- What are the Biggest Challenges you face to Delivering Returns?

Moderator:

Scottie D. Bevill, Senior Investment Officer - Global Bonds and Real Return, Teachers' Retirement System of Illinois

Speaker:

Mike Krems, CFA, Managing Director, TorreyCove Capital Partners

9:50 AM – Refreshment Break

10:20 AM – Credit Strategies

- Current State of the Credit Market

- Where are we in the Credit Cycle and how does it Differ from the Past?
- With Global Central Bank Monetary Policy Heavily Influencing Rates and Credit Markets, how do you see this Developing as far as Risk and Opportunities Across Credit going forward?
- What will be the Catalyst that will cause Credit Spreads to Widen and Defaults to Rise?
- How much should Plan Sponsors be Allocating to Credit? What is the Optimal Structure to a Credit Portfolio?
- What Subsectors of Credit are Most Attractive? What are your Best Ideas for Finding Value? Any Areas you are Avoiding?
- High Yield Market – is it possible to see a High Yield Meltdown with a Lack of Liquidity? Understanding the Risk Factors and the Strong Correlation to Equities
- Bank Loans Overview – High Risk in Covenant-Lite Loans?
- State of Securitized Markets – how Cheap is Securitized Risk vs. Unsecuritized Risk and how do you measure that? Long-Term Prognosis for Spreads?
- Outlook and Considerations for Structured – CDO, CDS, CLO, CMBS, RMBS, ABL, ABS
- Outlook for Emerging Market Debt
- Liquidity and its Implications for Multi-Strat. What might be some of the Pitfalls?
- Do you see Investors being more willing to Trade Liquidity for Yield and should that be of Concern?
- Regulatory Changes and Leverage – what will be the Market Consequences?
- European Market – are there Opportunities Now or More Downside Risk?
- Considerations for Selecting a Manager and Strategy
- How will the Sector you Invest in Perform when Rates Rise? Is that a Concern and how do you Manage that?
- What are the Trade-offs between Mid-Market and Large Market Credit Investing?
- Credit Investment Mandates – are they Too Narrow? Which Bucket or Asset Class does it fit into and should it be Defined as Opportunistic Credit?

Moderator:

Zeke L. Loretto, Director, Head of Global Investments, eBay

Speaker:

Pete Keliuotis, CFA, Senior Managing Director, Cliffwater LLC

11:00 AM – Hedge Funds

(A) Current and Future State of the Hedge Fund Industry

- Why have Hedge Funds Underperformed?
- Will we see More Hedge Funds Shutting Down?
- Is the 2 and 20 Model Broken? Is it Dead for Larger Pension Funds? What Trends have you seen as far as Pressure on Fees?
- How do you assess the Tradeoff between Lower Fees and Longer Lock-ups?
- Inverse Correlation Between Assets Size and Performance on both an Industry Basis and Manager Level – do you Agree or Disagree this could be mean it's More Difficult for Managers to Generate Strong Returns?
- Do you Believe Smaller Hedge Funds will Continue to Outperform?
- What Pension Inflow Trends have you seen?
- What is Driving the Increase in Demand for Strategies Uncorrelated with the Capital Markets? Which Low Correlated Strategies do you think will Continue to see Increased Interest?
- How do you see Succession Planning playing out? What Tends to Work and what Does Not?

(B) Implementation Options

- What is the Future of the Fund of Funds Space? How is it Changing? Where will Fees be? What will it take to Stay Competitive?
- Considerations for Selecting the right Hedge Fund or Fund of Funds – Due Diligence and Manager Selection. What are the Key Traits you should be looking for?
- Deciding Between Fund of Funds vs. Direct – what are the Key Considerations?
- Long-Short Equity Hedge Funds – what Differentiates Managers that have been able to Outperform?
- Which Strategies offer more Transparency and Liquidity?

- Do you find Opportunities within the Global Macro Space Attractive and if so, why?
- Liquid Hedge Fund Products such as UCITS, 40 Act and Hedge Fund Replication – are they a Viable Alternative and Under which Circumstances? How has their Performance and the Lower Fees Fared to Hedge Funds?
- If the S&P loses 30%, what Downside Protection, Drawdown or Return Range do you expect we'll see from each of the Different Hedge Fund Strategies?
- If there was a Hedge Fund Strategy you would Invest in over the next Few Years, which one would it be and why?

(C) Portfolio Construction and Risk Management

- Importance of Operations Due Diligence. Any recent Developments? How often should Operations be Reviewed?
- Transparency and Risk Aggregation Data – are they Accurate?
- How many Hedge Fund Strategies do you need? Should you focus on a few better Strategies or is the Size of your Portfolio a Factor?
- Can Hedge Fund Strategies be Tactically Managed?
- How should we View a Long/Short Manager's Performance when a Portion of the Return Comes from Market Beta?
- What Trends do you see Developing in Regards to the way we Evaluate Liquidity Provisions for Hedge Funds? Blurring of the Lines Between Hedge Funds and Private Equity?
- Should you ask for a Separate Account?
- Is the Trend towards Managed Accounts the Future? Understanding the Benefits of Increased
- Transparency and Control, more Liberal Liquidity Terms for Redemption/Termination, Outsourcing Operational Oversight/Support

Moderator:

Jim Vos, Chief Executive Officer, Aksia LLC

Speaker:

Neil Messing, Head of Hedge Funds, New York City Office of the Comptroller, Bureau of Asset Management
David E. Franci, Managing Director, Absolute Return, San Francisco Employees' Retirement System, (SFERS)

11:50 AM – Managed Futures

- Global Macro's place in the Hedge Fund Industry – what are the key Differences from other Hedge Fund Strategies?
- Attributes – Diversification, Uncorrelated, Liquid, Transparent and Regulated
- Historical Performance of Managed Futures
- Performance during Periods of Market Stress or Crisis Events
- How much can it Decrease the Depth of Portfolio Drawdowns and Volatility?
- Volatility is usually Perceived as Risk within Portfolios – is this the same within Managed Futures?
- Increasing your Exposure to Global Markets and Non-Financial Sectors
- How to Implement an Allocation to Managed Futures
- How do you Manage Risk and Volatility?
- What Questions should an Investor ask a Prospective Manager?
- Size of the CTA in terms of Assets Under Management – any considerations to factor in?
- Is the Proliferation of Managed Futures as a Risk Premia going to Change the Landscape?

12:05 PM – Lunch

Real Asset Strategies

1:10 PM – Commodities

- Current Market Environment
- Deflationary Pressures – how should this affect our Allocation and Approach?
- What Factors do we need to see for us to Believe that Commodities have Bottomed? Any Long Term Cycles or Patterns to go by?

- Based on Previous Down Equity Markets, what Performance can we Expect from Commodities if we have Market Turbulence? How Strong is the Correlation?
- What are your Views on particular Sub-Sectors and Where are the Pockets of Value?
- How are Renewables Affecting Specific Commodities?
- What Currency or Weather Related Impacts are you seeing on Specific Commodities?
- Understanding the Different Approaches to Investing in Commodities – Equities, MLPs, Indexes, Futures, Physical Commodities, Private Equity Real Assets
- Investing in Commodities through Private Equity vs. Stocks or Indexes – Benefits and Drawbacks of Each
- True or False – Natural Resource Stocks are Not an Efficient Way to get Commodities Exposure
- Are MLPs more Highly Correlated to Commodity Prices than We Thought?
- Roll Effects and its Impact on Returns
- Investing in Long/Short vs. Long Only
- Active vs. Passive
- Any Recent Developments in Commodities Risk Premia? Smart Beta as applied to Commodities?
- What are the Key Criteria that would lead to Manager Outperformance?
- Risk Factors

1:45 PM – Energy

- How will we know when Oil Prices have Bottomed?
- Dry Powder – what will be the Trigger for Capital to be Deployed? Are you hoping for a Second Washout to Deploy more Capital and Profit in the Long Run?
- How Important are the Credit Markets in the Deployment of Private Capital?
- How do you think about the Risk and Approach to this Space in a Climate Changed Focused World?
- Where are the Best Opportunities to Deploy Capital in this Environment?
- How has the Current Commodity Market Distress Impacted the Balance Sheets of Oil and Gas Companies?
- What are the Advantages of Investing in Private Energy?
- Upstream, Midstream and Downstream Overview
- How has the Oilfield Service Industry Impacted Upstream Oil and Gas Operators?
- Thoughts on Midstream MLPs with their Business of Oil Storage Services and its Cashflow?
- What Type of Investments are there with Returns Independent of Oil and Gas Prices?
- What does the Future Hold for Shale?
- Portfolio Decarbonization – how do you Deal with LP Concerns on this Issue? Has it Impacted your Fund Commitments?
- Access – Public (Stocks and MLPs), Indexes, Futures, Private, (Direct, Funds, Fund of Funds). Which one is most likely to Benefit?
- Big vs. Small Funds, Deal Size

Moderator:

John Nicolini, CFA, Managing Director, Verus

Speaker:

Tom Masthay, CFA, CAIA, FRM, Director, Real Assets, Texas Municipal Retirement System, (TMRS)

2:15 PM – Infrastructure Market Outlook

- Why should Investors consider Committing Capital to the Infrastructure Space?
- State of Development of the Infrastructure Asset Class – Where are we now in terms of Appetite/Penetration amongst Investors' Allocations? How much Room to Run is there for the Asset Class to Continue to Develop?
- Is there Too Much Money Chasing Too Few Opportunities? What will Cause High Valuations to Ease and Dry Powder to be Deployed?
- What Effects have we seen from Monetary Easing? Brexit? Terror Attacks?
- How has Performance been and what are the Recent Return Expectations?
- How will Returns be Impacted by Low Oil Prices for an Extended Period?
- Which Geographies and Sectors are Most Appealing?

- How have Risk/Return Expectations Changed with Global Sovereign Debt Trading at Zero or at Negative Rates? Have these Views Changed Investment Approaches for Developed vs. Emerging, U.S. vs. Non-U.S., Listed vs. Unlisted or Greenfield vs. Brownfield?
- Infrastructure Debt as a Growing Area – will it deliver for Investors Searching for Yield?
- What are the Biggest Challenges/Risks associated with Infrastructure Investing?
- Any Advantages or Limitations of Particular Implementation Approaches?
- What are the Advantages of Open-Ended Funds over Closed-Ended Funds? Will we see a Surge in Open-Ended Funds in the Coming Years?
- Is the Rise in Public-Private Partnerships Inevitable due to Lack of Gov't Funding and High Debt? What Opportunities will this Create?
- Debt Heavy/Equity Shortage Deals – how and when will Pension Investors Overcome this Highly Leveraged Roadblock?

2:30 PM – Real Estate

- Current State of the Real Estate Market
- Is a Correction on the Horizon and How Significant? If so, what is the Single Biggest Risk Factor?
- What would be the Impact of Rising Rates on your Real Estate Portfolio? What are the Short-Term and Long-Term Implications?
- With Recent FIRPTA Changes, how has Foreign Investment Influenced U.S. Real Estate Investment? Effects on Valuations?
- Is U.S. Core Too Expensive? What are your Return Expectations for the Sector?
- Do you see Capital Moving Out of Core and Into Higher Risk Segments?
- Within Non-Core, which Value-Added and Opportunistic Strategies are Most Appealing?
- Do you believe Commercial is Fully Priced and Not Pricing in Risk or Disruption?
- Is the Bridge Financing Opportunity Attractive from Maturing CMBS?
- Multifamily Conditions – might it become Less Desirable compared to the past few years?
- Which Property Types are At Risk Today?
- Is there still Opportunity in Niche Property Types such as Senior Housing, Student Housing, Storage or Datacenters?
- What's happening with Leverage?
- Analysis of Cap Rates and Vacancy/Occupancy Rates – any Conclusions you can draw?
- Asia and European Real Estate Outlook – Opportunities, Investment Trends and Capital Flows
- Has the Popularity of Closed Ended Funds Declined?
- Will Co-Investments become more Common?
- Current State of the Real Estate Secondary Market
- Programmatic Joint Ventures – why are these Joint Ventures being done? Will more Pension Plans Team up with Commercial REITs?
- Larger vs. Smaller Fund Size – which ones will Outperform going forward?
- Entry Issues with Open-Ended Funds and Concentration into Fewer Funds?
- What Strategies do you see as the Biggest Risks and the Biggest Rewards/Relative Value for the Future?

Moderator:

Jennifer Young Stevens, Principal, The Townsend Group

Speaker:

Peter H. Collins, Vice Chair, Investment Advisory Council, State Board of Administration of Florida

3:15 PM – Refreshment Break

3:40 PM – Private Equity

- Are High Levels of Dry Powder Here to Stay? Will it take a Sustained Market Correction or Crisis to Bring Undeployed Capital off the Sidelines?
- Considering the Current High Valuations, Low Interest Rates, Ample Leverage and a Strong Fundraising Environment, what Similarities and Differences do you see Compared to 2006-2007?

- Protecting your Current Portfolio – are you making Investment Decisions or Managing your Portfolios Differently in this Environment? How do you Avoid Possible Pitfalls or Getting Involved in Expensive Deals?
- If we have an Economic Slowdown or a Recession, how would you Approach New Investments?
- What are your Views on GP Restructurings and are you More Accepting of them?
- For Buyouts, what Sectors or Geographies do you Favor? What Sectors do you tend to Avoid in this Environment and why?
- Do you Prefer Buyouts or Growth Equity over the next few years and why?
- Are we Currently in a Venture Capital Bubble?
- What are your thoughts on Co-Investments? Do you Worry about the Outcome if this Cycle Turns?
- Secondaries Deal Volume, Pricing, Pressures and Futures Expectations
- Have you taken steps to Diversify your PE Portfolio and find Investments with a Non-Correlation to the PE Space in General? Which of these Non-Correlation Strategies have you Allocated to or favor?
- As an LP, are you willing to Pay Higher Fees for Managers with the Best/Proven Track Records?
- Do you believe Charging Fees on Invested Capital rather than Committed Capital can Hurt Returns?
- Outlook/Issues for European PE Post-Brexit?
- After a Long and Extended SEC Crackdown and a Trend towards Increased Transparency, what Impacts are you expecting on the industry going forward?

Moderator:

Robert L. Greene, Chairman, Virginia Retirement System

Speaker:

Rodney June, Chief Investment Officer, Los Angeles City Employees' Retirement System, (LACERS)

4:25 PM – CIO Roundtable

(A) Risks, Allocations and Macro-Based Decisions

- In this Low Growth, Low Return and Fully-Valued Environment, how has it Impacted your Investment Program and your Asset Allocation?
- What's your Opinion on the Sustainability of the Fed-Induced Stock Market Rally? Thoughts on the Fed and Global Central Banks' Monetary Policy?
- Are there any Strategies you like that provide a Low or Non-Correlation to Traditional Investments that can Provide Outsized Returns during Periods of Market Stress?
- With the Collapse of Commodities, Oil, the Slowdown in China, the Troubles of the European Union and more, are you Hedging Against the Risk of Further Deflation?
- What Strategies does your Fund utilize that will Protect against Interest Rate Risk and Duration Risk?
- What sort of De-Risking Strategies or Risk Management Approaches has your Fund Integrated into the Investment Decision Process?
- Does LDI or Risk Parity Make Sense Now Considering Current and Future Market Conditions?
- Do you Incorporate Multi-Asset Investing and do you believe it can Limit Downside Risk?
- Do you believe your Hedge Fund Strategies will provide a Cushion for the next Market Downturn? How do you use them to Reduce Risk?
- Have you Allocated Funds to take Advantage of the Dislocation in Energy/Oil? Which Sectors or Strategies do you favor?
- What do you feel is the proper Emerging Markets Allocation and are there any Regional or Frontier Strategies that interest you?
- Have you made Long-Term Cash Flow Investments through Partnerships and Co-Investment Structures?
- Do you Believe the Impact of Regulation has Created a Reduction in Market Liquidity? Has it Impacted your Fund or Decisions? Will there be Sufficient Liquidity in the System to Cope with Conditions of Market Stress?

(B) Alignment of Interests

- What Changes or Trends have you noticed in Fee Structures/Terms and your Bargaining Power?
- What Tactics work best for you when attempting to Negotiate Private Placement Agreements?
- Given the Low Return Environment, shouldn't there be an Industry-Wide Threshold (perhaps 3% - 4%), before

- Carried Interest Kicks In? How can we go about Making Progress with this Issue?
- Have you Trended Towards a Passive Equity Allocation with a Lower Cost?
 - What Support would help you to do a better job of Addressing and Solving Investment Problems? What Discretion and Authority do you have with those Problems?
 - Any Progress in granting you and your Investment Departments more Latitude in Tactically Managing your Portfolios in response to Extreme Economic Conditions?
 - Any important Lessons Learned that you can share from your Individual Plan Experiences?

Moderator:

Kristen Doyle, CFA, Partner, Head of Public Pension Funds, Aon Hewitt Investment Consulting

Speakers:

Christopher J. Ailman, Chief Investment Officer, California State Teachers' Retirement System, (CalSTRS)

Tom Tull, CFA, Chief Investment Officer, Employees Retirement System of Texas

John D. Skjervem, CFA, Chief Investment Officer, Oregon State Treasury; Oregon Investment Council

Craig Husting, CFA, Chief Investment Officer, Public School and Education Employee Retirement Systems of Missouri, (PSRS/PEERS)

5:20 PM – Conference Concludes

5:20 PM – Tickets for Networking Event handed out in Conference Room - attendees must be present to attend event

6:00 PM – Wine Tasting Networking Event & Dinner

Hosted by The Pension Bridge – Join our group for a wine tasting and dinner at the Press Club, located just next door to the Four Seasons. Meet your industry peers in great setting as California Wine Country comes to the heart of the city. Experience the finest winemakers with new and rare vintages. We'll have a fun wine tasting reception, followed by a tasteful dinner with the highest quality organic ingredients. The Pension Bridge will utilize the 9000 square feet of the award winning "Best Restaurant Design" event space for networking for our high quality conference group.

REGISTRATION:

To register or receive more information on The 2017 Pension Bridge Annual:

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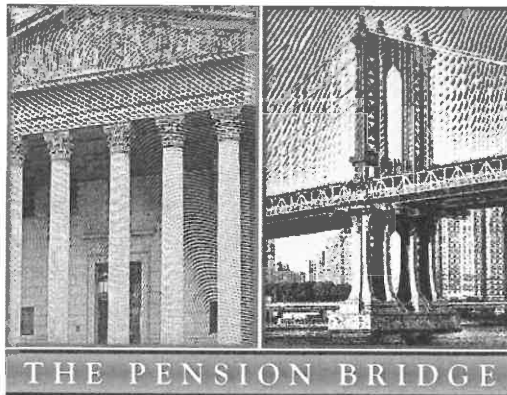
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Please visit www.pensionbridge.com for additional details. Registration is not available online due to the controlled attendance structure.

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