

Investment Committee Agenda

REGULAR MEETING

TUESDAY, FEBRUARY 12, 2019

**TIME: 10:30 A.M. OR IMMEDIATELY
FOLLOWING ADJOURNMENT
OF REGULAR BOARD MEETING**

MEETING LOCATION:

LACERS Ken Spiker Boardroom
202 West First Street, Suite 500
Los Angeles, CA 90012-4401

Live Committee Meetings can be heard at: (213) 621-CITY (Metro), (818) 904-9450 (Valley), (310) 471-CITY (Westside), and (310) 547-CITY (San Pedro Area).

Chair: Sung Won Sohn

Committee Members: Elizabeth Lee
Nilza R. Serrano

Manager-Secretary: Neil M. Guglielmo

Executive Assistant: Ani Ghoukassian

Legal Counselor: City Attorney's Office
Retirement Benefits Division

Sign Language Interpreters, Communication Access Real-Time Transcription, Assistive Listening Devices, or other auxiliary aids and/or services may be provided upon request. To ensure availability, you are advised to make your request at least 72 hours prior to the meeting you wish to attend. Due to difficulties in securing Sign Language Interpreters, five or more business days' notice is strongly recommended. For additional information, please contact: Board of Administration Office at (213) 473-7169.

- I. PUBLIC COMMENTS ON MATTERS WITHIN THE COMMITTEE'S JURISDICTION
- II. [APPROVAL OF MINUTES FOR THE INVESTMENT COMMITTEE MEETING OF JANUARY 8, 2019 AND POSSIBLE COMMITTEE ACTION](#)
- III. CHIEF INVESTMENT OFFICER VERBAL REPORT
- IV. [PRESENTATION BY DIMENSIONAL FUND ADVISORS LP REGARDING THE MANAGEMENT OF AN ACTIVE U.S. TREASURY INFLATION PROTECTED SECURITIES \(TIPS\) PORTFOLIO](#)
- V. [PRESENTATION BY DIMENSIONAL FUND ADVISORS LP REGARDING THE MANAGEMENT OF AN ACTIVE NON-U.S. EMERGING MARKETS VALUE EQUITIES PORTFOLIO](#)
- VI. [PRESENTATION BY OBERWEIS ASSET MANAGEMENT, INC. REGARDING THE MANAGEMENT OF AN ACTIVE NON-U.S. SMALL CAP EQUITIES PORTFOLIO](#)
- VII. [REPORT ON LACERS COMMISSION RECAPTURE PROGRAM AND SOFT DOLLARS](#)
- VIII. OTHER BUSINESS

IX. NEXT MEETING: The next Regular Meeting of the Investment Committee is scheduled for Tuesday, March 12, 2019, in the LACERS Ken Spiker Boardroom, 202 West First Street, Suite 500, Los Angeles, CA 90012-4401.

X. ADJOURNMENT

Board of Administration Agenda

SPECIAL MEETING

TUESDAY, FEBRUARY 12, 2019

**TIME: 10:30 A.M. OR IMMEDIATELY
FOLLOWING ADJOURNMENT
OF REGULAR BOARD MEETING**

MEETING LOCATION:

LACERS Ken Spiker Boardroom
202 West First Street, Suite 500
Los Angeles, CA 90012-4401

Live Committee Meetings can be heard at: (213) 621-CITY (Metro), (818) 904-9450 (Valley), (310) 471-CITY (Westside), and (310) 547-CITY (San Pedro Area).

President:	Cynthia M. Ruiz
Vice President:	Elizabeth L. Greenwood
Commissioners:	Elizabeth Lee Sandra Lee Nilza R. Serrano Sung Won Sohn Michael R. Wilkinson
Manager-Secretary:	Neil M. Guglielmo
Executive Assistant:	Ani Ghoukassian
Legal Counsel:	City Attorney's Office Retirement Benefits Division

Sign Language Interpreters, Communication Access Real-Time Transcription, Assistive Listening Devices, or other auxiliary aids and/or services may be provided upon request. To ensure availability, you are advised to make your request at least 72 hours prior to the meeting you wish to attend. Due to difficulties in securing Sign Language Interpreters, five or more business days' notice is strongly recommended. For additional information, please contact: Board of Administration Office at (213) 473-7169.

- I. PUBLIC COMMENTS ON MATTERS WITHIN THE COMMITTEE'S JURISDICTION
- II. APPROVAL OF MINUTES FOR THE INVESTMENT COMMITTEE MEETING OF JANUARY 8, 2019 AND POSSIBLE COMMITTEE ACTION
- III. CHIEF INVESTMENT OFFICER VERBAL REPORT
- IV. PRESENTATION BY DIMENSIONAL FUND ADVISORS LP REGARDING THE MANAGEMENT OF AN ACTIVE U.S. TREASURY INFLATION PROTECTED SECURITIES (TIPS) PORTFOLIO
- V. PRESENTATION BY DIMENSIONAL FUND ADVISORS LP REGARDING THE MANAGEMENT OF AN ACTIVE NON-U.S. EMERGING MARKETS VALUE EQUITIES PORTFOLIO
- VI. PRESENTATION BY OBERWEIS ASSET MANAGEMENT, INC. REGARDING THE MANAGEMENT OF AN ACTIVE NON-U.S. SMALL CAP EQUITIES PORTFOLIO

VII. REPORT ON LACERS COMMISSION RECAPTURE PROGRAM AND SOFT DOLLARS

VIII. OTHER BUSINESS

IX. NEXT MEETING: The next Regular Meeting of the Investment Committee is scheduled for Tuesday, March 12, 2019, in the LACERS Ken Spiker Boardroom, 202 West First Street, Suite 500, Los Angeles, CA 90012-4401.

X. ADJOURNMENT

MINUTES OF THE REGULAR MEETING
INVESTMENT COMMITTEE
BOARD OF ADMINISTRATION
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

LACERS Ken Spiker Boardroom
202 West First Street, Suite 500
Los Angeles, California

January 8, 2019

Agenda of: Feb. 12, 2019

Item No: II

11:37 a.m.

PRESENT:	Chair:	Sung Won Sohn
	Committee Members:	Elizabeth Lee Nilza R. Serrano
	Commissioner:	Elizabeth L. Greenwood
	Manager-Secretary:	Neil M. Guglielmo
	Executive Assistant:	Ani Ghoukassian
	Legal Counselor:	Anya Freedman

The Items in the Minutes are numbered to correspond with the Agenda.

Commissioner Greenwood was present at the Investment Committee Meeting. Any votes will be taken by Committee Members only.

I

PUBLIC COMMENTS ON MATTERS WITHIN THE COMMITTEE'S JURISDICTION – Chair Sohn asked if any persons wished to speak on matters within the Committee's jurisdiction, to which there was no response and no public comment cards received.

II

APPROVAL OF MINUTES FOR THE INVESTMENT COMMITTEE MEETING OF DECEMBER 11, 2018 AND POSSIBLE COMMITTEE ACTION – A Motion to approve the minutes of December 11, 2018 was moved by Committee Member Serrano, and adopted by the following vote: Ayes, Committee Members Elizabeth Lee, Serrano, and Chair Sohn –3; Nays, None.

III

CHIEF INVESTMENT OFFICER VERBAL REPORT – Rod June, Chief Investment Officer, shared the 12-month Investment Committee Calendar with the Investment Committee. Mr. June also advised the Committee that MFS has reduced their fees after a request from LACERS staff.

IV

INVESTMENT MANAGER CONTRACT WITH LOOMIS, SAYLES & COMPANY, L.P. REGARDING THE MANAGEMENT OF AN ACTIVE CORE DOMESTIC FIXED INCOME PORTFOLIO AND POSSIBLE COMMITTEE ACTION – Bryan Fujita, Chief Operating Officer and Jimmy Wang, Investment Officer I presented this item to the Committee. A motion to approve was moved by Committee Member Serrano and adopted by the following vote: Ayes, Committee Members Elizabeth Lee, Serrano, and Chair Sohn -3; Nays, None.

V

INVESTMENT MANAGER CONTRACT WITH ROBERT W. BAIRD & CO. INCORPORATED REGARDING THE MANAGEMENT OF AN ACTIVE DOMESTIC FIXED INCOME PORTFOLIO AND POSSIBLE COMMITTEE ACTION – Bryan Fujita, Chief Operating Officer and Jimmy Wang, Investment Officer I presented this item to the Committee. A motion to approve was moved by Committee Member Elizabeth Lee and adopted by the following vote: Ayes, Committee Members Elizabeth Lee, Serrano, and Chair Sohn -3; Nays, None.

VI

LACERS INVESTMENT POLICY STATEMENT REVIEW AND POSSIBLE COMMITTEE ACTION – Rod June, Chief Investment Officer, Eduardo Park, Investment Officer I, David Fann with Torrey Cove, and Carolyn Smith with NEPC discussed this item with the Committee. After several recommendations to staff and consultants, the Committee moved the Policy to the Board for consideration subject to education on Tactical Asset Allocation.

VII

OTHER BUSINESS – There was no other business.

VIII

NEXT MEETING – The next Regular Meeting of the Investment Committee is scheduled for Tuesday, February 12, 2019, in the LACERS Ken Spiker Boardroom, 202 West First Street, Suite 500, Los Angeles, CA 90012-4401.

IX

ADJOURNMENT – There being no further business before the Committee, Chair Sohn adjourned the Meeting at 12:59 p.m.

Sung Won Sohn
Chair

Neil M. Guglielmo
Manager-Secretary

Los Angeles City Employees' Retirement System

TIPS Strategy

February 12, 2019

David Plecha, CFA, Global Head of Fixed Income and Vice President

Karen Umland, CFA, Senior Portfolio Manager and Vice President

Joe Young, CFA, Vice President

This information is provided for registered investment advisors and institutional investors and is not intended for public use.
Dimensional Fund Advisors LP is an investment advisor registered with the Securities and Exchange Commission.

Relationship Summary

As of December 31, 2018

Account Value	Account Value	Annualized Excess Return (%) 3 Year (net of fee)	Annualized Excess Return (%) Since 1st Full Month (net of fee)	Account 1st Full Month
LACERS Emerging Markets Value	\$414,737,047	1.45	0.45	08/2014
LACERS TIPS	\$610,005,940	0.10	0.12	08/2014
Total	\$1,024,742,987			

Please see appendix for compliant presentation(s).

Performance data shown represents past performance and is no guarantee of future results. Net returns are reported net of all advisory fees and include reinvestment of dividends and other earnings. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost.

Agenda

- Dimensional Update
- Fixed Income Platform Overview
- US TIPS Portfolio Review
- Appendix

Dimensional Update

Dimensional at a Glance

As of December 31, 2018

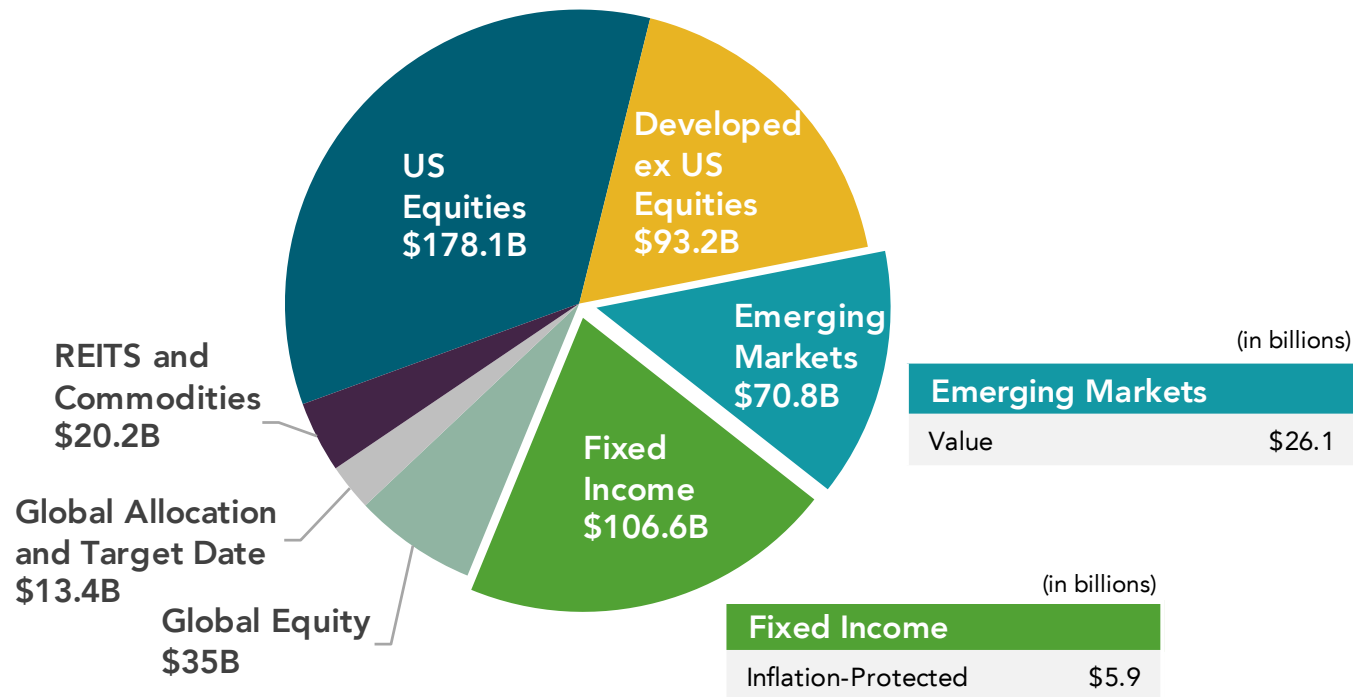


Assets in US dollars.

"Dimensional" refers to the Dimensional separate but affiliated entities generally, rather than to one particular entity. These entities are Dimensional Fund Advisors LP, Dimensional Fund Advisors Ltd., DFA Australia Limited, Dimensional Fund Advisors Canada ULC, Dimensional Fund Advisors Pte. Ltd., Dimensional Japan Ltd., and Dimensional Hong Kong Limited. Dimensional Hong Kong Limited is licensed by the Securities and Futures Commission to conduct Type 1 (dealing in securities) regulated activities only and does not provide asset management services.

Assets Under Management

\$517 billion in global AUM as of December 31, 2018



Public Fund Partial List of Clients

City and County of Kalamazoo

City of Baton Rouge
 County of Los Angeles Deferred Compensation

Florida State Board of Administration

Illinois Municipal Retirement Fund

Los Angeles Department of Water & Power System

Los Angeles Fire and Police Pensions

Maryland State Retirement Agency

Mississippi Public Employees Retirement System

Municipal Fire & Police

Retirement System of Iowa

Nebraska Investment Council

Nova Scotia Health Employees' Pension Plan

Teachers' Retirement Allowances Fund

Utah State Retirement Systems

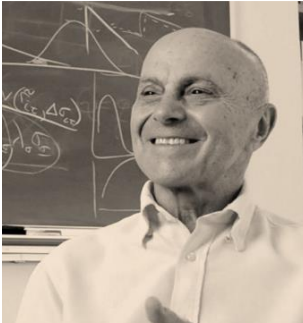
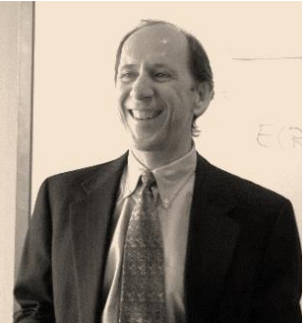


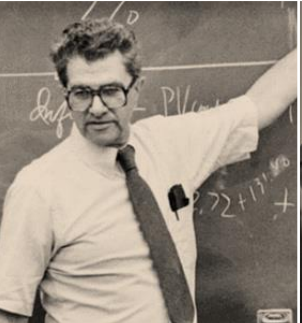





"Dimensional" refers to the Dimensional separate but affiliated entities generally, rather than to one particular entity. These entities are Dimensional Fund Advisors LP, Dimensional Fund Advisors Ltd., DFA Australia Limited, Dimensional Fund Advisors Canada ULC, Dimensional Fund Advisors Pte. Ltd., Dimensional Japan Ltd., and Dimensional Hong Kong Limited. Dimensional Hong Kong Limited is licensed by the Securities and Futures Commission to conduct Type 1 (dealing in securities) regulated activities only and does not provide asset management services. All assets in US dollars. Numbers may not total 100% due to rounding.

Partial Client List As of January 9, 2019.

Clients in bold have been clients with Dimensional for 10 or more years. Some entities listed do not engage Dimensional directly, but invest in a commingled vehicle advised by Dimensional. This list is solely a partial list of clients of the Dimensional group of companies and is generally representative of Dimensional's institutional client base. Clients have given consent to be included and were not chosen based on performance-based criteria. This list should not be construed as an expression of any client's experience with Dimensional, or a suggestion that one client's experience is in any way indicative of another client's future experience with Dimensional. Inclusion of a client's name on the list should not be taken as an indication that the client approves or disapproves of Dimensional or the advisory services provided to either the client and/or the commingled vehicle in which the client may be invested.

A Heritage of Leading Research

The bar for research at Dimensional has been set by the best in the field

					
Eugene Fama 	Kenneth French	Robert Merton 	Robert Novy-Marx	Merton Miller 	Myron Scholes 
University of Chicago Dimensional Director and Consultant, Dimensional, ¹ 1981–present	Dartmouth College Consultant, Dimensional, ¹ 1986–present Co-Chair of the Investment Research Committee, Dimensional, ¹ 2006–present Dimensional Director, 2006–present	MIT Director, Dimensional US Mutual Funds, 2003–2009 Resident Scientist, Dimensional Holdings Inc., 2010–present	University of Rochester Consultant, Dimensional, ¹ 2014–present	University of Chicago Independent Director, Dimensional US Mutual Funds, 1981–2000	Stanford University Independent Director, Dimensional US Mutual Funds, 1981–present

“At Dimensional, we don’t jump on every new idea that comes along. We’re looking for what will stand up over a long period of time.”

Eugene Fama
Nobel laureate, 2013

1. Dimensional Fund Advisors LP.

"Dimensional Directors" refers to the Board of Directors of the general partner of Dimensional Fund Advisors LP, an affiliate of Dimensional Fund Advisors Canada ULC.

Implementation Requires Expertise

Taking knowledge and information and implementing it in a real test, not in a backtest, is what counts



DAVID BOOTH
Executive Chairman
and Founder



GERARD K. O'REILLY, PhD
Co-Chief Executive Officer
and Chief Investment Officer



DAVE BUTLER
Co-Chief Executive Officer

Global Research Team



MARLENA LEE, PhD
Co-Head of Research



SAVINA RIZOVA, PhD
Co-Head of Research



PETE DILLARD
Chief Data Officer and Head of
Investment Analytics and Data

Global Portfolio Management and Trading Team



JOSEPH CHI
Co-Head of Global
Portfolio Management



JED FOGDALL
Co-Head of Global
Portfolio Management



RYAN WILEY
Head of
Global Equity Trading



Diversity and Inclusion Overview

Committed to providing a respectful work environment

Dimensional believes that our strength lies in the unique skills, perspectives and attributes each employee brings to the company. Diversity and inclusion efforts begin with the recruitment process and continue throughout an employee's career at Dimensional.

Recruiting and Hiring

Since the firm's beginning in 1981, it has been Dimensional's policy to provide equal opportunity for all employees and applicants.

- Broadening the diversity of our talent pool: Dimensional works closely with diversity-related student groups on campus as well as other organizations, which have included the Robert Toigo Foundation and the Forté Foundation.
- Reducing barriers: Dimensional trains employees on interview best practices for consistent and effective evaluation and techniques to mitigate unconscious bias. We are also careful to use neutral language in job descriptions to make sure applicants from diverse backgrounds are not dissuaded from applying.
- Update calls: For clients with a stated interest in diversity and inclusion efforts related to recruiting and hiring, Dimensional may coordinate annual phone calls to update the client on our diversity recruiting efforts. Generally, these calls are with Dimensional's senior personnel in charge of hiring and talent development.

Talent Development and Career Advancement

Dimensional provides opportunities for learning, growth and advancement so that all employees have the opportunity for challenging, rewarding, and fulfilling careers at Dimensional. We actively participate in professional development initiatives to reach women and minority groups, including the National Association of Securities Professionals.

Vendor Outreach

Dimensional has made a concerted effort to use minority, women, and disabled veterans' business enterprises (M/W/DVBE), including employment agencies and brokerage firms.

Fixed Income Platform Overview

Managing Fixed Income Portfolios to Meet Investor Goals



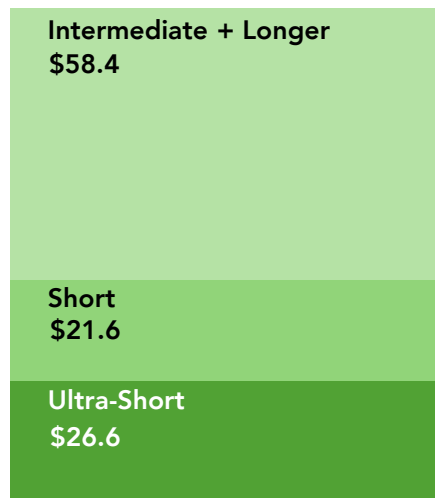
- Customizing fixed income portfolios is easier than equity portfolios.
- Hedging needs are more easily defined, and risks are easier to manage.
- What can an investor control?

Since 1983, Dimensional has used these investment considerations when managing fixed income portfolios to address investor goals.

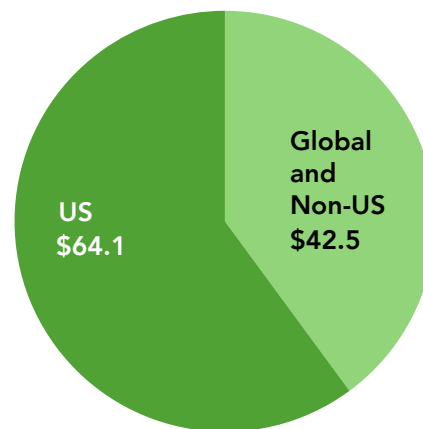
Extensive Fixed Income Capabilities

More than 30 years of experience and \$106.6 billion in global fixed income assets under management¹

STRATEGIES BY DURATION

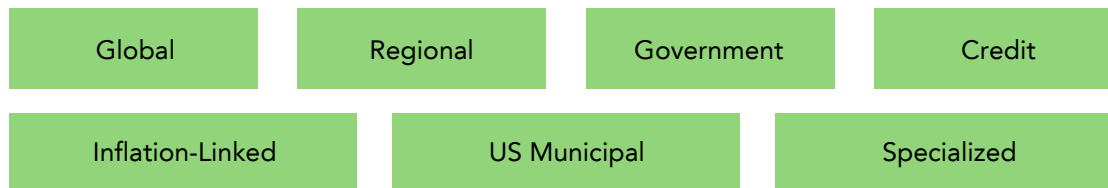


STRATEGIES BY REGION OF INVESTMENT



- Earliest strategy inception in 1983
- Multidisciplinary franchise with global reach
- Based upon rigorous academic research
- Experienced investment team
- Consistent portfolio management and execution
- Value-added execution
- Competitively priced solutions

MANDATE CATEGORIES



1. Dimensional Fund Advisors LP, Dimensional Fund Advisors Ltd., DFA Australia Limited, Dimensional Fund Advisors Canada ULC, Dimensional Fund Advisors Pte. Ltd., and Dimensional Japan Ltd., and Dimensional Hong Kong Limited. Dimensional Hong Kong Limited is licensed by the Securities and Futures Commission to conduct Type 1 (dealing in securities) regulated activities only and does not provide asset management services. As of December 31, 2018.

All assets in US dollars. Numbers may not total 100% due to rounding.

Global Fixed Income Team

Dedicated to consistent implementation of investment strategies

PORTFOLIO MANAGEMENT			
	Years of Experience		
Austin	Industry	Firm	
Joseph Kolerich, ¹ Senior PM	25	17	
Pamela Noble, CFA	26	10	
Alan Hutchison	12	12	
Lacey Huebel, CFA	8	6	
Aafsar Dhuka	3	1	
Charlotte			
Travis Meldau	15	7	
Jonathon Mershimer, CFA	7	1	
Brett Balasa	3	2	
Santa Monica			
David Plecha, ^{1,2} CFA, Global Head	31	29	
Alexander Fridman, PhD, CFA, FRM	13	5	
David Shao, CFA	12	12	
Ryan Haselton	10	3	
London			
Joel Kim, CFA, Senior PM	21	2	
Kipp Cummins, CFA	12	6	
Sebastian Dudziak	2	1	
Sydney			
Stephen Garth, PhD	17	17	
Gillian Wilson	16	10	
Timo Zauner, CFA	11	1	
Tokyo			
Kotaro Hama, CFA, FRM	9	6	

TRADING			
	Years of Experience		
Austin	Industry	Firm	
David LaRusso, Senior Trader	18	18	
Robert Richardson	20	6	
Elizabeth Van Pelt	9	8	
Charlotte			
Polly Weiss, CFA, FRM, Senior Trader	13	10	
Santa Monica			
Claudette Higdon	18	18	
London			
Archit Soni	9	3	

PRODUCT MANAGEMENT AND STRATEGY			
	Years of Experience		
Austin	Industry	Firm	
Tom Goodrum, CFA	23	6	
Douglas Longo	16	4	
Sooyeon Kim	3	1	

Investment Research Committee

- Long-term, strategic focus
- 15 members, including 2 Nobel laureates

Investment Committee

- Implementation and daily oversight
- 13 members
- Average 19 years of firm experience

Research

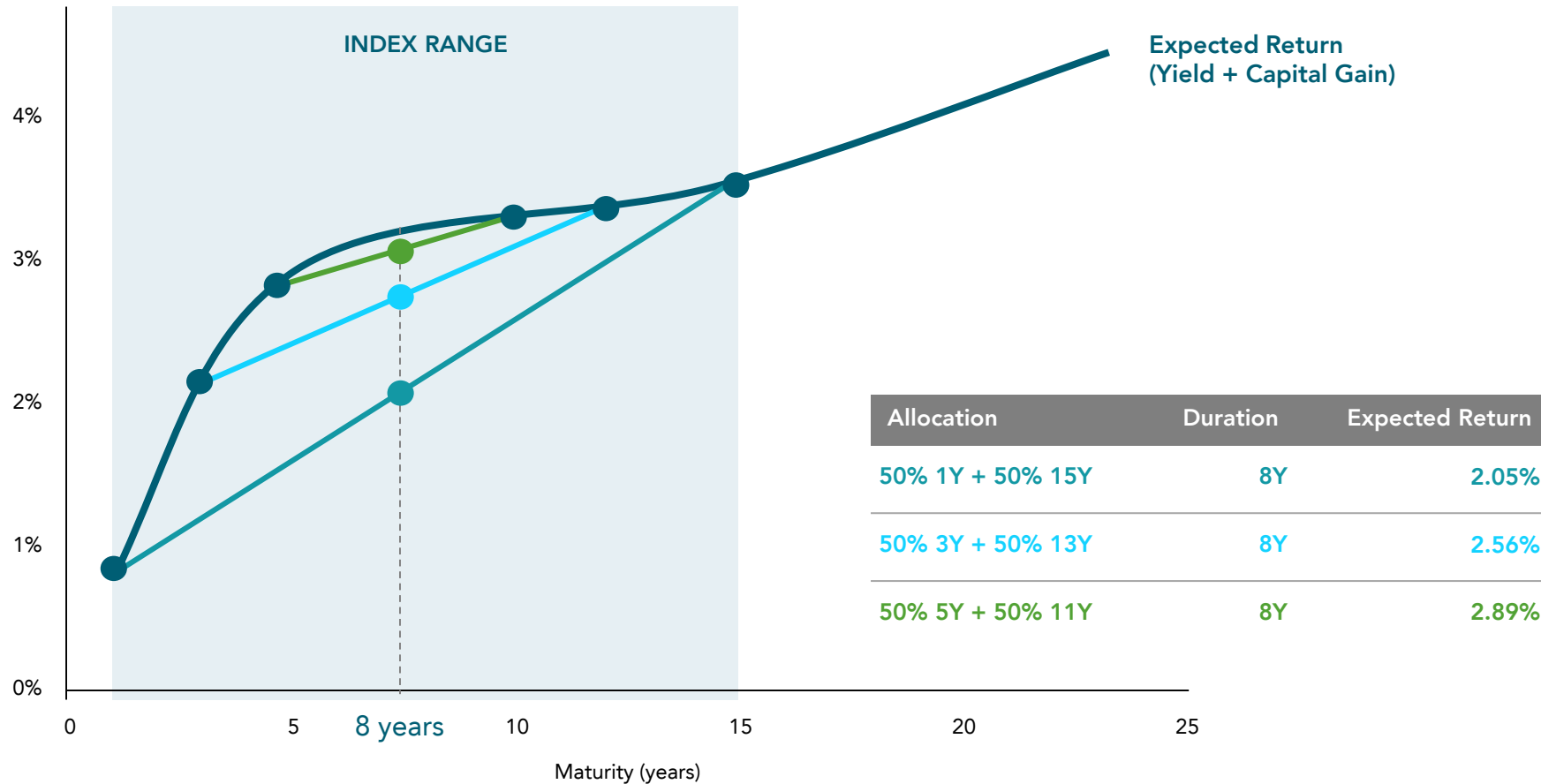
- Synthesis of client needs and financial theory into investment solutions
- 80+ professionals, including 19 PhDs

As of January 1, 2019. Years of experience as of December 31, 2018.

1. Investment Committee member.

2. Investment Research Committee member.

Using Expected Returns Computed from Yield Curve



Hypothetical example, for illustrative purposes only. Expected returns are calculated using the spot yield curve assuming a 1-year holding period. The actual calculation for expected capital appreciation is: $\text{Expected Capital Gain (Loss)} = \text{Change in Yield} \times \text{Duration at End of Holding Period}$. For more information, please see Wei Dai, "Pursuing Higher Expected Returns with Duration Constraints" (white paper, Dimensional Fund Advisors, 3/31/2017).

US TIPS Portfolio Review

Los Angeles City Employees' Retirement System—TIPS

Overview as of December 31, 2018¹

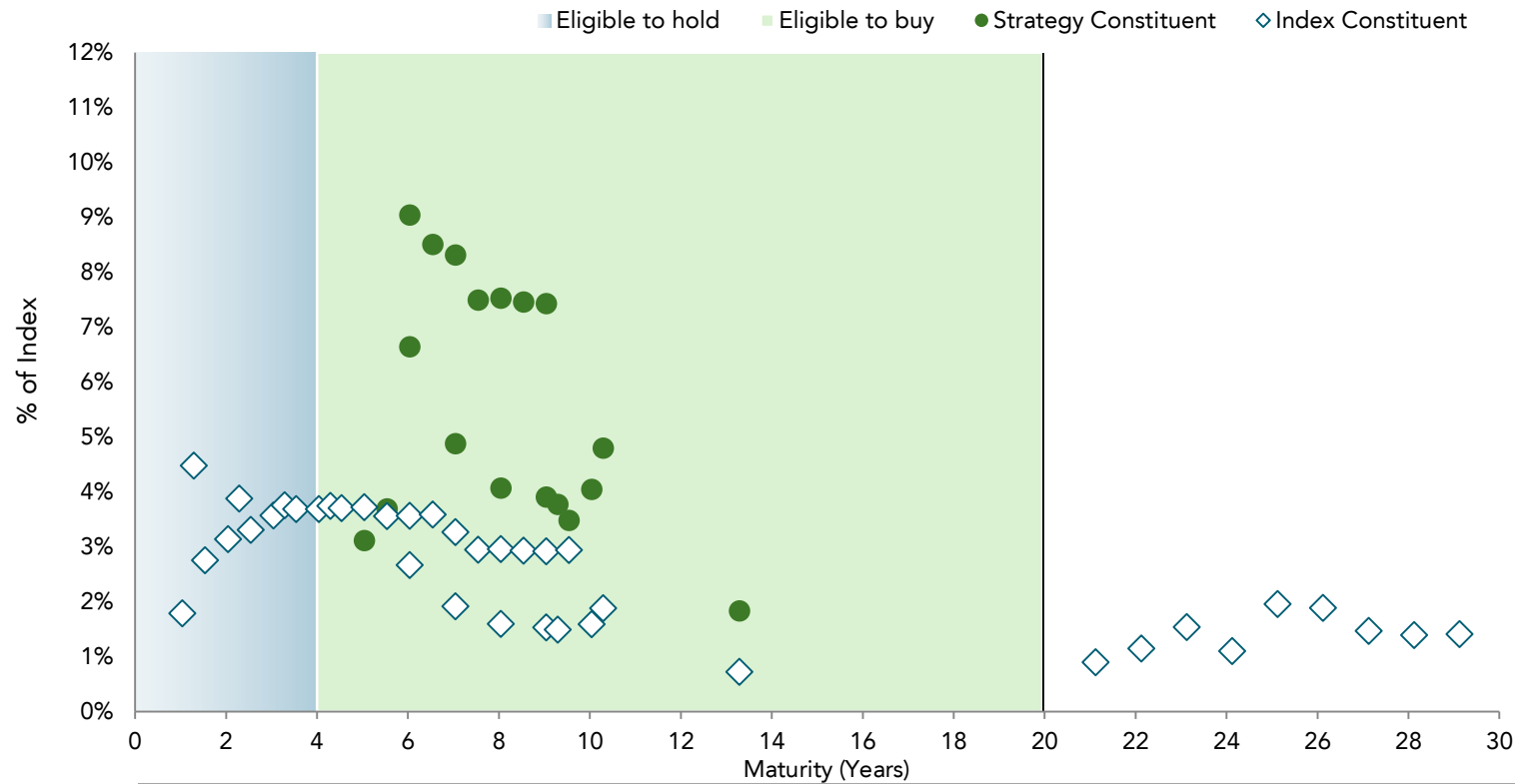
PORTFOLIO OVERVIEW		
Inception Date	July 2014	
Assets Under Management	\$610.0 million (Strategy AUM \$5.2 billion)	
Eligible Investments ²	TIPS	Cash Equivalents
Credit Quality Eligibility	US Treasury	
Primary Investment Parameters ²		
Average Duration	Benchmark-like duration	
Security Maturity	4–20 years at purchase; Can hold to maturity	
Derivatives	None	
Leverage	None	
Benchmark		
Bloomberg Barclays	US TIPS Index	

1. Subject to change.

2. Not comprehensive.

Los Angeles City Employees' Retirement System—TIPS

Los Angeles City Employees' Retirement System—TIPS and
Bloomberg Barclays US TIPS Index—NAV Allocation View



	0-4	4-20	20-30
Strategy %	0.0%	100.0%	0.0%
Index %	30.3%	56.9%	12.8%
Strategy Constituents	0	18	0
Index Constituents	9	21	9

Los Angeles City Employees' Retirement System—TIPS

As of December 31, 2018

	Average Duration (Years)	Average Maturity (Years)	Average Coupon	Yield to Maturity
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM—TIPS	7.36	7.78	1.17	1.00
Bloomberg Barclays US TIPS Index	7.32	7.90	0.81	1.11

DISTRIBUTION BY MATURITY (%)



Performance data shown represents past performance and is no guarantee of future results. Performance includes reinvestment of dividends and other earnings. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Benchmark is the Bloomberg Barclays US TIPS Index. Bloomberg Barclays data provided by Bloomberg. Holdings are subject to change.

Los Angeles City Employees' Retirement System—TIPS

Performance as of December 31, 2018

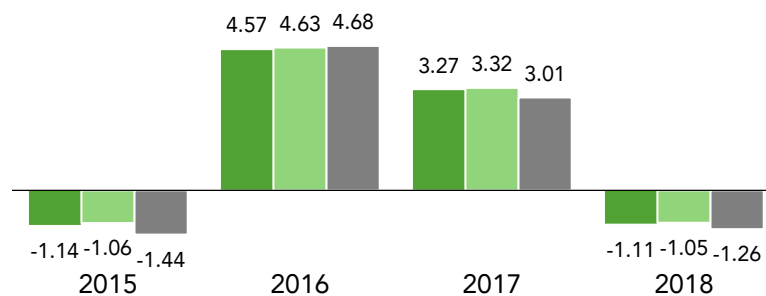
Annualized Returns ¹ (%)	4th Quarter 2018	1 Year	3 Years	Since 8/14 Account 1st Full Month
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM—TIPS (net of fees)	-0.03	-1.11	2.21	0.73
Bloomberg Barclays US TIPS Index	-0.42	-1.26	2.11	0.61
Excess Return (%)	0.39	0.16	0.10	0.12

Account Value

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM—TIPS	\$610,005,940
---	----------------------

CALENDAR YEAR RETURNS (%)

- Los Angeles City Employees' Retirement System—TIPS (net of fees)
- Los Angeles City Employees' Retirement System—TIPS (gross of fees)
- Bloomberg Barclays US TIPS Index



Please see appendix for compliant presentation(s).

Performance data shown represents past performance and is no guarantee of future results. Performance is presented net of fees and gross of fees. Net returns are reported net of all advisory fees and include reinvestment of dividends and other earnings. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Returns for periods shorter than one year are not annualized.

Bloomberg Barclays data provided by Bloomberg. Indices are not available for direct investment.

Appendix

Presenters' Biographies



David Plecha, CFA

Global Head of Fixed Income and Vice President

Dave Plecha is Dimensional's Global Head of Fixed Income. Dave is an enthusiastic and incisive communicator at the firm's conferences and seminars. A member of the Investment Committee and Investment Research Committee, he not only manages US and global portfolios but also maintains much of the fixed income research and client communications. Dave has been instrumental in the planning and execution of Dimensional's tax-managed separate account strategies in the US.

Dave received his Chartered Financial Analyst® designation in 1996. Prior to joining Dimensional in 1989, he managed stock index futures and options for Leland O'Brien Rubinstein Associates and was an operations planner for Texas Instruments. He holds an MBA from the University of California, Los Angeles, and a BS in industrial and operations engineering from the University of Michigan.



Karen Umland, CFA

Senior Portfolio Manager and Vice President

Karen is a Senior Portfolio Manager and a member of the Investment Committee at Dimensional. Her responsibilities include general oversight of portfolios, and she frequently speaks at presentations and meetings with clients, prospects, and consultants.

Karen joined Dimensional in 1993 as a general Portfolio Manager in US equities after beginning her investment career with the Yale University Investment Office in 1988. In 1995, she moved over to the international Portfolio Management group within Dimensional and spent the next 14 years directly involved in the portfolio construction and trading of the non-US developed and emerging markets strategies. A CFA® charterholder, Karen has a BA in economics from Yale University and an MBA from the Anderson School of Management at the University of California, Los Angeles.

Presenters' Biographies



Joseph L. Young, CFA

Vice President

Joseph Young is a Vice President responsible for developing and maintaining relationships with public pension funds, foundations, endowments, Taft-Hartley plan sponsors, and corporate pension and defined contribution plans.

Joe began his career with Dimensional in February 2002, focusing on consultant relations. Prior to joining Dimensional, he worked as a project management analyst at Global Crossing. He is an active member of the CFA Society of Austin, National Society of Institutional Investment Professionals, CALAPRS, and the Texas Association of Public Employee Retirement Systems (TEXPERS). He is a guest lecturer for the College of Business at Colorado State University. Joe received a BS in finance from the University of Idaho and is a CFA® charterholder.

Dimensional Fund Advisors and Affiliates

Global Organizational Leadership

EXECUTIVE

David G. Booth¹ Founder and Executive Chairman

David P. Butler¹ Co-Chief Executive Officer, Head of Global Financial Advisor Services, and Dimensional Director

Gerard K. O'Reilly¹ Co-Chief Executive Officer, Chief Investment Officer, and Dimensional Director

Stephen A. Clark¹
President of Dimensional International

INVESTMENT PROFESSIONALS

RESEARCH

Gerard K. O'Reilly¹
Co-Chief Executive Officer, Chief Investment Officer, and Dimensional Director

Peter Dillard
Chief Data Officer
and Head of Investment Analytics and Data

Marlena Lee
Co-Head of Research

Savina Rizova¹
Co-Head of Research

PORTFOLIO MANAGEMENT AND TRADING

Joseph H. Chi¹
Co-Head of Portfolio Management

Robert T. Deere¹
Senior Investment Director

Jed S. Fogdall¹
Co-Head of Portfolio Management

Jason Lapping
Head of International Equity Trading

David A. Plecha¹
Global Head of Fixed Income

Bhanu Singh
Head of Asia Pacific Portfolio Management and Director

Ryan Wiley¹
Head of Global Equity Trading

DIMENSIONAL DIRECTORS

David G. Booth¹ Executive Chairman

David P. Butler¹

Eugene F. Fama, Nobel laureate and Consultant

Kenneth R. French, Consultant

John A. McQuown

Gerard K. O'Reilly¹

SALES AND CLIENT SERVICE

David P. Butler¹
Co-Chief Executive Officer, Head of Global Financial Advisor Services, and Dimensional Director

Mark Gochmour
Head of Financial Advisor Services International and Advisor Services

Craig Horvath
Global Head of Consultant Relations

David R. Jones
Head of Financial Advisor Services, EMEA

Kevin Kandasamy
Head of Institutional, Australia

Nathan Krieger
Head of Financial Advisor Services, Australia

Bryce Skaff
Head of US Financial Advisor Services and Strategic Relationship

Bradley G. Steiman
Director and Head of Canadian Financial Advisor Services

Joel Teasdel
Head of Financial Advisor Services, Asia ex Japan

Erik van Houwelingen
Head of European Sales, Dimensional Fund Advisors Ltd. (DFAL)

Carlo Venes
Head of Global Institutional Services

CORPORATE

COMPLIANCE AND RISK MANAGEMENT

Christopher S. Crossan
Global Chief Compliance Officer

FINANCIAL/ACCOUNTING SERVICES

Gregory K. Hinkle
Chief Financial Officer and Treasurer

HUMAN RESOURCES

Aaron Marcus
Head of Global Human Resources

INVESTMENT OPERATIONS

Richard A. Eustice
Head of Global Investment Operations

LEGAL

Catherine L. Newell
General Counsel and Secretary

MARKETING

Karen Dolan
Head of Marketing

RISK MANAGEMENT

Jeffrey Vernor
Head of Risk Management

TECHNOLOGY

Michael Holmes
Chief Technology Officer

AFFILIATES

DIMENSIONAL FUND ADVISORS LTD. (LONDON)
Nathan Lacaze, CFA
Co-CEO and Head of EMEA Portfolio Management

John S. Romiza
Co-CEO

DFA AUSTRALIA LIMITED (SYDNEY)
J. Glenn Crane
Chairman and Chief Executive Officer

DIMENSIONAL JAPAN LTD. (TOKYO)
John R. Alkire
Chief Executive Officer

DIMENSIONAL FUND ADVISORS PTE. LTD. (SINGAPORE)
Peng Chen
Director, Chief Executive Officer, Asia ex Japan

DIMENSIONAL FUND ADVISORS CANADA ULC (VANCOUVER)
Bradley G. Steiman
Director and Head of Canadian Financial Advisor Services

As of January 1, 2019.

1. Member of the Investment Committee of Dimensional Fund Advisors LP.

All listed individuals are employees of Dimensional Investment LLC, a subsidiary of Dimensional Fund Advisors LP.

"Dimensional Directors" refers to the Board of Directors of the general partner of Dimensional Fund Advisors LP.

Summary of Portfolio Risk Management

Provides diversification and broad oversight with minimal style drift

Emerging Markets Strategies

Concentration Risk

- Highly diversified across countries
- Country diversification leads to diversification across multiple currencies
- Sector target weights typically capped at their approximate weight in a broadly diversified, sector-neutral universe plus an additional 10%
- Industry groups generally capped at 25%
- Guidelines target a maximum 5% per issue at time of purchase

Implementation Risk

- Team managed
- Approved exchanges only; ongoing evaluation of listing requirements, liquidity, and settlement mechanism

Operational Risk

- Charles River customized Order Management System
- Comprehensive pre- and post-trade compliance
- Independent accountant, custodian bank, and auditors
- Independent SSAE 16 audit performed annually

Style Risk

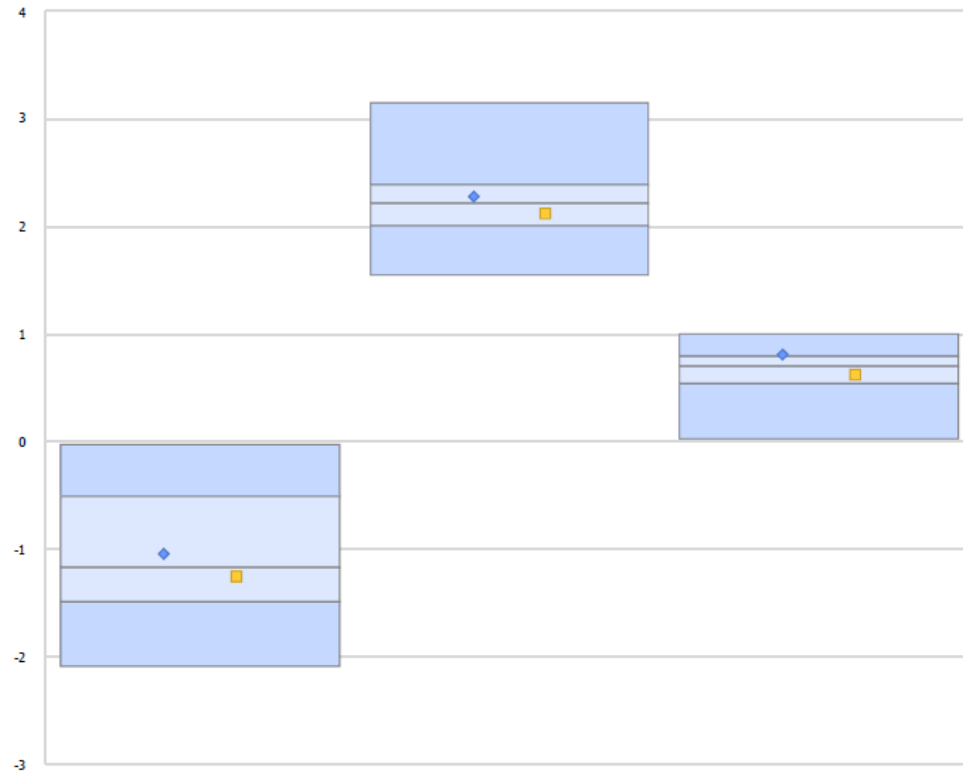
- Monitor characteristics of individual securities and overall strategy to prevent style drift
-

eVestment Universe: TIPS



Returns as of: December 31, 2018

◆ Dimensional: LACERS TIPS
 ■ Bloomberg Barclays Index: Bloomberg Barclays US TIPS



Universe: eVestment US TIPS / Inflation Fixed Income

	VT	RM	1 Year		3 Years		Since Inception 4.42 Years ¹	
				Rk		Rk		Rk
5th percentile			-0.04		3.14		0.99	
25th percentile			-0.52		2.38		0.78	
Median			-1.18		2.21		0.69	
75th percentile			-1.50		2.00		0.53	
95th percentile			-2.10		1.54		0.02	
# of Observations			47		46		46	
◆ Dimensional: LACERS TIPS	SA	GF	-1.05	43	2.27	39	0.80	23
■ Bloomberg Barclays Index: Bloomberg Barcl...	IX	IX	-1.26	58	2.11	63	0.61	62

Results displayed in USD.

¹08/2014 - 12/2018

Source: eVestment

Please see appendix for compliant presentation(s). For informational purposes and is provided at client's request. Performance data shown represents past performance and is no guarantee of future results. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. It is not possible to invest directly in an index. LACERS TIPS return is gross of fee. Gross returns include the reinvestment of dividends and other earnings, and include the deduction of all trading expenses, but do not reflect the deduction of investment advisory fees or any other expenses that will be incurred in the management of the account. A client's investment return will be reduced by the advisory fees and other expenses it will incur in the management of its advisory account. Bloomberg Barclays data provided by Bloomberg. Indices are not available for direct investment.

Fixed Income Attribution Analysis by Maturity

Los Angeles City Employees' Retirement System—TIPS (net of fees) vs. Bloomberg Barclays US TIPS Index

1 Year as of December 31, 2018

Maturity (years)	Portfolio Average Weights	Benchmark Average Weights	Portfolio Return	Benchmark Return	Portfolio Allocation	Portfolio Composition	Interaction	Total
1–2	—	8%	—	0.95%	-0.18%	—	-0.00%	-0.18%
2–3	—	10%	—	0.57%	-0.18%	—	-0.00%	-0.18%
3–4	—	11%	—	0.28%	-0.17%	—	-0.00%	-0.17%
4–5	—	10%	—	0.10%	-0.14%	—	-0.00%	-0.14%
5–6	8%	8%	-0.23%	-0.12%	0.00%	-0.01%	-0.00%	-0.01%
6–7	23%	10%	-0.57%	-0.54%	0.11%	-0.01%	0.00%	0.10%
7–8	22%	9%	-0.97%	-0.96%	0.03%	-0.00%	0.00%	0.03%
8–9	19%	8%	-1.39%	-1.36%	-0.01%	-0.01%	0.00%	-0.02%
9–10	16%	8%	-1.58%	-1.62%	-0.02%	0.02%	0.00%	0.00%
10–15	12%	5%	-1.54%	-1.59%	-0.04%	0.00%	0.00%	-0.04%
15–20	—	—	—	—	—	—	—	—
20+	—	13%	—	-7.33%	0.78%	—	0.00%	0.79%
Cash	—	—	—	—	—	—	—	—
Estimated Total	100%	100%	-1.08%	-1.26%	0.19%	-0.01%	0.00%	0.18%
Expenses and Fees			-0.05%	—				-0.05%
Other			0.03%	0.00%				0.03%
Total			-1.11%	-1.26%				0.16%

In 2018, the portfolio's underweight in short and long ends of the TIPS curve contributed to outperformance

Please see appendix for compliant presentation(s).

Attribution constructed using holdings-based information that utilizes an internally developed system. Additional information available upon request.

Performance data shown represents past performance and is no guarantee of future results. Performance includes reinvestment of dividends and other earnings. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost.

Holdings are subject to change. Bloomberg Barclays data provided by Bloomberg.

Portfolio Holdings

Los Angeles City Employees' Retirement System—TIPS, as of December 31, 2018

Security Name	Percent of Portfolio
TSY INFL IX N/B .250000% 01/15/2025	9.04%
TSY INFL IX N/B .375000% 07/15/2025	8.51%
TSY INFL IX N/B .625000% 01/15/2026	8.32%
TSY INFL IX N/B .375000% 01/15/2027	7.53%
TSY INFL IX N/B .125000% 07/15/2026	7.50%
TSY INFL IX N/B .375000% 07/15/2027	7.46%
TSY INFL IX N/B .500000% 01/15/2028	7.43%
TSY INFL IX N/B 2.375000% 01/15/2025	6.64%
TSY INFL IX N/B 2.000000% 01/15/2026	4.88%
TSY INFL IX N/B 3.875000% 04/15/2029	4.80%

Investment Guidelines

As of December 31, 2018

Manager: Dimensional Fund Advisors LP — TIPS

Benchmark: Bloomberg Barclays US TIPS Index

GUIDELINE	RANGE	CURRENT	WITHIN RANGE?
Portfolio Effective Duration	Benchmark Effective Duration +/- 0.5 years	7.36 years (+0.4)	Yes
Number of Issuers	Typically only Treasuries	Only Treasuries	Yes
Portfolio Credit Quality	Equal to or greater than the rating of the U.S. Treasury	Equal to or greater than the rating of the U.S. Treasury	Yes
Individual Issue Credit Quality	Equal to or greater than the U.S. Treasury	Equal to or greater than the U.S. Treasury	Yes

Diversity – Senior Employees and Executives

Senior Employees and Executives (VP/RD/PM and Above)

Diversity continues to increase based on targeted recruiting and bench strength at junior levels:

- Senior employees (VP/RD/PM levels): 33% of the US employee population with 25% women and 18% minority.
- Executive employees¹ (Executive Committee & Department Heads): 20% women, increased from 13% in 2016.

US Breakdown—Current Dimensional Employees and Prior Year Hiring

	CURRENT EMPLOYEES ²	2017 HIRING
Female (%)	36.1%	40.8%
Male (%)	63.9%	59.2%
Minority (%)	30.0%	29.0%

¹ as of 12/1/18 (includes 16 department heads (4 female) and 4 additional EC members who are not department heads (DGB, DB, GO, SC))

² as of 9/1/18

Internal Training

Investment Professionals

Dimensional recognizes that the recruitment of high-quality investment professionals is a key factor in the firm's long-term success. We use a combination of methods depending on the position. Portfolio managers and traders are generally hired as experienced professionals with prior experience in investment management, engineering, or other quantitative fields. Junior investment staff may be hired upon graduation from college and may have some prior work experience.

Regardless of prior experience, all investment professionals complete an internal training program. Each phase of the program is under the direct supervision of more senior personnel and is designed to integrate strategy and investment knowledge with practical skills involving internal systems, policies, and procedures. Only after appropriate training and testing is an investment associate, portfolio manager, or trader authorized by the Investment Committee to approve trades for client accounts.

Client-facing Professionals

All client-facing professionals are required to participate in Dimensional's Core Curriculum process. During these sessions, subject matter experts ensure that all external-facing team members have a sufficiently deep understanding of Dimensional's investment philosophy and process to adequately explain our approach. This effort, which is repeated every few years, culminates in a Capstone Presentation where they must prove this level of understanding to their peers and senior managers of the firm.

Workplace Composition

TOTAL COMPOSITION OF WORK FORCE (UNITED STATES)										
<u>Occupation</u>	<u>African American Full Time</u>	<u>Hispanic Full Time</u>	<u>Asian or Pacific Islander Full Time</u>	<u>American Indian/ Alaskan Native Full Time</u>	<u>Caucasian (Non Hispanic) Full Time</u>	<u>Two or More Full Time</u>	<u>Total Employees Full Time</u>	<u>Percent (%) Minority Full Time</u>	<u>Gender Full Time</u>	
									<u>Male</u>	<u>Female</u>
Officials & Managers	3	8	27	0	140	6	184	23.91%	118	66
Professionals	7	39	84	2	250	7	389	35.73%	262	127
Technicians	5	4	1	0	7	1	18	61.11%	15	3
Sales Workers	13	19	24	1	304	13	374	18.72%	260	114
Office/Clerical	7	11	2	1	51	4	76	32.89%	13	63
Semi-Skilled	0	0	0	0	0	0	0	0.00%	0	0
Unskilled	0	0	0	0	0	0	0	0.00%	0	0
Service Workers	0	0	0	0	0	0	0	0.00%	0	0
Other	0	0	0	0	0	0	0	0.00%	0	0
Total	35	81	138	4	752	31	1,041	24.78%	668	373

Index Descriptions

Dimensional US Small Cap Index was created by Dimensional in March 2007 and is compiled by Dimensional. It represents a market-capitalization-weighted index of securities of the smallest US companies whose market capitalization falls in the lowest 8% of the total market capitalization of the eligible market. The eligible market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and investment companies. From January 1975 to the present, the index also excludes companies with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat. The index monthly returns are computed as the simple average of the monthly returns of 12 sub-indices, each one reconstituted once a year at the end of a different month of the year. The calculation methodology for the Dimensional US Small Cap Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index.

Dimensional US High Profitability Index was created by Dimensional in January 2014 and represents an index consisting of US companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three high-profitability subgroups. It is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat.

Dimensional US Low Profitability Index was created by Dimensional in January 2014 and represents an index consisting of US companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. It is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat.

Dimensional International Small Cap Index was created by Dimensional in April 2008 and is compiled by Dimensional. July 1981–December 1993: It Includes non-US developed securities in the bottom 10% of market capitalization in each eligible country. All securities are market capitalization weighted. Each country is capped at 50%. Rebalanced semiannually. January 1994–Present: Market-capitalization-weighted index of small company securities in the eligible markets excluding those with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of a different quarter of the year. Prior to July 1981, the index is 50% UK and 50% Japan. The calculation methodology for the Dimensional International Small Cap Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index.

Index Descriptions

Dimensional International Low Profitability Index was created by Dimensional in January 2013 and represents an index consisting of non-US developed companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional International High Profitability Index was created by Dimensional in January 2013 and represents an index consisting of non-US developed companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three high-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional Emerging Markets Low Profitability Index was created by Dimensional in April 2013 and represents an index consisting of emerging markets companies and is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional Emerging Markets High Profitability Index was created by Dimensional in April 2013 and represents an index consisting of emerging markets companies and is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three high-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional Emerging Markets Small Cap Index was created by Dimensional in April 2008 and is compiled by Dimensional. January 1989–December 1993: Fama/French Emerging Markets Small Cap Index. January 1994–Present: Dimensional Emerging Markets Small Cap Index composition: Market-capitalization-weighted index of small company securities in the eligible markets excluding those with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of a different quarter of the year. Source: Bloomberg. The calculation methodology for the Dimensional Emerging Markets Small Cap Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index.

The Dimensional Indices have been retrospectively calculated by Dimensional Fund Advisors LP and did not exist prior to their index inception dates. Accordingly, results shown during the periods prior to each index's index inception date do not represent actual returns of the index. Other periods selected may have different results, including losses. Backtested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Backtested performance results assume the reinvestment of dividends and capital gains. Eugene Fama and Ken French are members of the Board of Directors of the general partner of, and provide consulting services to, Dimensional Fund Advisors LP.

Index Descriptions

Fama/French US Value Research Index: Provided by Fama/French from CRSP securities data. Includes the lower 30% in price-to-book of NYSE securities (plus NYSE Amex equivalents since July 1962 and Nasdaq equivalents since 1973).

Fama/French US Growth Research Index: Provided by Fama/French from CRSP securities data. Includes the higher 30% in price-to-book of NYSE securities (plus NYSE Amex equivalents since July 1962 and Nasdaq equivalents since 1973).

Fama/French Total US Market Index: Provided by Fama/French from CRSP securities data. Includes all US operating companies trading on the NYSE, AMEX, or Nasdaq NMS. Excludes ADRs, investment companies, tracking stocks, non-US incorporated companies, closed-end funds, certificates, shares of beneficial interests, and Berkshire Hathaway Inc. (Permco 540).

Fama/French International Value Index: 2008–present: Provided by Fama/French from Bloomberg securities data. Simulated strategy of MSCI EAFE + Canada countries in the lower 30% price-to-book range. 1975–2007: Provided by Fama/French from MSCI securities data.

Fama/French International Growth Index: 2008–present: Provided by Fama/French from Bloomberg securities data. Simulated strategy of MSCI EAFE + Canada countries in the higher 30% price-to-book range. 1975–2007: Provided by Fama/French from MSCI securities data.

Fama/French Emerging Markets Value Index: 2009–present: Provided by Fama/French from Bloomberg securities data. Simulated strategy using IFC investable universe countries. Companies in the lower 30% price-to-book range; companies weighted by float-adjusted market cap; countries weighted by country float-adjusted market cap; rebalanced monthly. 1989–2008: Provided by Fama/French from IFC securities data. IFC data provided by International Finance Corporation.

Fama/French Emerging Markets Growth Index: 2009–present: Provided by Fama/French from Bloomberg securities data. Simulated strategy using IFC investable universe countries. Companies in the higher 30% price-to-book range; companies weighted by float-adjusted market cap; countries weighted by country float-adjusted market cap; rebalanced monthly. 1989–2008: Provided by Fama/French from IFC securities data. IFC data provided by International Finance Corporation.

US Inflation-Linked Fixed Income Composite

Performance Presented in USD for the Period January 1, 2008 - December 31, 2017

Composite Inception: October 1, 2006

	Composite Gross Return (%)	Composite Net Return (%)	Benchmark Return (%)	Composite 3-Yr Std Dev. (%)	Benchmark 3-Yr Std Dev. (%)	Internal Dispersion (%)	Number of Portfolios	Composite Assets (MM)	Firm AUM (MM)
2017	3.40	3.30	3.01	4.06	3.51	-	≤5	4,675	577,096
2016	4.79	4.69	4.68	4.71	4.14	-	≤5	3,720	460,010
2015	-1.10	-1.20	-1.44	5.76	5.07	-	≤5	3,065	388,263
2014	3.49	3.38	3.64	5.78	5.22	-	≤5	2,737	380,636
2013	-9.16	-9.25	-8.61	5.90	5.43	-	≤5	2,401	337,523
2012	7.58	7.48	6.98	4.53	4.40	-	≤5	2,591	262,095
2011	14.69	14.57	13.56	6.07	5.83	-	≤5	1,934	213,749
2010	6.95	6.84	6.31	9.49	8.86	-	≤5	1,412	206,553
2009	11.19	11.08	11.41	9.50	8.85	-	≤5	834	164,539
2008	-1.27	-1.37	-2.35	-	-	-	≤5	413	110,564

Dimensional Fund Advisors claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Dimensional Fund Advisors has been independently verified for the period January 1, 2007 through December 31, 2017. The verification report is available upon request. 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. Verification does not ensure the accuracy of any specific composite presentation.

The Firm: Dimensional Fund Advisors LP is an investment advisor registered with the U.S. Securities and Exchange Commission ("SEC") under the Investment Advisers Act of 1940, as amended. The firm includes all of Dimensional's global offices and subsidiaries that offer discretionary investment advisory services. *SEC registration does not imply a certain level of skill or training. A list of composite descriptions and policies for valuing portfolios, calculating performance, and preparing compliant presentations, is available upon request.*

Composite Description: The US Inflation-Linked Fixed Income Composite includes portfolios that invest in USD-denominated fixed income securities that seek to provide inflation protection and earn current income consistent with inflation-protected securities with a portfolio effective duration similar to the Bloomberg Barclays US TIPS Index. The composite does not have a minimum investment for inclusion and is reported in USD. Prior to January 1, 2018, the minimum investment for inclusion in the composite was \$25MM. Prior to January 1, 2015, the minimum investment for inclusion in the composite was \$2MM. Composite holdings may differ significantly from benchmark holdings. The composite was created on June 30, 2012.

Benchmark Description: The benchmark for the US Inflation-Linked Fixed Income Composite is the Bloomberg Barclays U.S. TIPS Index. The index measures the performance of publicly issued, investment-grade U.S. Treasury inflation-protected securities with a remaining maturity of at least one year. It is not possible to invest in an index, which is unmanaged and does not reflect management expenses.

Fees & Performance: Composite returns reflect the deduction of all trading expenses. Gross returns do not reflect the deduction of investment advisory fees or any other expenses that may be incurred in the management of the account. Net of model fee returns are calculated by subtracting the annual model management fee, geometrically averaged over 12 months, from the monthly gross of fee composite return. The model management fee of 0.10% is equivalent to the highest standard fee currently offered to US institutional investors. Fees are described in Part 2A of Form ADV. Fee schedules for non-US Institutional investors may differ and are available upon request. Actual fees may vary. Performance is presented in USD. Past performance is no guarantee of future results. All returns reflect the reinvestment of dividends and other earnings. Composite returns are gross of reclaimable withholding taxes and net of non-reclaimable withholding taxes, where applicable.

Dispersion: The internal dispersion of annual gross returns is measured by the equal weighted standard deviation of portfolio returns included in the composite for the entire year. For those years when less than six portfolios were included in the composite for the full year, no dispersion measure is presented.

Standard Deviation: Three year ex post standard deviation is only presented for those periods that have 36 prior consecutive monthly composite returns. The three year annualized ex post standard deviation measures the variability of composite gross returns and benchmark returns over the preceding 36 months.

Los Angeles City Employees' Retirement System

Emerging Markets Value Strategy

February 12, 2019

David Plecha, CFA, Global Head of Fixed Income and Vice President

Karen Umland, CFA, Senior Portfolio Manager and Vice President

Joe Young, CFA, Vice President

This information is provided for registered investment advisors and institutional investors and is not intended for public use. Dimensional Fund Advisors LP is an investment advisor registered with the Securities and Exchange Commission.

Relationship Summary

As of December 31, 2018

Account Value	Account Value	Annualized Excess Return (%) 3 Year (net of fee)	Annualized Excess Return (%) Since 1st Full Month (net of fee)	Account 1st Full Month
LACERS Emerging Markets Value	\$414,737,047	1.45	0.45	08/2014
LACERS TIPS	\$610,005,940	0.10	0.12	08/2014
Total	\$1,024,742,987			

Please see appendix for compliant presentation(s).

Performance data shown represents past performance and is no guarantee of future results. Net returns are reported net of all advisory fees and include reinvestment of dividends and other earnings. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost.

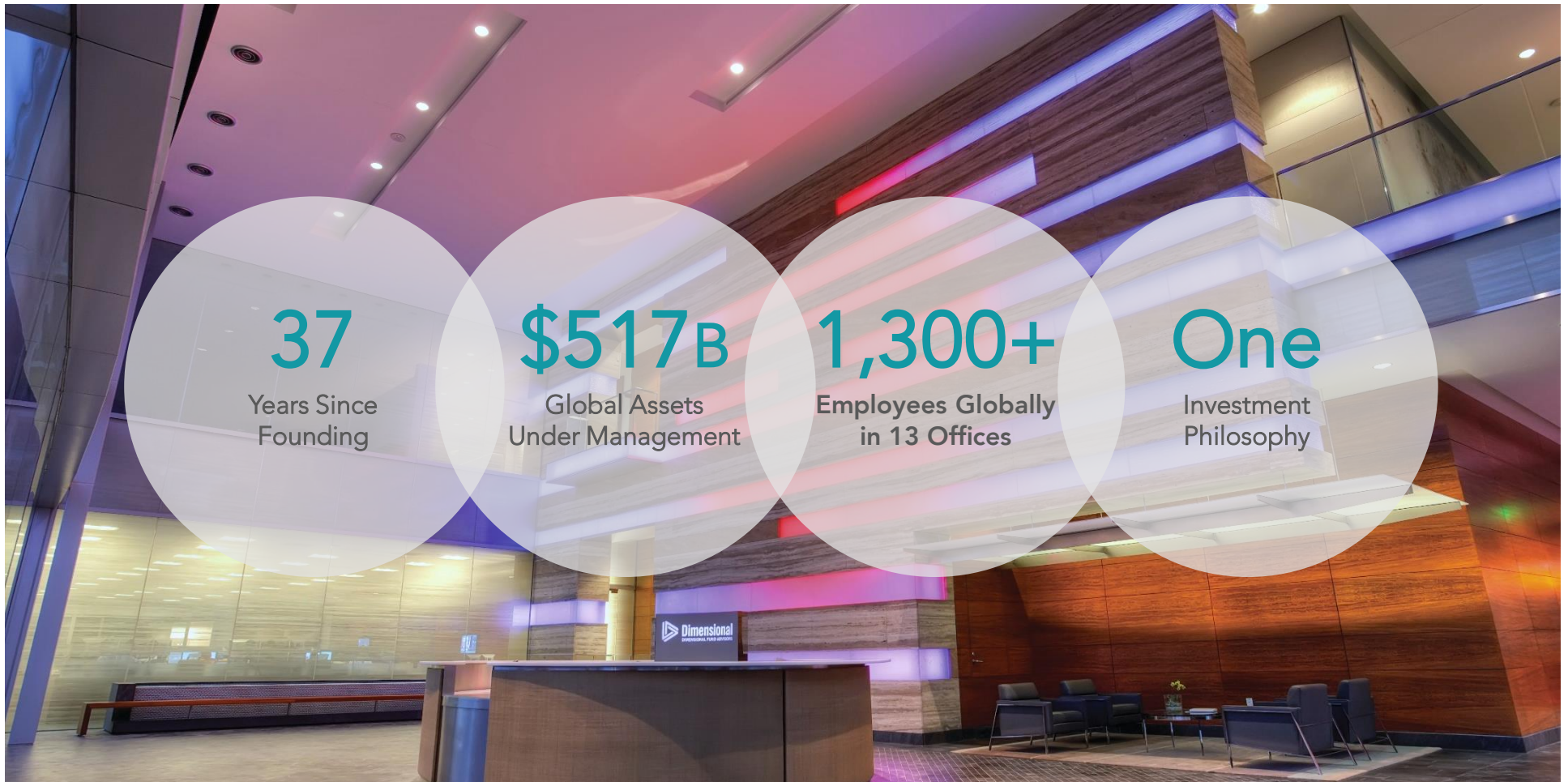
Agenda

- Dimensional Update
- Emerging Markets Value Strategy
- Appendix

Dimensional Update

Dimensional at a Glance

As of December 31, 2018

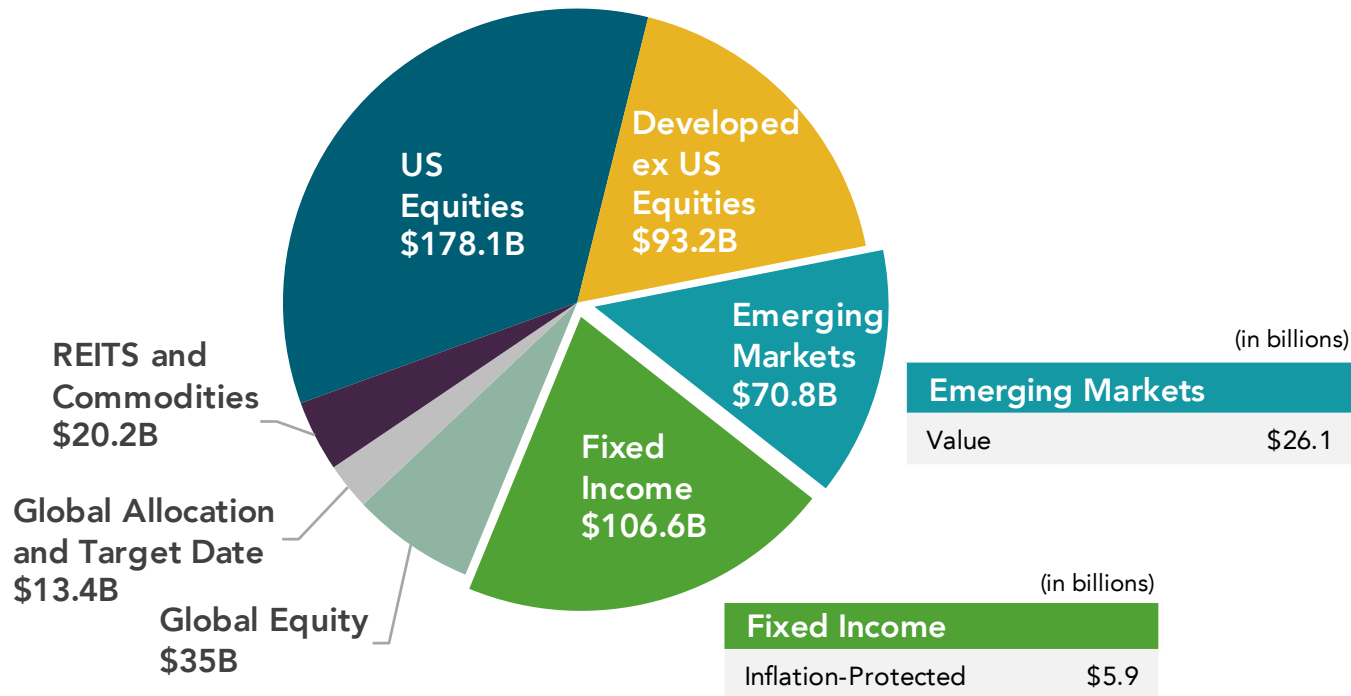


Assets in US dollars.

"Dimensional" refers to the Dimensional separate but affiliated entities generally, rather than to one particular entity. These entities are Dimensional Fund Advisors LP, Dimensional Fund Advisors Ltd., DFA Australia Limited, Dimensional Fund Advisors Canada ULC, Dimensional Fund Advisors Pte. Ltd., Dimensional Japan Ltd., and Dimensional Hong Kong Limited. Dimensional Hong Kong Limited is licensed by the Securities and Futures Commission to conduct Type 1 (dealing in securities) regulated activities only and does not provide asset management services.

Assets Under Management

\$517 billion in global AUM as of December 31, 2018



Public Fund Partial List of Clients

City and County of Kalamazoo

City of Baton Rouge
 County of Los Angeles Deferred Compensation

Florida State Board of Administration

Illinois Municipal Retirement Fund

Los Angeles Department of Water & Power System

Los Angeles Fire and Police Pensions

Maryland State Retirement Agency

Mississippi Public Employees Retirement System

Municipal Fire & Police

Retirement System of Iowa

Nebraska Investment Council

Nova Scotia Health Employees' Pension Plan

Teachers' Retirement Allowances Fund

Utah State Retirement Systems

"Dimensional" refers to the Dimensional separate but affiliated entities generally, rather than to one particular entity. These entities are Dimensional Fund Advisors LP, Dimensional Fund Advisors Ltd., DFA Australia Limited, Dimensional Fund Advisors Canada ULC, Dimensional Fund Advisors Pte. Ltd., Dimensional Japan Ltd., and Dimensional Hong Kong Limited. Dimensional Hong Kong Limited is licensed by the Securities and Futures Commission to conduct Type 1 (dealing in securities) regulated activities only and does not provide asset management services.

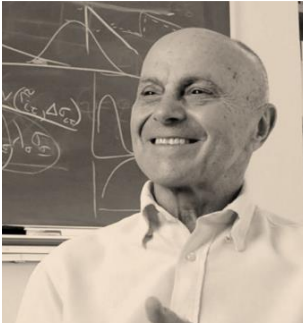
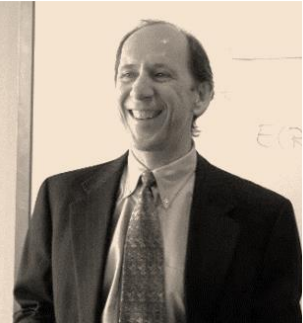


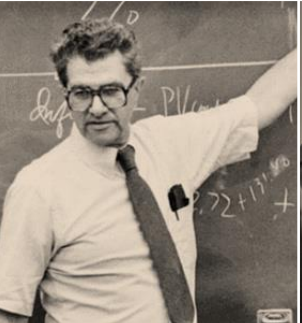





All assets in US dollars. Numbers may not total 100% due to rounding.

Partial Client List As of January 9, 2019.

Clients in bold have been clients with Dimensional for 10 or more years. Some entities listed do not engage Dimensional directly, but invest in a commingled vehicle advised by Dimensional. This list is solely a partial list of clients of the Dimensional group of companies and is generally representative of Dimensional's institutional client base. Clients have given consent to be included and were not chosen based on performance-based criteria. This list should not be construed as an expression of any client's experience with Dimensional, or a suggestion that one client's experience is in any way indicative of another client's future experience with Dimensional. Inclusion of a client's name on the list should not be taken as an indication that the client approves or disapproves of Dimensional or the advisory services provided to either the client and/or the commingled vehicle in which the client may be invested.

A Heritage of Leading Research

The bar for research at Dimensional has been set by the best in the field

					
Eugene Fama 	Kenneth French	Robert Merton 	Robert Novy-Marx	Merton Miller 	Myron Scholes 
University of Chicago Dimensional Director and Consultant, Dimensional, ¹ 1981–present	Dartmouth College Consultant, Dimensional, ¹ 1986–present Co-Chair of the Investment Research Committee, Dimensional, ¹ 2006–present Dimensional Director, 2006–present	MIT Director, Dimensional US Mutual Funds, 2003–2009 Resident Scientist, Dimensional Holdings Inc., 2010–present	University of Rochester Consultant, Dimensional, ¹ 2014–present	University of Chicago Independent Director, Dimensional US Mutual Funds, 1981–2000	Stanford University Independent Director, Dimensional US Mutual Funds, 1981–present

“At Dimensional, we don’t jump on every new idea that comes along. We’re looking for what will stand up over a long period of time.”

Eugene Fama
Nobel laureate, 2013

¹ Dimensional Fund Advisors LP.

"Dimensional Directors" refers to the Board of Directors of the general partner of Dimensional Fund Advisors LP, an affiliate of Dimensional Fund Advisors Canada ULC.

Implementation Requires Expertise

Taking knowledge and information and implementing it in a real test, not in a backtest, is what counts



DAVID BOOTH
Executive Chairman
and Founder



GERARD K. O'REILLY, PhD
Co-Chief Executive Officer
and Chief Investment Officer



DAVE BUTLER
Co-Chief Executive Officer

Global Research Team



MARLENA LEE, PhD
Co-Head of Research



SAVINA RIZOVA, PhD
Co-Head of Research



PETE DILLARD
Chief Data Officer and Head of
Investment Analytics and Data

Global Portfolio Management and Trading Team



JOSEPH CHI
Co-Head of Global
Portfolio Management



JED FOGDALL
Co-Head of Global
Portfolio Management



RYAN WILEY
Head of
Global Equity Trading



Diversity and Inclusion Overview

Committed to providing a respectful work environment

Dimensional believes that our strength lies in the unique skills, perspectives and attributes each employee brings to the company. Diversity and inclusion efforts begin with the recruitment process and continue throughout an employee's career at Dimensional.

Recruiting and Hiring

Since the firm's beginning in 1981, it has been Dimensional's policy to provide equal opportunity for all employees and applicants.

- Broadening the diversity of our talent pool: Dimensional works closely with diversity-related student groups on campus as well as other organizations, which have included the Robert Toigo Foundation and the Forté Foundation.
- Reducing barriers: Dimensional trains employees on interview best practices for consistent and effective evaluation and techniques to mitigate unconscious bias. We are also careful to use neutral language in job descriptions to make sure applicants from diverse backgrounds are not dissuaded from applying.
- Update calls: For clients with a stated interest in diversity and inclusion efforts related to recruiting and hiring, Dimensional may coordinate annual phone calls to update the client on our diversity recruiting efforts. Generally, these calls are with Dimensional's senior personnel in charge of hiring and talent development.

Talent Development and Career Advancement

Dimensional provides opportunities for learning, growth and advancement so that all employees have the opportunity for challenging, rewarding, and fulfilling careers at Dimensional. We actively participate in professional development initiatives to reach women and minority groups, including the National Association of Securities Professionals.

Vendor Outreach

Dimensional has made a concerted effort to use minority, women, and disabled veterans' business enterprises (M/W/DVBE), including employment agencies and brokerage firms.

Emerging Markets Value Strategy

Los Angeles City Employees' Retirement System—EM Value

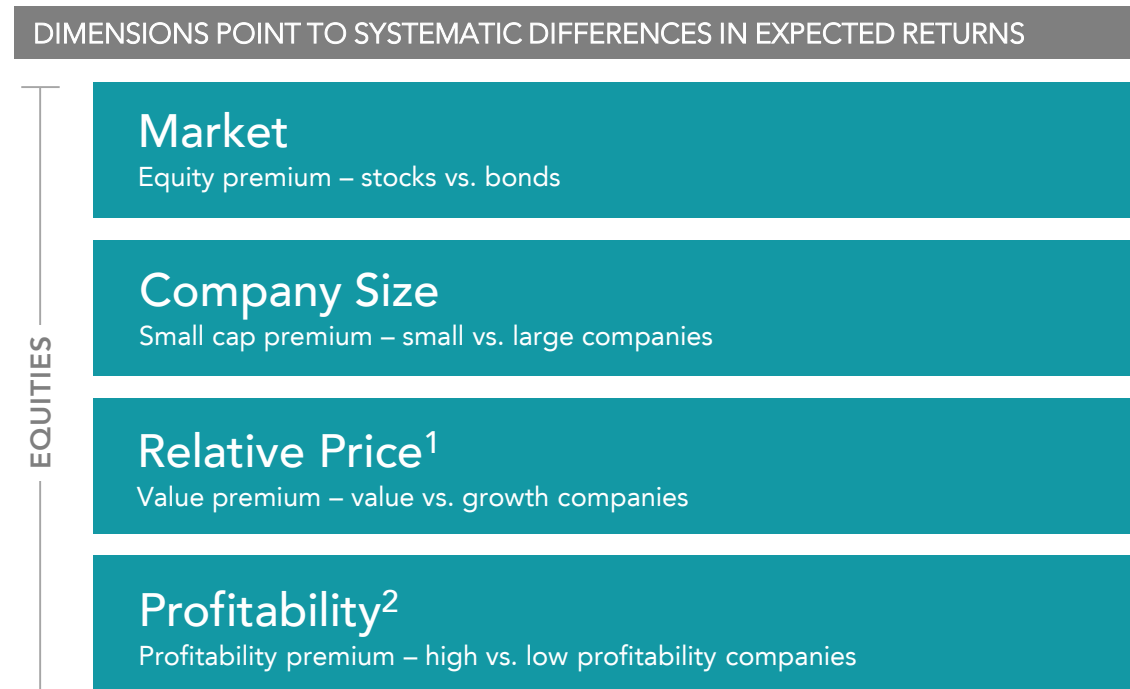
Using an integrated approach to add value across all aspects of the investment process



- Structured based on systematic expected premiums:
 - Market
 - Company size
 - Relative price (value)
 - Profitability
- Offers broad sector and security diversification
- Balances competing premiums and manages implementation costs by using a disciplined and patient trading strategy

Dimensions of Expected Returns

Expected returns are driven by prices investors pay and cash flows they expect to receive



To be considered a dimension of expected return, a premium must be:

- Sensible
- Persistent
- Pervasive
- Robust
- Cost-effective

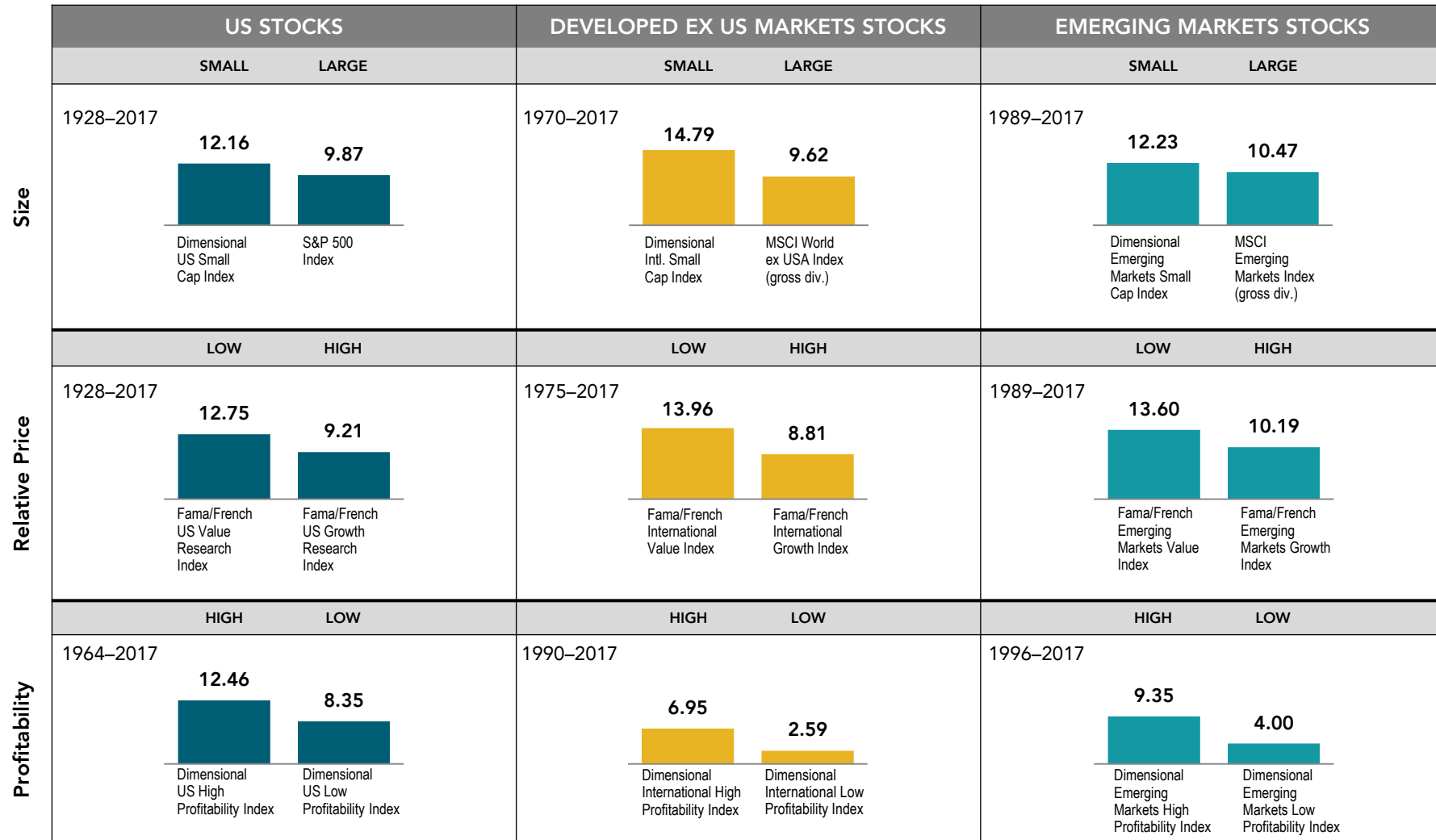
Diversification does not eliminate the risk of market loss.

1. Relative price as measured by the price-to-book ratio; value stocks are those with lower price-to-book ratios.

2. Profitability is a measure of current profitability, based on information from individual companies' income statements.

Dimensions of Expected Returns

Illustrative index performance: Annualized compound returns (%) in US dollars



Please see appendix for compliant presentation(s).

Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book.

Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio. Past performance is not a guarantee of future results. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment. Actual returns may be lower. See "Index Descriptions" in the appendix for descriptions of Dimensional and Fama/French index data. Eugene Fama and Ken French are members of the Board of Directors of the general partner of, and provide consulting services to, Dimensional Fund Advisors LP. S&P data © 2019 S&P Dow Jones Indices LLC, a division of S&P Global. All rights reserved. MSCI data © MSCI 2019, all rights reserved.

Portfolio Construction: Security Selection and Weighting

Los Angeles City Employees' Retirement System—EM Value



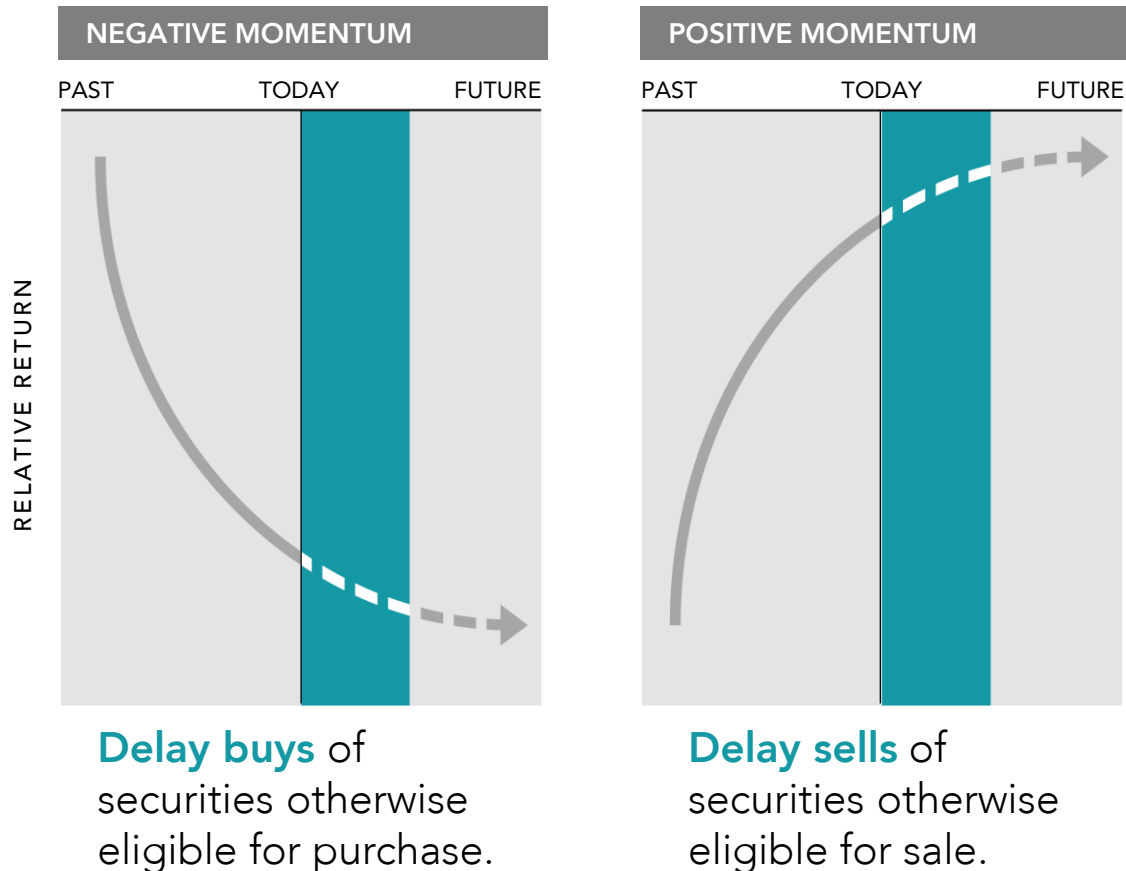
- Focus on value securities
- In large caps, increased emphasis on higher expected return securities:
 - Lower relative price, higher profitability, lower market cap
- In small caps, exclude companies with lowest expected returns:
 - Low profitability and higher relative price

As of 12/31/2018	Weighted Average Market Cap (millions)	Aggregate Price-to-Book
Los Angeles City Employees' Retirement System—EM Value	\$43,829	0.88
MSCI Emerging Markets Value Index	\$52,474	1.07

1. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book.
 2. Actual size and relative price breaks are determined at the country or region level.
 Holdings are subject to change. MSCI data © MSCI 2019, all rights reserved.

Managing Momentum

We incorporate momentum when making buy and sell decisions



Stock returns may exhibit momentum:

- Stocks with large relative underperformance tend to have negative excess returns in the next period.
- Stocks with large relative outperformance tend to have positive excess returns in the next period.

Demanding Immediacy Can Be Costly

Dimensional's flexible and patient trading approach seeks to provide a relative advantage across markets

Three Years Ending December 31, 2017

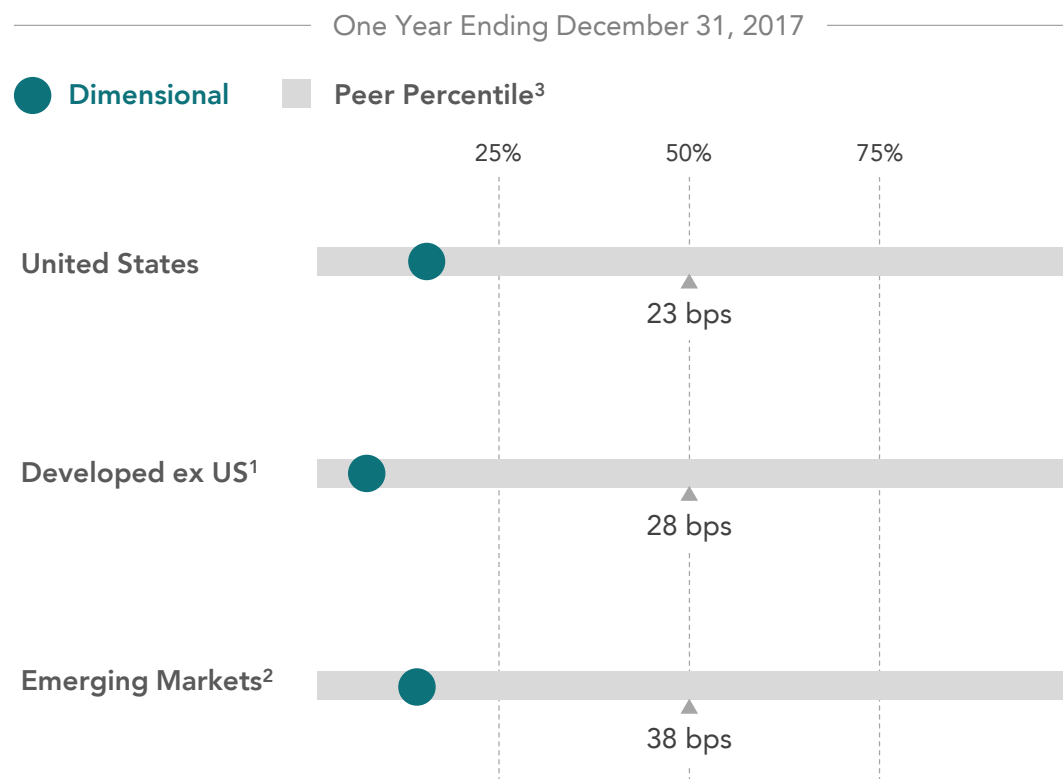
Region/Index	AVERAGE BID/ASK SPREAD (bps)	AVERAGE DAILY AGGREGATE TRADED VALUE (millions, USD)	MEDIAN DAILY STOCK TRADED VALUE (millions, USD)	25th Percentile Daily Stock Traded Value (millions, USD)	75th Percentile Daily Stock Traded Value (millions, USD)
EMERGING MARKETS (21 markets)					
Large	18.2	16,544	7.93	3.09	17.03
Small ex Micro	33.3	3,360	2.38	0.85	5.68
Micro	58.7	3,359	0.72	0.25	1.79

Source: Dimensional Fund Advisors LP.

Region/Index buckets are defined by Dimensional, and based on market cap percentages in each region. The market cap percentages for each region are as follows: US—Large (87%), Small ex Micro (7%), Micro (6%), Non-US Dev—Large (89%), Small ex Micro (6%), Micro (4%), EM—Large (85%), Small ex Micro (9%), Micro (6%).

Dimensional Implicit Costs Relative to Peers

ITG Post-Trade Analytics™ – Peer Trade Cost Analysis



- Trading costs negatively impact returns
- Lower implicit costs contribute to lower total trading costs
- Dimensional uses both third party and internally developed benchmarks to evaluate the implicit costs of trading.

Past performance is not a guarantee of future results. Date range reflects most recent data available.

1. MSCI Developed ex US.

2. MSCI Emerging.

3. Ranking provided by ITG. Ranking from 1-100% where 1 is lowest implicit cost and 100 is highest implicit cost.

The data provided on this slide is copyrighted by Investment Technology Group, Inc. or its affiliates and may not be copied, displayed, or transmitted in any form without prior written permission. Many factors influence transaction cost including order size, volatility, and spread. ITG's peer universe includes a variety of firm types trading orders of all sizes in various market conditions. ITG's Peer commission numbers represent a blend of both execution-only and fully bundled rates.

Country Allocations

As of December 31, 2018

	LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM—EM VALUE	MSCI Emerging Markets Value Index
PORTFOLIO WEIGHTS (%)		
China	30.1	31.1
Korea	15.5	13.5
Taiwan	13.6	11.3
India	11.5	9.3
Brazil	7.2	7.3
South Africa	5.8	6.2
Mexico	2.8	2.7
Thailand	2.5	2.3
Malaysia	2.1	2.5
Indonesia	1.9	2.3
Russia	1.8	3.7
Poland	1.3	1.3
Chile	1.1	1.1
Philippines	0.9	1.1
Turkey	0.8	0.6
Colombia	0.4	0.5
Hungary	0.3	0.3
Czech Republic	0.2	0.2
Greece	0.0	0.2
Qatar	—	1.2
UAE	—	0.7
Peru	—	0.5
Egypt	—	0.1
Pakistan	—	0.0

Holdings are subject to change. Numbers may not total 100% due to rounding. MSCI data © MSCI 2019, all rights reserved.

Sector Allocations

As of December 31, 2018

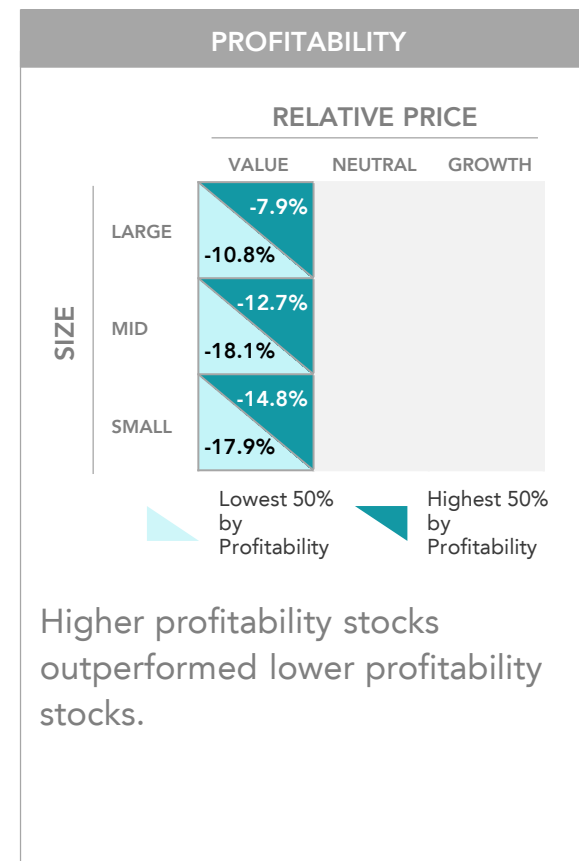
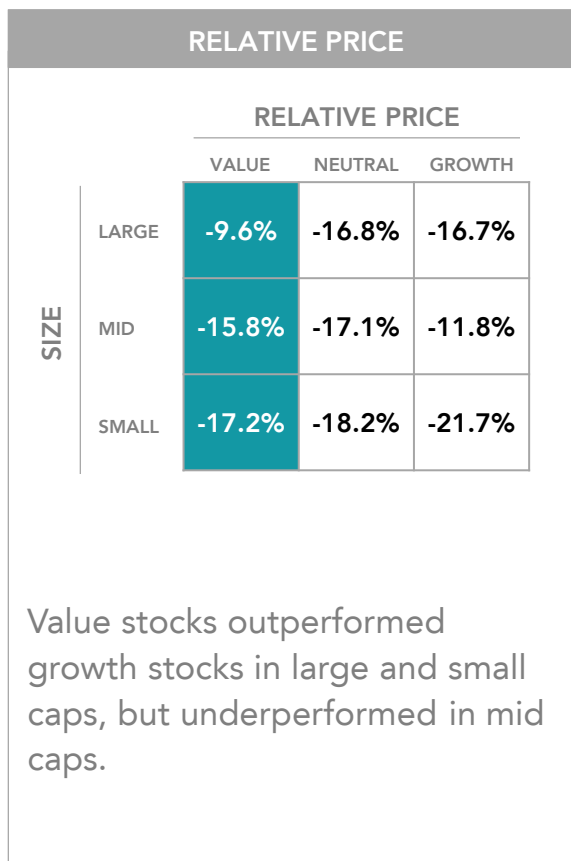
	LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM—EM VALUE	MSCI Emerging Markets Value Index
PORTFOLIO WEIGHTS (%)		
Financials	30.8	36.9
Materials	14.3	10.0
Energy	11.7	12.1
Industrials	10.6	6.1
Information Technology	7.5	10.0
Consumer Discretionary	7.1	4.7
Communication Services	6.8	7.6
Real Estate	5.9	3.6
Consumer Staples	2.5	3.7
Utilities	1.5	3.5
Health Care	1.4	0.9
REITs	0.0	0.7

Market Segment Returns

Emerging Markets All Cap Value Equity

1 Year as of December 31, 2018

MSCI EMERGING MARKETS IMI SEGMENTED RETURNS (%)



All returns are in USD. All returns (with the exception of the MSCI Emerging Markets IMI) are computed from index published security weights, Dimensional computed security returns, and Dimensional classification of securities based on size, value and profitability parameters. Additional information available upon request. MSCI Emerging Markets IMI return provided by MSCI. Companies are classified as small, mid, and large by computing breakpoints based on total market capitalization. Within emerging markets, large is the largest 70% of market cap, mid is the next 15%, and small is the smallest 15%. Designations between value, neutral, and growth are constructed in each country or region based on price to book ratios. Value is defined as the 33% of market cap with the lowest price to book ratios, neutral is the next 33%, and growth is the highest 34%. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Designations between high and low profitability are constructed based on profitability within market wide value stocks. High profitability is defined as the 50% of market cap with the highest profitability and low profitability is the lowest 50%. Stocks without a profitability metric are excluded from the profitability market segment returns. **Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio. Past performance is not a guarantee of future results.** MSCI data © MSCI 2019, all rights reserved.

Performance

As of December 31, 2018

Annualized Returns ¹ (%)	4th Quarter 2018	1 Year	3 Years	Since 8/14 Account 1st Full Month
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM—EM VALUE (net of fees)	-6.48	-12.58	10.97	-0.94
MSCI Emerging Markets Value Index (net dividends)	-6.75	-10.74	9.52	-1.39
Excess Return (%)	0.27	-1.84	1.45	0.45

Calendar Year Returns (%)	LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM—EM VALUE (gross of fees)	LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM—EM VALUE (net of fees)	MSCI Emerging Markets Value Index (net dividends)
2015	-18.96	-19.40	-18.57
2016	18.42	17.80	14.90
2017	33.37	32.69	28.07
2018	-12.13	-12.58	-10.74

Account Value

LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM—EM VALUE	\$414,737,047
---	----------------------

Please see appendix for compliant presentation(s).

Performance data shown represents past performance and is no guarantee of future results. Performance is presented net of fees and gross of fees. Net returns are reported net of all advisory fees and include reinvestment of dividends and other earnings. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost.

Returns for periods shorter than one year are not annualized.

MSCI data © MSCI 2019, all rights reserved. Indices are not available for direct investment. See "Appendix: Standardized Performance Data and Disclosures" to learn how to obtain complete information on performance, investment objectives, risks, advisory fees, and expenses of Dimensional's funds.

2018 Performance Commentary

LACERS Emerging Markets Value vs. MSCI Emerging Markets Value Index (net dividends)

- The LACERS Emerging Markets Value Fund (net of fees) had a return of -12.6% for the one-year period ending December 31, 2018, underperforming the MSCI Emerging Markets Value Index (net dividends) by 1.8%.
- With small caps underperforming large in emerging markets for the year, the fund's inclusion of small caps was the primary driver of underperformance relative to the index (which is composed primarily of large and mid cap stocks).
- At the country level, the fund's exclusions of Qatar, the UAE, and Peru detracted from relative performance, as those countries outperformed the overall index for the year.

Appendix

Presenters' Biographies



David Plecha, CFA

Global Head of Fixed Income and Vice President

Dave Plecha is Dimensional's Global Head of Fixed Income. Dave is an enthusiastic and incisive communicator at the firm's conferences and seminars. A member of the Investment Committee and Investment Research Committee, he not only manages US and global portfolios but also maintains much of the fixed income research and client communications. Dave has been instrumental in the planning and execution of Dimensional's tax-managed separate account strategies in the US.

Dave received his Chartered Financial Analyst® designation in 1996. Prior to joining Dimensional in 1989, he managed stock index futures and options for Leland O'Brien Rubinstein Associates and was an operations planner for Texas Instruments. He holds an MBA from the University of California, Los Angeles, and a BS in industrial and operations engineering from the University of Michigan.



Karen Umland, CFA

Senior Portfolio Manager and Vice President

Karen is a Senior Portfolio Manager and a member of the Investment Committee at Dimensional. Her responsibilities include general oversight of portfolios, and she frequently speaks at presentations and meetings with clients, prospects, and consultants.

Karen joined Dimensional in 1993 as a general Portfolio Manager in US equities after beginning her investment career with the Yale University Investment Office in 1988. In 1995, she moved over to the international Portfolio Management group within Dimensional and spent the next 14 years directly involved in the portfolio construction and trading of the non-US developed and emerging markets strategies. A CFA® charterholder, Karen has a BA in economics from Yale University and an MBA from the Anderson School of Management at the University of California, Los Angeles.

Presenters' Biographies



Joseph L. Young, CFA

Vice President

Joseph Young is a Vice President responsible for developing and maintaining relationships with public pension funds, foundations, endowments, Taft-Hartley plan sponsors, and corporate pension and defined contribution plans.

Joe began his career with Dimensional in February 2002, focusing on consultant relations. Prior to joining Dimensional, he worked as a project management analyst at Global Crossing. He is an active member of the CFA Society of Austin, National Society of Institutional Investment Professionals, CALAPRS, and the Texas Association of Public Employee Retirement Systems (TEXPERS). He is a guest lecturer for the College of Business at Colorado State University. Joe received a BS in finance from the University of Idaho and is a CFA® charterholder.

Dimensional Fund Advisors and Affiliates

Global Organizational Leadership

EXECUTIVE

David G. Booth¹ Founder and Executive Chairman

David P. Butler¹ Co-Chief Executive Officer, Head of Global Financial Advisor Services, and Dimensional Director

Gerard K. O'Reilly¹ Co-Chief Executive Officer, Chief Investment Officer, and Dimensional Director

Stephen A. Clark¹
President of Dimensional International

INVESTMENT PROFESSIONALS

RESEARCH

Gerard K. O'Reilly¹
Co-Chief Executive Officer, Chief Investment Officer, and Dimensional Director

Peter Dillard
Chief Data Officer
and Head of Investment Analytics and Data

Marlena Lee
Co-Head of Research

Savina Rizova¹
Co-Head of Research

PORTFOLIO MANAGEMENT AND TRADING

Joseph H. Chi¹
Co-Head of Portfolio Management

Robert T. Deere¹
Senior Investment Director

Jed S. Fogdall¹
Co-Head of Portfolio Management

Jason Lapping
Head of International Equity Trading

David A. Plecha¹
Global Head of Fixed Income

Bhanu Singh
Head of Asia Pacific Portfolio Management and Director

Ryan Wiley¹
Head of Global Equity Trading

DIMENSIONAL DIRECTORS

David G. Booth¹ Executive Chairman

David P. Butler¹

Eugene F. Fama, Nobel laureate and Consultant

Kenneth R. French, Consultant

John A. McQuown

Gerard K. O'Reilly¹

SALES AND CLIENT SERVICE

David P. Butler¹
Co-Chief Executive Officer, Head of Global Financial Advisor Services, and Dimensional Director

Mark Gochmour
Head of Financial Advisor Services International and Advisor Services

Craig Horvath
Global Head of Consultant Relations

David R. Jones
Head of Financial Advisor Services, EMEA

Kevin Kandasamy
Head of Institutional, Australia

Nathan Krieger
Head of Financial Advisor Services, Australia

Bryce Skaff
Head of US Financial Advisor Services and Strategic Relationship

Bradley G. Steiman
Director and Head of Canadian Financial Advisor Services

Joel Teasdel
Head of Financial Advisor Services, Asia ex Japan

Erik van Houwelingen
Head of European Sales, Dimensional Fund Advisors Ltd. (DFAL)

Carlo Venes
Head of Global Institutional Services

CORPORATE

COMPLIANCE AND RISK MANAGEMENT

Christopher S. Crossan
Global Chief Compliance Officer

FINANCIAL/ACCOUNTING SERVICES

Gregory K. Hinkle
Chief Financial Officer and Treasurer

HUMAN RESOURCES

Aaron Marcus
Head of Global Human Resources

INVESTMENT OPERATIONS

Richard A. Eustice
Head of Global Investment Operations

LEGAL

Catherine L. Newell
General Counsel and Secretary

MARKETING

Karen Dolan
Head of Marketing

RISK MANAGEMENT

Jeffrey Vernor
Head of Risk Management

TECHNOLOGY

Michael Holmes
Chief Technology Officer

AFFILIATES

DIMENSIONAL FUND ADVISORS LTD. (LONDON)
Nathan Lacaze, CFA
Co-CEO and Head of EMEA Portfolio Management

John S. Romiza
Co-CEO

DFA AUSTRALIA LIMITED (SYDNEY)
J. Glenn Crane
Chairman and Chief Executive Officer

DIMENSIONAL JAPAN LTD. (TOKYO)
John R. Alkire
Chief Executive Officer

DIMENSIONAL FUND ADVISORS PTE. LTD. (SINGAPORE)
Peng Chen
Director, Chief Executive Officer, Asia ex Japan

DIMENSIONAL FUND ADVISORS CANADA ULC (VANCOUVER)
Bradley G. Steiman
Director and Head of Canadian Financial Advisor Services

As of January 1, 2019.

1. Member of the Investment Committee of Dimensional Fund Advisors LP.

All listed individuals are employees of Dimensional Investment LLC, a subsidiary of Dimensional Fund Advisors LP.

"Dimensional Directors" refers to the Board of Directors of the general partner of Dimensional Fund Advisors LP.

Summary of Portfolio Risk Management

Provides diversification and broad oversight with minimal style drift

Emerging Markets Strategies

Concentration Risk

- Highly diversified across countries
 - Country diversification leads to diversification across multiple currencies
 - Sector target weights typically capped at their approximate weight in a broadly diversified, sector-neutral universe plus an additional 10%
 - Industry groups generally capped at 25%
 - Guidelines target a maximum 5% per issue at time of purchase
-

Implementation Risk

- Team managed
 - Approved exchanges only; ongoing evaluation of listing requirements, liquidity, and settlement mechanism
-

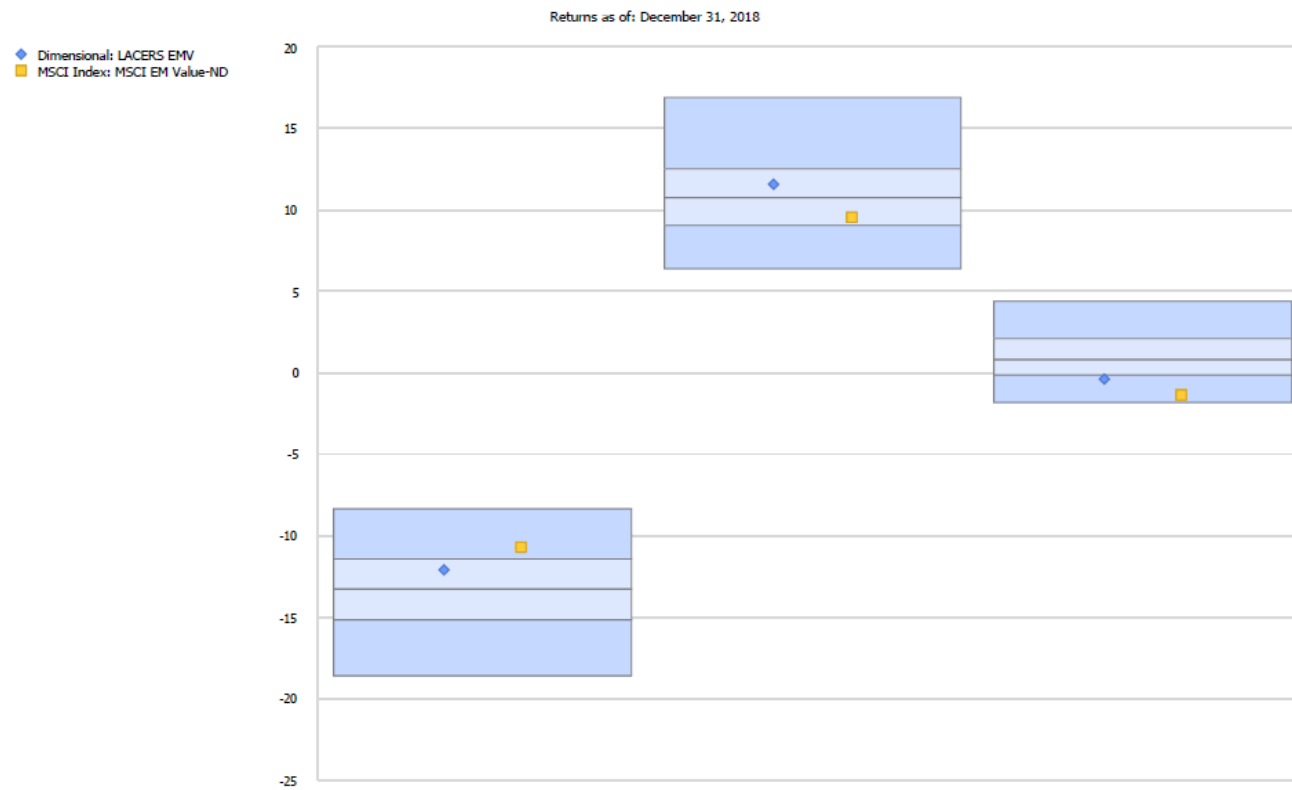
Operational Risk

- Charles River customized Order Management System
 - Comprehensive pre- and post-trade compliance
 - Independent accountant, custodian bank, and auditors
 - Independent SSAE 16 audit performed annually
-

Style Risk

- Monitor characteristics of individual securities and overall strategy to prevent style drift
-

eVestment Universe: Emerging Markets Value



Universe: eVestment Global Emerging Mkts All Cap Value Equity

	VT	RM	1 Year		3 Years		Since Inception 4.42 Years ¹	
				Rk		Rk		Rk
5th percentile			-8.38		16.87		4.36	
25th percentile			-11.46		12.49		2.07	
Median			-13.32		10.73		0.77	
75th percentile			-15.20		9.02		-0.17	
95th percentile			-18.64		6.37		-1.85	
# of Observations			45		42		39	
◆ Dimensional: LACERS EMV	SA	GF	-12.13	35	11.54	41	-0.42	80
■ MSCI Index: MSCI EM Value-ND	IX	IX	-10.74	20	9.52	67	-1.39	87

Results displayed in USD.

¹08/2014 - 12/2018

Source: eVestment

Please see appendix for compliant presentation(s). For informational purposes and is provided at client's request. Performance data shown represents past performance and is no guarantee of future results. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. It is not possible to invest directly in an index. LACERS Emerging Markets Value return is gross of fee. Gross returns include the reinvestment of dividends and other earnings, and include the deduction of all trading expenses, but do not reflect the deduction of investment advisory fees or any other expenses that will be incurred in the management of the account. A client's investment return will be reduced by the advisory fees and other expenses it will incur in the management of its advisory account. MSCI data © MSCI 2019, all rights reserved. Indices are not available for direct investment.

Characteristics

As of December 31, 2018

	LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM—EM VALUE	MSCI Emerging Markets Value Index
MARKET CHARACTERISTICS		
Total Value of Eligible Universe (millions)	\$1,584,180	\$2,425,932
Number of Holdings	2,080	751
SIZE CHARACTERISTICS		
Wtd. Average Market Cap (millions)	\$43,829	\$52,474
Median Market Cap (millions)	\$477	\$5,719
VALUATION CHARACTERISTICS		
Aggregate Price-to-Book	0.88	1.07
Wtd. Average Dividend-to-Price	3.39%	3.70%
PROFITABILITY CHARACTERISTICS		
Wtd. Average Profitability ¹	0.19	0.23
PORTFOLIO CHARACTERISTICS		
Portfolio Turnover	19%	

1. Operating income before depreciation and amortization minus interest expense scaled by book. Holdings are subject to change. MSCI data © MSCI 2019, all rights reserved.

Investment Guidelines

As of December 31, 2018

Manager: Dimensional Fund Advisors LP — Emerging Markets Value

Benchmark: MSCI Emerging Markets Value Index

GUIDELINE	RANGE	CURRENT	WITHIN RANGE?
Regional Weightings	+/- 25% of benchmark maximum weight	4.5%	Yes
Country Weightings	Weighting of individual countries capped at the time of purchase at 5% above benchmark weight	Taiwan - 2.3%	Yes
Sector Weightings	0% to 40% of total portfolio per sector	All sectors weight between 0% - 40%	Yes
Number of Holdings range	Generally expected to be over 750	2,080	Yes
Cash Holding	Up to 5% of the net asset value	0.3%	Yes

Attribution Analysis by Size

Los Angeles City Employees' Retirement System—EM Value vs. MSCI Emerging Markets Value Index (net dividends)

1 Year as of December 31, 2018

MCap Range	Portfolio Average Weights	Benchmark Average Weights	Portfolio Return	Benchmark Return	Portfolio Allocation	Portfolio Composition	Interaction	Total
Largest	23%	30%	4.14%	-5.56%	-0.57%	2.12%	0.00%	1.55%
2	10%	14%	-15.42%	-10.47%	-0.04%	-0.49%	-0.00%	-0.54%
3	34%	42%	-16.97%	-14.40%	0.38%	-1.01%	0.02%	-0.61%
4	12%	10%	-14.45%	-13.06%	-0.07%	-0.08%	-0.01%	-0.17%
Smallest	22%	3%	-16.46%	-14.86%	-0.93%	-0.39%	-0.01%	-1.32%
Other Country	—	2%	—	9.49%	-0.40%	—	0.00%	-0.40%
Cash	0%	—	1.96%	—	0.02%	0.01%	—	0.02%
Estimated Total	100%	100%	-12.18%	-10.73%	-1.61%	0.15%	0.01%	-1.45%
Expenses and Fees			-0.45%	—				-0.45%
Other			0.05%	-0.01%				0.06%
Total			-12.58%	-10.74%				-1.84%

The above market cap ranges represent dynamic size ranges from largest to smallest stocks (lowest to highest number buckets) and change over time.

The ranges in millions (USD) for the month ending 12/31/2018 are: (Largest) > 50,000, (2) 50,000–26,500, (3) 26,500–5,412, (4) 5,412–2,702, and (Smallest) < 2,702.

Please see appendix for compliant presentation(s).

Attribution constructed using holdings-based information that utilizes an internally developed system. Additional information available upon request.

Performance data shown represents past performance and is no guarantee of future results. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost.

Holdings are subject to change. MSCI data © MSCI 2019, all rights reserved.

Attribution Analysis by Price-to-Book

Los Angeles City Employees' Retirement System—EM Value vs. MSCI Emerging Markets Value Index (net dividends)

1 Year as of December 31, 2018

	P/B Percentile	Portfolio Average Weights	Benchmark Average Weights	Portfolio Return	Benchmark Return	Portfolio Allocation	Portfolio Composition	Interaction	Total
Growth	75–100	1%	4%	-15.55%	-15.42%	0.29%	0.12%	0.00%	0.42%
	50–75	2%	12%	-15.53%	-17.06%	0.54%	0.05%	0.01%	0.59%
	25–50	26%	34%	-12.25%	-10.65%	0.04%	-0.31%	0.01%	-0.27%
Value	0–25	71%	47%	-12.44%	-9.50%	0.45%	-2.26%	-0.01%	-1.83%
	Other Country	—	2%	—	9.49%	-0.40%	—	0.00%	-0.40%
Cash		0%	—	1.96%	—	0.02%	0.01%	—	0.02%
Estimated Total		100%	100%	-12.18%	-10.73%	0.93%	-2.39%	0.01%	-1.45%
Expenses and Fees				-0.45%	—				-0.45%
Other				0.05%	-0.01%				0.06%
Total				-12.58%	-10.74%				-1.84%

Please see appendix for compliant presentation(s).

Attribution constructed using holdings-based information that utilizes an internally developed system. Additional information available upon request.

Performance data shown represents past performance and is no guarantee of future results. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost.

Holdings are subject to change. MSCI data © MSCI 2019, all rights reserved.

Attribution Analysis by Sector (GICS)

Los Angeles City Employees' Retirement System—EM Value vs. MSCI Emerging Markets Value Index (net dividends)

1 Year as of December 31, 2018

Sector	Portfolio Average Weights	Benchmark Average Weights	Portfolio Return	Benchmark Return	Portfolio Allocation	Portfolio Composition	Interaction	Total
Communication Services	5%	6%	-16.73%	-10.23%	0.26%	-0.31%	-0.01%	-0.06%
Consumer Discretionary	8%	6%	-25.57%	-25.26%	-0.32%	-0.06%	0.00%	-0.37%
Consumer Staples	3%	3%	-17.13%	-13.07%	0.02%	-0.11%	0.00%	-0.09%
Energy	11%	13%	7.93%	5.22%	-0.34%	0.32%	0.02%	-0.00%
Financials	30%	34%	-12.08%	-11.22%	0.05%	-0.26%	-0.03%	-0.23%
Health Care	1%	1%	-14.36%	-11.33%	-0.05%	-0.03%	0.00%	-0.08%
Industrials	10%	6%	-13.55%	-10.66%	0.04%	-0.30%	-0.01%	-0.26%
Information Technology	9%	11%	-19.49%	-19.90%	0.30%	0.05%	0.02%	0.37%
Materials	16%	10%	-14.76%	-13.81%	-0.11%	-0.21%	0.02%	-0.30%
Real Estate	6%	3%	-6.83%	-2.27%	0.30%	-0.28%	-0.01%	0.01%
REITs	0%	1%	-8.27%	-32.88%	0.24%	0.00%	-0.00%	0.24%
Utilities	1%	4%	-16.43%	-4.91%	-0.12%	-0.17%	-0.00%	-0.30%
Other Country	—	2%	—	9.49%	-0.40%	—	0.00%	-0.40%
Cash	0%	—	1.96%	—	0.02%	0.01%	—	0.02%
Estimated Total	100%	100%	-12.18%	-10.73%	-0.11%	-1.36%	0.01%	-1.45%
Expense and Fees			-0.45%	—				-0.45%
Other			0.05%	-0.01%				0.06%
Total			-12.58%	-10.74%				-1.84%

Please see appendix for compliant presentation(s).

Attribution constructed using holdings-based information that utilizes an internally developed system. Additional information available upon request.

Performance data shown represents past performance and is no guarantee of future results. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost.

Holdings are subject to change. MSCI data © MSCI 2019, all rights reserved. Real Estate Investment Trusts (REITs) are shown as a separate category to illustrate their exclusion from certain funds. REITs are classified according to GICS Industry code. GICS was developed by and is the exclusive property of MSCI and S&P Dow Jones Indices.

Attribution Analysis by Country

Los Angeles City Employees' Retirement System—EM Value vs. MSCI Emerging Markets Value Index (net dividends)

1 Year as of December 31, 2018

Country	Portfolio Average Weights	Benchmark Average Weights	Portfolio Return	Benchmark Return	Portfolio Allocation	Portfolio Composition	Interaction	Total
Brazil	7%	7%	18.10%	14.29%	0.09%	0.17%	-0.02%	0.24%
Chile	1%	1%	-20.27%	-18.11%	-0.00%	-0.01%	0.00%	-0.02%
China	28%	31%	-8.28%	-9.86%	-0.14%	0.36%	-0.01%	0.21%
Colombia	0%	0%	-22.70%	-11.14%	0.01%	-0.07%	0.00%	-0.05%
Czech Republic	0%	0%	8.20%	2.42%	-0.00%	0.01%	0.00%	0.01%
Egypt	—	0%	—	-11.54%	-0.00%	—	0.00%	0.00%
Greece	0%	0%	-13.96%	-40.69%	0.10%	0.01%	0.00%	0.12%
Hungary	0%	0%	-2.35%	-4.51%	0.01%	0.00%	-0.00%	0.01%
India	11%	9%	-15.54%	-6.27%	-0.07%	-1.14%	-0.01%	-1.23%
Indonesia	2%	2%	-9.20%	-8.95%	-0.05%	0.12%	-0.01%	0.06%
Korea	16%	14%	-21.99%	-23.44%	-0.17%	0.34%	0.01%	0.18%
Malaysia	2%	2%	-22.43%	-10.50%	-0.01%	-0.30%	0.00%	-0.30%
Mexico	3%	3%	-15.48%	-13.11%	0.01%	-0.08%	0.01%	-0.06%
Pakistan	—	0%	—	-33.55%	0.01%	—	0.00%	0.01%
Peru	—	0%	—	9.21%	-0.08%	—	-0.00%	-0.08%
Philippines	1%	1%	-20.07%	-21.14%	-0.01%	0.02%	-0.00%	0.01%
Poland	1%	1%	-12.08%	-11.25%	-0.03%	-0.01%	-0.00%	-0.04%
Qatar	—	1%	—	27.20%	-0.28%	—	-0.00%	-0.28%
Russia	2%	3%	19.79%	6.91%	-0.30%	0.20%	0.01%	-0.09%
South Africa	6%	7%	-22.91%	-22.10%	0.04%	-0.08%	-0.00%	-0.04%
Taiwan	14%	12%	-9.68%	-9.06%	0.10%	-0.11%	0.03%	0.01%
Thailand	3%	2%	-5.65%	-1.30%	0.00%	-0.10%	0.00%	-0.09%
Turkey	1%	1%	-41.98%	-45.49%	-0.08%	0.09%	-0.00%	0.00%
UAE	—	1%	—	-2.29%	-0.06%	—	0.00%	-0.06%
Cash	0%	—	1.96%	—	0.02%	0.01%	—	0.02%
Estimated Total	100%	100%	-12.18%	-10.73%	-0.88%	-0.58%	0.01%	-1.45%
Expense and Fees			-0.45%	—				-0.45%
Other			0.05%	-0.01%				0.06%
Total			-12.58%	-10.74%				-1.84%

Please see appendix for compliant presentation(s).

Attribution constructed using holdings-based information that utilizes an internally developed system. Additional information available upon request.

Performance data shown represents past performance and is no guarantee of future results. Current performance may be higher or lower than the performance shown. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost.

Holdings are subject to change. MSCI data © MSCI 2019, all rights reserved.

Portfolio Holdings

Los Angeles City Employees' Retirement System—EM Value, as of December 31, 2018

Company Name	Country	Percent of Portfolio
China Construction Bank Corp	China	4.61%
China Mobile Ltd	China	4.09%
Reliance Industries Ltd	India	2.75%
Industrial & Commercial Bank of China Ltd	China	2.71%
Petroleo Brasileiro SA	Brazil	2.66%
Vale SA	Brazil	1.57%
Bank of China Ltd	China	1.55%
LUKOIL PJSC	Russia	1.23%
POSCO	Korea	1.15%
China Overseas Land & Investment Ltd	China	1.15%

Diversity – Senior Employees and Executives

Senior Employees and Executives (VP/RD/PM and Above)

Diversity continues to increase based on targeted recruiting and bench strength at junior levels:

- Senior employees (VP/RD/PM levels): 33% of the US employee population with 25% women and 18% minority.
- Executive employees¹ (Executive Committee & Department Heads): 20% women, increased from 13% in 2016.

US Breakdown—Current Dimensional Employees and Prior Year Hiring

	CURRENT EMPLOYEES ²	2017 HIRING
Female (%)	36.1%	40.8%
Male (%)	63.9%	59.2%
Minority (%)	30.0%	29.0%

¹ as of 12/1/18 (includes 16 department heads (4 female) and 4 additional EC members who are not department heads (DGB, DB, GO, SC))

² as of 9/1/18

Internal Training

Investment Professionals

Dimensional recognizes that the recruitment of high-quality investment professionals is a key factor in the firm's long-term success. We use a combination of methods depending on the position. Portfolio managers and traders are generally hired as experienced professionals with prior experience in investment management, engineering, or other quantitative fields. Junior investment staff may be hired upon graduation from college and may have some prior work experience.

Regardless of prior experience, all investment professionals complete an internal training program. Each phase of the program is under the direct supervision of more senior personnel and is designed to integrate strategy and investment knowledge with practical skills involving internal systems, policies, and procedures. Only after appropriate training and testing is an investment associate, portfolio manager, or trader authorized by the Investment Committee to approve trades for client accounts.

Client-facing Professionals

All client-facing professionals are required to participate in Dimensional's Core Curriculum process. During these sessions, subject matter experts ensure that all external-facing team members have a sufficiently deep understanding of Dimensional's investment philosophy and process to adequately explain our approach. This effort, which is repeated every few years, culminates in a Capstone Presentation where they must prove this level of understanding to their peers and senior managers of the firm.

Workplace Composition

TOTAL COMPOSITION OF WORK FORCE (UNITED STATES)										
<u>Occupation</u>	<u>African American Full Time</u>	<u>Hispanic Full Time</u>	<u>Asian or Pacific Islander Full Time</u>	<u>American Indian/ Alaskan Native Full Time</u>	<u>Caucasian (Non Hispanic) Full Time</u>	<u>Two or More Full Time</u>	<u>Total Employees Full Time</u>	<u>Percent (%) Minority Full Time</u>	<u>Gender Full Time</u>	
									<u>Male</u>	<u>Female</u>
Officials & Managers	3	8	27	0	140	6	184	23.91%	118	66
Professionals	7	39	84	2	250	7	389	35.73%	262	127
Technicians	5	4	1	0	7	1	18	61.11%	15	3
Sales Workers	13	19	24	1	304	13	374	18.72%	260	114
Office/Clerical	7	11	2	1	51	4	76	32.89%	13	63
Semi-Skilled	0	0	0	0	0	0	0	0.00%	0	0
Unskilled	0	0	0	0	0	0	0	0.00%	0	0
Service Workers	0	0	0	0	0	0	0	0.00%	0	0
Other	0	0	0	0	0	0	0	0.00%	0	0
Total	35	81	138	4	752	31	1,041	24.78%	668	373

Historical Performance of Premiums over Rolling Periods

Emerging Markets

Overlapping Periods: January 1989–December 2017

MARKET beat T-BILLS

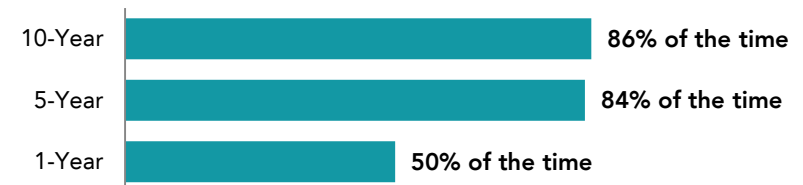


Market is Fama/French Emerging Markets Index.
T-Bills is One-Month US Treasury Bills.

There are 229 overlapping 10-year periods, 289 overlapping 5-year periods, and 337 overlapping 1-year periods.

Overlapping Periods: January 1989–December 2017

VALUE beat GROWTH

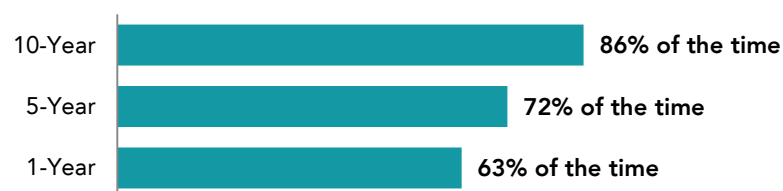


Value is Fama/French Emerging Markets Value Index.
Growth is Fama/French Emerging Markets Growth Index.

There are 229 overlapping 10-year periods, 289 overlapping 5-year periods, and 337 overlapping 1-year periods.

Overlapping Periods: January 1989–December 2017

SMALL beat LARGE



Small is Dimensional Emerging Markets Small Index.
Large is MSCI Emerging Markets Index (gross div.).

There are 229 overlapping 10-year periods, 289 overlapping 5-year periods, and 337 overlapping 1-year periods.

Overlapping Periods: July 1995–December 2017

HIGH PROFITABILITY¹ beat LOW PROFITABILITY



High is Dimensional Emerging Markets High Profitability Index.
Low is Dimensional Emerging Markets Low Profitability Index.

There are 151 overlapping 10-year periods, 211 overlapping 5-year periods, and 259 overlapping 1-year periods.

Please see Appendix for compliant presentation(s).

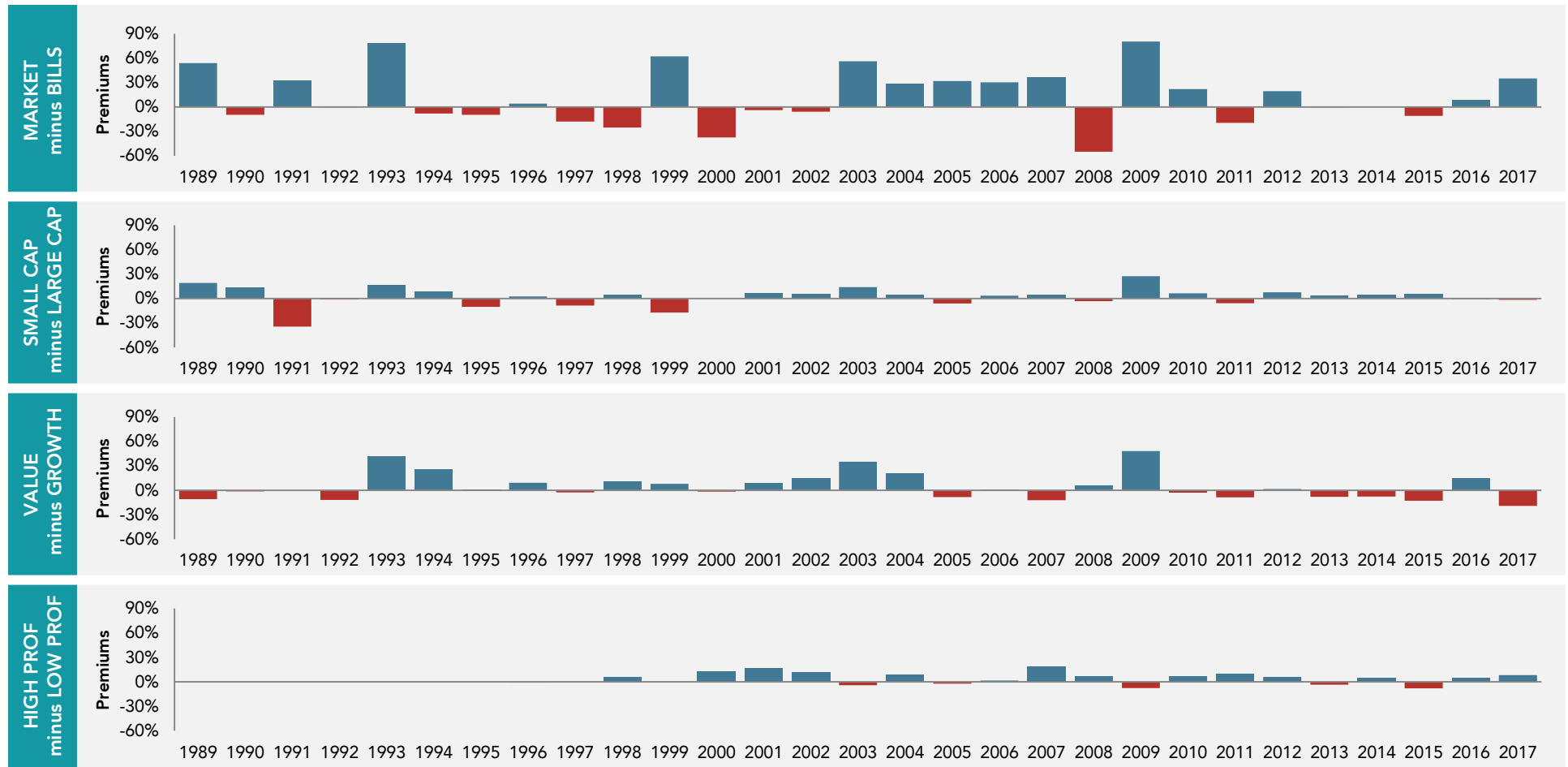
Indices are not available for direct investment. Past performance is not a guarantee of future results.

1. Profitability is measured as operating income before depreciation and amortization minus interest expense, scaled by book.

Based on rolling annualized returns using monthly data. Rolling multiyear periods overlap and are not independent. "One-Month Treasury Bills" is the IA SBBI US 30 Day TBill TR USD, provided by Ibbotson Associates via Morningstar Direct. Dimensional Index data compiled by Dimensional. Fama/French data provided by Fama/French. MSCI data copyright MSCI 2018, all rights reserved. Eugene Fama and Ken French are members of the Board of Directors of the general partner of, and provide consulting services to, Dimensional Fund Advisors LP. Index descriptions available upon request.

Yearly Observations of Premiums

Equity, size, relative price, and profitability: Emerging Markets

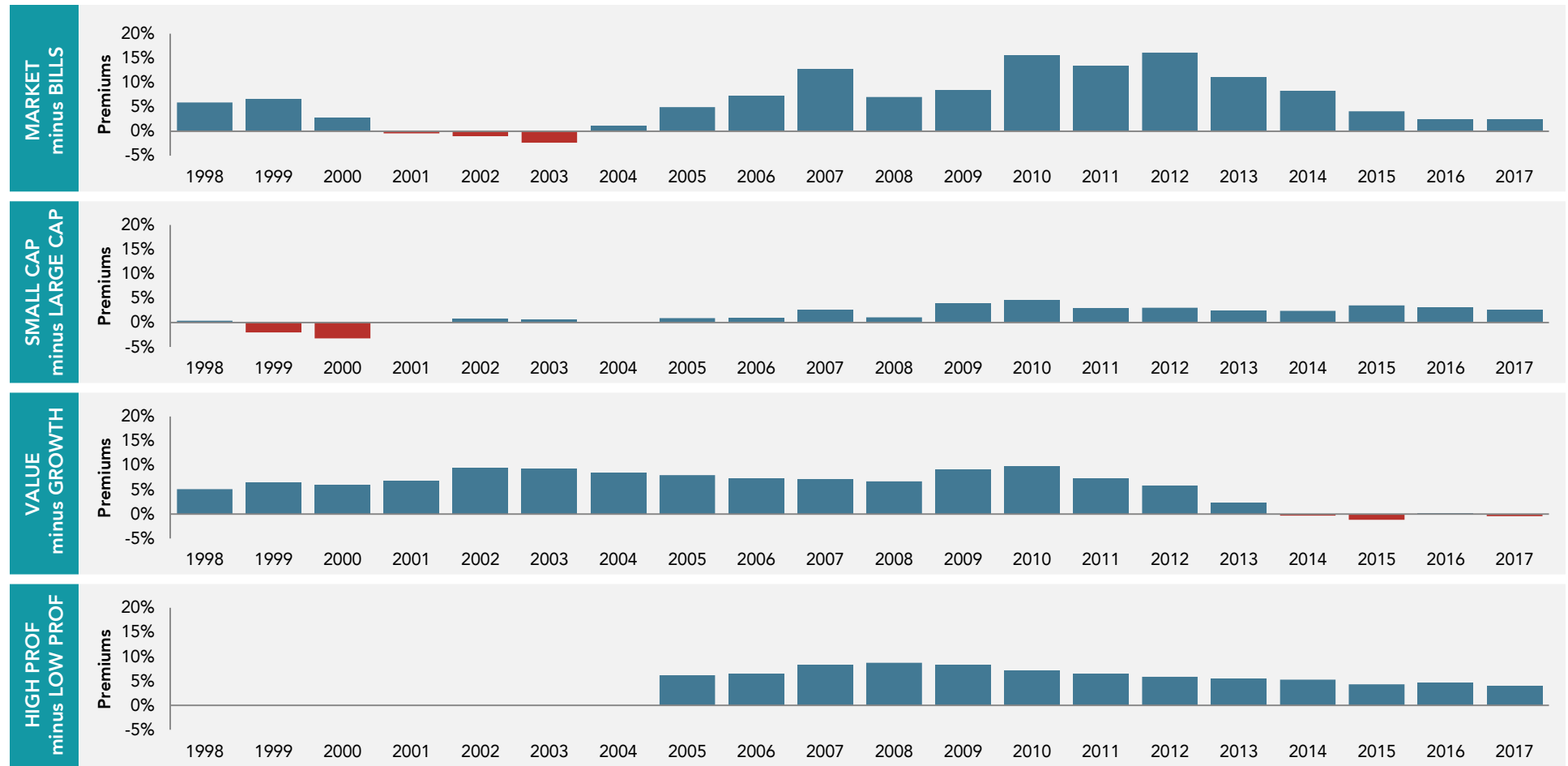


Please see Appendix for compliant presentation(s).

Equity premium: Fama/French Emerging Markets Index minus one-month US Treasury Bills. Size premium: Dimensional Emerging Markets Small Cap Index minus MSCI Emerging Markets Index (gross dividends). Relative price premium: Fama/French Emerging Markets Value Index minus Fama/French Emerging Markets Growth Index. Profitability premium: Dimensional Emerging Markets High Profitability Index minus the Dimensional Emerging Markets Low Profitability Index. Profitability is measured as operating income before depreciation and amortization minus interest expense, scaled by book. Dimensional indices use Bloomberg data. One-Month Treasury Bills is the IA SBB1 US 30 Day TBILL TR USD, provided by Ibbotson Associates via Morningstar Direct. Fama/French indices provided by Ken French. MSCI data copyright MSCI 2018, all rights reserved. Index descriptions available upon request. Eugene Fama and Ken French are members of the Board of Directors of the general partner of, and provide consulting services to, Dimensional Fund Advisors LP. **Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio. Past performance is no guarantee of future results.**

Historical Observations of 10-Year Premiums

Equity, size, relative price, and profitability: Emerging Markets



Please see appendix for compliant presentation(s).

10-year rolling equity premium is computed as the 10-year annualized compound return on the Fama/French Emerging Markets Index minus the 10-year annualized compound return of one-month US Treasury Bills. 10-year rolling size premium is computed as the 10-year annualized compound return on the Dimensional Emerging Markets Small Cap Index minus the 10-year annualized compound return on the MSCI Emerging Markets Index (gross dividends). 10-year rolling relative price premium is computed as the 10-year annualized compound return on the Fama/French Emerging Markets Value Index minus the 10-year annualized compound return on the Fama/French Emerging Markets Growth Index. The 10-year rolling profitability premium is computed as the 10-year annualized compound return on the Dimensional Emerging Markets High Profitability Index minus the 10-year annualized compound return on the Dimensional Emerging Markets Low Profitability Index. Profitability is measured as operating income before depreciation and amortization minus interest expense, scaled by book. One-Month Treasury Bills is the IA SBBI US 30 Day TBill TR USD, provided by Ibbotson Associates via Morningstar Direct. Dimensional indices use Bloomberg data. Fama/French indices provided by Ken French. MSCI data © MSCI 2019, all rights reserved. Index descriptions available upon request. Eugene Fama and Ken French are members of the Board of Directors of the general partner of, and provide consulting services to, Dimensional Fund Advisors LP. **Indices are not available for direct investment. Their performance does not reflect the expenses associated with the management of an actual portfolio. Past performance is no guarantee of future results.**

Index Descriptions

Dimensional US Small Cap Index was created by Dimensional in March 2007 and is compiled by Dimensional. It represents a market-capitalization-weighted index of securities of the smallest US companies whose market capitalization falls in the lowest 8% of the total market capitalization of the eligible market. The eligible market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and investment companies. From January 1975 to the present, the index also excludes companies with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat. The index monthly returns are computed as the simple average of the monthly returns of 12 sub-indices, each one reconstituted once a year at the end of a different month of the year. The calculation methodology for the Dimensional US Small Cap Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index.

Dimensional US High Profitability Index was created by Dimensional in January 2014 and represents an index consisting of US companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three high-profitability subgroups. It is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat.

Dimensional US Low Profitability Index was created by Dimensional in January 2014 and represents an index consisting of US companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. It is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: CRSP and Compustat.

Dimensional International Small Cap Index was created by Dimensional in April 2008 and is compiled by Dimensional. July 1981–December 1993: It Includes non-US developed securities in the bottom 10% of market capitalization in each eligible country. All securities are market capitalization weighted. Each country is capped at 50%. Rebalanced semiannually. January 1994–Present: Market-capitalization-weighted index of small company securities in the eligible markets excluding those with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of a different quarter of the year. Prior to July 1981, the index is 50% UK and 50% Japan. The calculation methodology for the Dimensional International Small Cap Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index.

Index Descriptions

Dimensional International Low Profitability Index was created by Dimensional in January 2013 and represents an index consisting of non-US developed companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional International High Profitability Index was created by Dimensional in January 2013 and represents an index consisting of non-US developed companies. It is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three high-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional Emerging Markets Low Profitability Index was created by Dimensional in April 2013 and represents an index consisting of emerging markets companies and is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three low-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional Emerging Markets High Profitability Index was created by Dimensional in April 2013 and represents an index consisting of emerging markets companies and is compiled by Dimensional. Dimensional sorts stocks into three profitability groups from high to low. Each group represents one-third of the market capitalization of each eligible country. Similarly, stocks are sorted into three relative price groups. The intersections of the three profitability groups and the three relative price groups yield nine subgroups formed on profitability and relative price. The index represents the average return of the three high-profitability subgroups. The index is rebalanced twice per year. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Source: Bloomberg.

Dimensional Emerging Markets Small Cap Index was created by Dimensional in April 2008 and is compiled by Dimensional. January 1989–December 1993: Fama/French Emerging Markets Small Cap Index. January 1994–Present: Dimensional Emerging Markets Small Cap Index composition: Market-capitalization-weighted index of small company securities in the eligible markets excluding those with the lowest profitability and highest relative price within the small cap universe. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. The index monthly returns are computed as the simple average of the monthly returns of four sub-indices, each one reconstituted once a year at the end of a different quarter of the year. Source: Bloomberg. The calculation methodology for the Dimensional Emerging Markets Small Cap Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index.

The Dimensional Indices have been retrospectively calculated by Dimensional Fund Advisors LP and did not exist prior to their index inception dates. Accordingly, results shown during the periods prior to each index's index inception date do not represent actual returns of the index. Other periods selected may have different results, including losses. Backtested index performance is hypothetical and is provided for informational purposes only to indicate historical performance had the index been calculated over the relevant time periods. Backtested performance results assume the reinvestment of dividends and capital gains. Eugene Fama and Ken French are members of the Board of Directors of the general partner of, and provide consulting services to, Dimensional Fund Advisors LP.

Index Descriptions

Fama/French US Value Research Index: Provided by Fama/French from CRSP securities data. Includes the lower 30% in price-to-book of NYSE securities (plus NYSE Amex equivalents since July 1962 and Nasdaq equivalents since 1973).

Fama/French US Growth Research Index: Provided by Fama/French from CRSP securities data. Includes the higher 30% in price-to-book of NYSE securities (plus NYSE Amex equivalents since July 1962 and Nasdaq equivalents since 1973).

Fama/French Total US Market Index: Provided by Fama/French from CRSP securities data. Includes all US operating companies trading on the NYSE, AMEX, or Nasdaq NMS. Excludes ADRs, investment companies, tracking stocks, non-US incorporated companies, closed-end funds, certificates, shares of beneficial interests, and Berkshire Hathaway Inc. (Permco 540).

Fama/French International Value Index: 2008–present: Provided by Fama/French from Bloomberg securities data. Simulated strategy of MSCI EAFE + Canada countries in the lower 30% price-to-book range. 1975–2007: Provided by Fama/French from MSCI securities data.

Fama/French International Growth Index: 2008–present: Provided by Fama/French from Bloomberg securities data. Simulated strategy of MSCI EAFE + Canada countries in the higher 30% price-to-book range. 1975–2007: Provided by Fama/French from MSCI securities data.

Fama/French Emerging Markets Value Index: 2009–present: Provided by Fama/French from Bloomberg securities data. Simulated strategy using IFC investable universe countries. Companies in the lower 30% price-to-book range; companies weighted by float-adjusted market cap; countries weighted by country float-adjusted market cap; rebalanced monthly. 1989–2008: Provided by Fama/French from IFC securities data. IFC data provided by International Finance Corporation.

Fama/French Emerging Markets Growth Index: 2009–present: Provided by Fama/French from Bloomberg securities data. Simulated strategy using IFC investable universe countries. Companies in the higher 30% price-to-book range; companies weighted by float-adjusted market cap; countries weighted by country float-adjusted market cap; rebalanced monthly. 1989–2008: Provided by Fama/French from IFC securities data. IFC data provided by International Finance Corporation.

Emerging Markets All Cap Value Equity Composite

Performance Presented in USD for the Period January 1, 2008 - December 31, 2017

Composite Inception: January 1, 2002

	Composite Gross Return (%)	Composite Net Return (%)	Benchmark Return (%)	Composite 3-Yr Std Dev. (%)	Benchmark 3-Yr Std Dev. (%)	Internal Dispersion (%)	Number of Portfolios	Composite Assets (MM)	Firm AUM (MM)
2017	34.11	33.27	28.07	17.29	16.83	1.50	13	27,553	577,096
2016	20.02	19.32	14.90	18.10	17.80	1.11	15	22,761	460,010
2015	-18.41	-18.91	-18.57	15.75	15.38	0.86	18	21,148	388,263
2014	-3.81	-4.39	-4.08	17.21	16.35	1.09	19	26,335	380,636
2013	-2.85	-3.43	-5.11	21.79	19.54	0.70	17	27,863	337,523
2012	19.76	19.06	15.87	24.44	21.79	1.17	16	26,559	262,095
2011	-25.23	-25.69	-17.86	31.05	26.31	0.92	15	19,887	213,749
2010	23.13	22.41	18.41	37.41	32.70	1.33	13	23,032	206,553
2009	95.00	93.89	79.11	36.80	32.56	4.68	11	15,178	164,539
2008	-53.34	-53.63	-50.27	30.61	28.24	1.37	8	6,003	110,564

Dimensional Fund Advisors claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Dimensional Fund Advisors has been independently verified for the period January 1, 2007 through December 31, 2017. The verification report is available upon request. 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. Verification does not ensure the accuracy of any specific composite presentation.

The Firm: Dimensional Fund Advisors LP is an investment advisor registered with the U.S. Securities and Exchange Commission ("SEC") under the Investment Advisers Act of 1940, as amended. The firm includes all of Dimensional's global offices and subsidiaries that offer discretionary investment advisory services. *SEC registration does not imply a certain level of skill or training. A list of composite descriptions and policies for valuing portfolios, calculating performance, and preparing compliant presentations, is available upon request.*

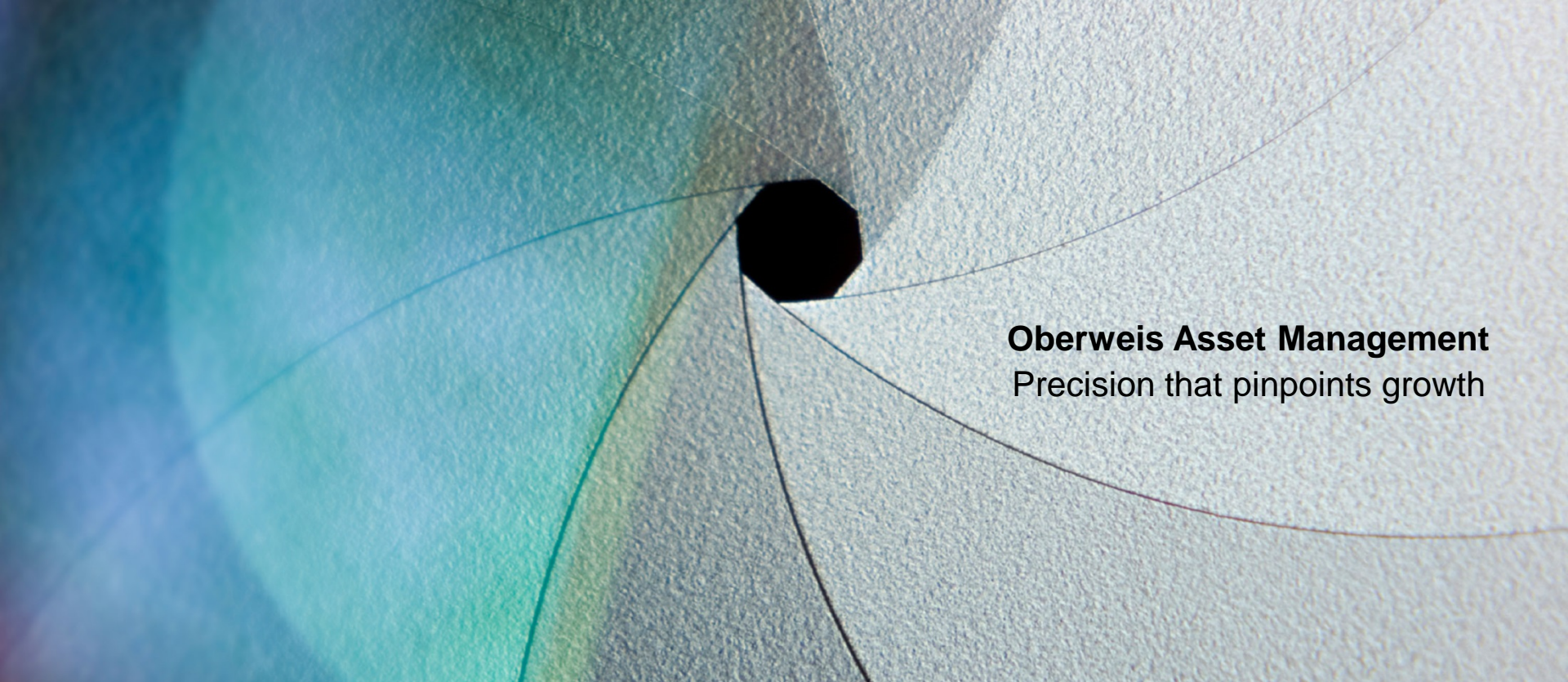
Composite Description: The Emerging Markets All Cap Value Equity Composite includes portfolios that invest in a broad group of securities across emerging market countries. Portfolios in the composite target companies of all market capitalizations. Securities are considered value stocks primarily because a company's shares have a low relative price. Portfolios in the composite have a 17.5% country weight cap. The composite does not have a minimum investment for inclusion and is reported in USD. Prior to January 1, 2018, the minimum investment for inclusion in the composite was \$25MM. Composite holdings may differ significantly from benchmark holdings. The composite was created on June 30, 2012.

Benchmark Description: The benchmark for the Emerging Markets All Cap Value Equity Composite is the MSCI Emerging Markets Value Index (net div.). The index is a free float-adjusted market capitalization weighted index that measures the performance of large and mid cap equity securities across emerging market countries. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price, and dividend yield. It is not possible to invest in an index, which is unmanaged and does not reflect management expenses.

Fees & Performance: Composite returns reflect the deduction of all trading expenses. Gross returns do not reflect the deduction of investment advisory fees or any other expenses that may be incurred in the management of the account. Net of model fee returns are calculated by subtracting the annual model management fee, geometrically averaged over 12 months, from the monthly gross of fee composite return. The model management fee of 0.65% is equivalent to the highest standard fee currently offered to US institutional investors. Fees are described in Part 2A of Form ADV. Fee schedules for non-US Institutional investors may differ and are available upon request. Actual fees may vary. Performance is presented in USD. Past performance is no guarantee of future results. All returns reflect the reinvestment of dividends and other earnings. Composite returns are gross of reclaimable withholding taxes and net of non-reclaimable withholding taxes, where applicable. Prior to January 1, 2017, the model management fee was 0.60%. As of May 1, 2018, the internal dispersion for the 2011 and 2013 calendar year periods were restated.

Dispersion: The internal dispersion of annual gross returns is measured by the equal weighted standard deviation of portfolio returns included in the composite for the entire year. For those years when less than six portfolios were included in the composite for the full year, no dispersion measure is presented.

Standard Deviation: Three year ex post standard deviation is only presented for those periods that have 36 prior consecutive monthly composite returns. The three year annualized ex post standard deviation measures the variability of composite gross returns and benchmark returns over the preceding 36 months.



Oberweis Asset Management
Precision that pinpoints growth



INTERNATIONAL OPPORTUNITIES

A Presentation to:



TABLE OF CONTENTS

Firm Overview:	pages 1 – 4
Investment Philosophy and Process:	pages 5 – 7
Portfolio Characteristics, Holdings and Performance:	pages 8 – 17
Portfolio Attribution:	pages 18 – 22
GIPS Presentation, Disclosures, Quarter/Year in Review and Competitive Advantages:	pages 23 – 28
Appendix (Biographies and Workforce Composition Report:	pages 29 – 30

FIRM OVERVIEW

- Headquartered in suburban Chicago with over 25 years of history
- Independence: Senior investment professionals, key executives, and their immediate families own 100% of the corporation
- Focused resources

GLOBAL SMALL-CAP EQUITY SPECIALISTS

International Strategies

International Opportunities

China Opportunities

Global Small-Cap

Emerging Markets

U.S. Strategies

Micro-Cap Growth

Small-Cap Opportunities

Concentrated Small-Cap Growth

Small-Cap Value

WE DELIVER A
DISCIPLINED AND
REPEATABLE INVESTMENT
PROCESS, WITH AN
UNWAVERING FOCUS ON
CLIENT SERVICE.

ASSETS UNDER MANAGEMENT

AS OF DECEMBER 31, 2018

Oberweis Asset Management AUM:	\$2,798 million
• International Opportunities:	\$2,391 million
• U.S. Small/Micro:	\$240 million
• China Opportunities:	\$72 million
• Global Small-Cap:	\$39 million
• Emerging Markets:	\$6 million
• Custom:	\$50 million

EXPERIENCED PROFESSIONALS



James W. Oberweis, CFA
President/CIO
MBA, University of Chicago

U.S. GROWTH TEAM



Kenneth S. Farsalas, CFA
Director of U.S. Equities &
Portfolio Manager
MBA, U. of Chicago

U.S. VALUE TEAM



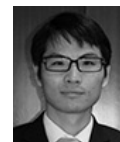
David Wetherell, CFA
Portfolio Manager
MS, U. of Illinois

INTERNATIONAL TEAM



Ralf A. Scherschmidt
Portfolio Manager
MBA, Harvard Business
School

CHINA TEAM



Barry Wang, CFA
Portfolio Manager
Master's, Columbia U

EMERGING MARKETS TEAM



Mark Weber, CFA
Portfolio Manager
MBA, U. of Kansas



David I. Covas, CFA
Portfolio Manager
MBA, U. of Chicago



Umesh Nathani, CFA
Asst. Portfolio Manager
MS, U. of Illinois



Jeff Papp, CFA
Asst. Portfolio Manager
BS, U. of Illinois



Fangwen Zhou, CFA
Senior Analyst
MBA, EDHEC
Business School



Terry Y. Tian
Senior Analyst
MS, IIT



Kevin L. Cowell, CFA
Senior Analyst
BS, U. of Illinois



Dr. David Ikenberry
Strategic Consultant



Yanru Hsu, CFA
Senior Analyst
MBA, U. of Maryland



Abhishek Kumar
Analyst
MBA, U. of North Carolina



Charles Wilson
Senior Analyst
BA, Bristol University



Charlie Hill-Wood
Senior Analyst
MBA, IESE Business School

WHO WE ARE

- We employ a disciplined, repeatable investment process that is based on a clearly-defined, empirically-documented and persistent source of alpha
 - The Post-Earnings-Announcement Drift – it “is one of the most persistent anomalies”¹ and “The abnormal returns associated with the drift are substantial”²
 - The goal is to generate both high after-fee returns and significant long-term outperformance relative to the benchmark and peer group
- We are passionate, globally-experienced, bottom-up fundamental investors with various native languages (Japanese, German, Chinese)
- We are nimble, and operate in a non-bureaucratic culture that lets us act on important investment decisions promptly
- We are high active share managers
 - Portfolios that make the most active bets have been shown to *perform best* against their benchmarks³
 - “Long-only funds that at times make large stock bets within a reasonably diversified portfolio are probably the best product for those looking for active alpha”⁴
 - “the typical active mutual fund manager is able to identify stocks that outperform by economically and statistically large amounts.”⁵
 - Moreover, in an *overall portfolio* context, the addition of unique, idiosyncratic, high active share strategies often have better effects on overall risk-adjusted portfolio metrics (such as: Sharpe ratio, information ratio, 12-month rolling batting average, 12-month average excess return) than adding lower tracking error, benchmark-like strategies. This is because the correlation of their excess returns is often lower, or even negative.

INVESTMENT PROCESS OVERVIEW



- Non-U.S. securities
- Market capitalization screens generally between US\$300m and US\$5bn

- Significant daily earnings surprises
- Significant weekly earnings revisions
- ERP multi-factor screens

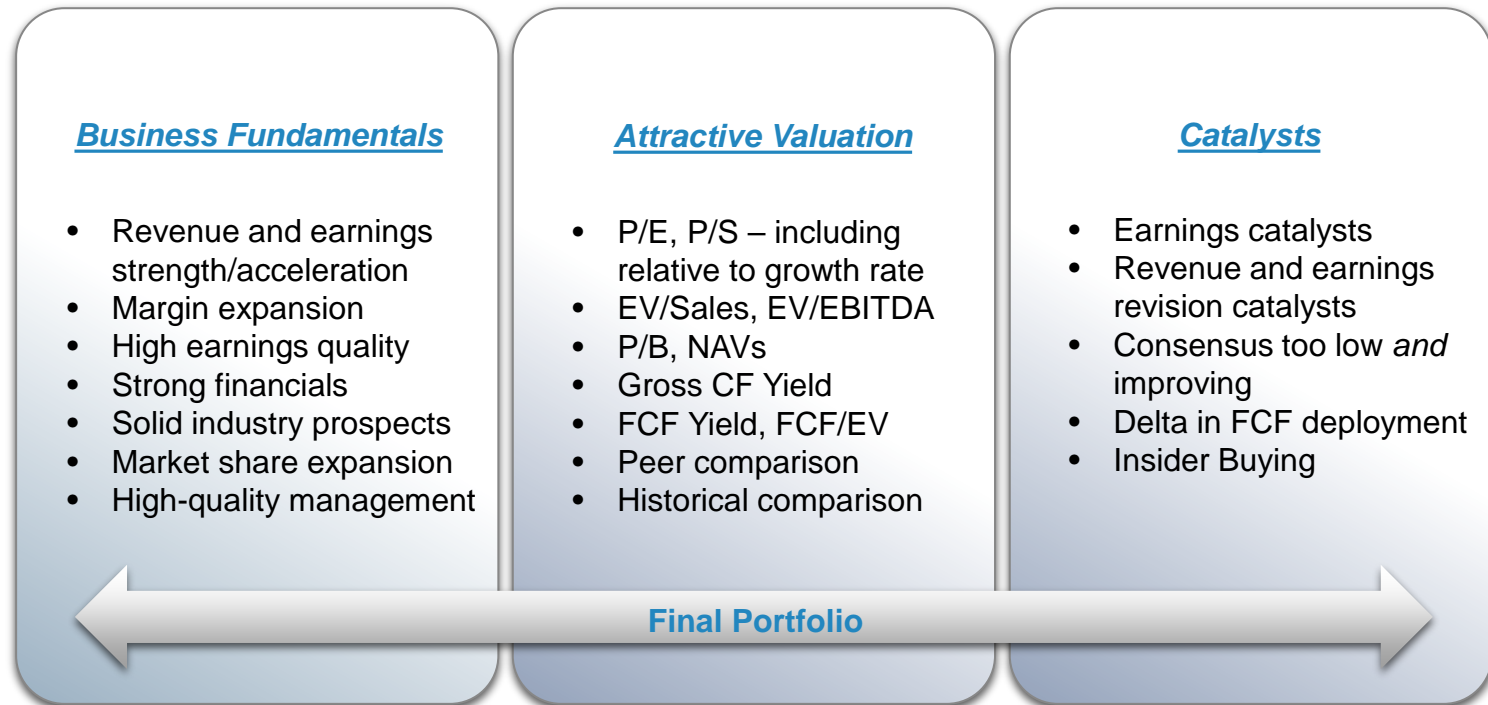
- In-depth study of key fundamental factors
- Primary and secondary research sources
- Our research process is a proprietary research process based on:
 - 16 specific research steps (with sub-steps)
 - 18 key investment criteria (with sub-criteria)

- Valuation needs to be attractive on *our* earnings estimates = share price << NPV

- Portfolio Construction: Portfolio Optimizer
- Factor exposure and cross-correlation analysis
- Diversification across countries and sectors
- Approximately 50 – 100 companies

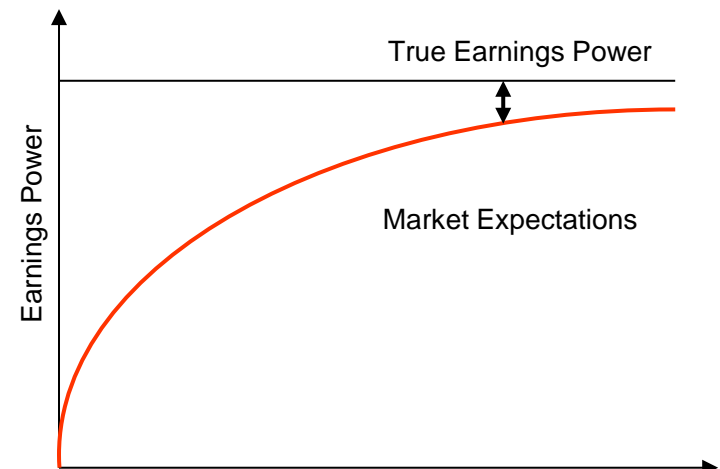
PREFERRED FUNDAMENTAL INVESTMENT CHARACTERISTICS

The key is to buy good businesses (*solid, improving fundamentals*) with significantly misunderstood future earnings power and cash flows (*thus true valuation is cheap*) at a point when the market is just at the early stages of recognizing this misunderstanding (*catalysts are required in order to avoid value traps*).



As the gap between the market's expectation of a company's earnings power and its true earnings power narrows, positions are reduced and/or sold.

- This can be a function of:
 - **No longer misunderstood**
 - Market expectations have caught up to our expectations
 - Investment thesis fully played out
 - **Replaced by a better idea**
 - Most frequent reason for a sale
 - **Deterioration of company fundamentals**
 - Ongoing position monitoring and research
 - Empirical Research Partners proprietary multi-factor models
 - Eikon proprietary multi-factor models



PERFORMANCE OBJECTIVES

- To achieve both an annualized outperformance of at least 300 basis points over the MSCI EAFE Small-Cap Index over a full market cycle (5-7 years) with an Information Ratio of at least 0.5; and a top quartile ranking in Total Return, Sharpe Ratio and Sortino Ratio relative to its peer group of diversified international small-cap core, growth and value strategies over a full market cycle (as per eVestment, Inc.).
- To outperform the MSCI EAFE Small-Cap Index in US\$ by 2% per annum (net-of-fees) over a full market cycle (normally 5-7 years)

GENERAL PORTFOLIO CHARACTERISTICS

LACERS PORTFOLIO AS OF DECEMBER 31, 2018

- Country Weighting Limits: Investment in any individual country in the index, including Canada, may not exceed the greater of 20% of the portfolio or 20% above the benchmark weight. Hong Kong listed securities are counted as classified as Hong Kong.
- Sector Weighting Limits: +/- 200% of benchmark weight or up to 30% of portfolio market value
- Number of Issues: Range is between 50-100 securities; as of 12/31/18 LACERS held 82 securities
- Position Size Exposure Limits: Maximum asset allocation to a single security shall not exceed 5% at cost and 7% maximum of the portfolio at market value
- Limits on out-of-BM investments: N/A
- Cash Holding Range: 0-10%
- Portfolio Turnover: 148.4% annualized as of 12/31/18 (range is 100-200%)
- Tracking Error (3 Year): 7.03% as of 12/31/18 using monthly returns vs. the MSCI EAFE Small-Cap Index (range is 8.0%-15%)
5.68% as of 12/31/18 using monthly returns vs. the MSCI World ex-US Small Cap Growth Index (primary index)
- Market Cap Distribution:

>\$1.0 billion:	14.3%
\$1.0-\$2.5 billion:	30.2%
\$2.5-\$5.0 billion:	35.3%
+\$5.0 billion:	20.3%

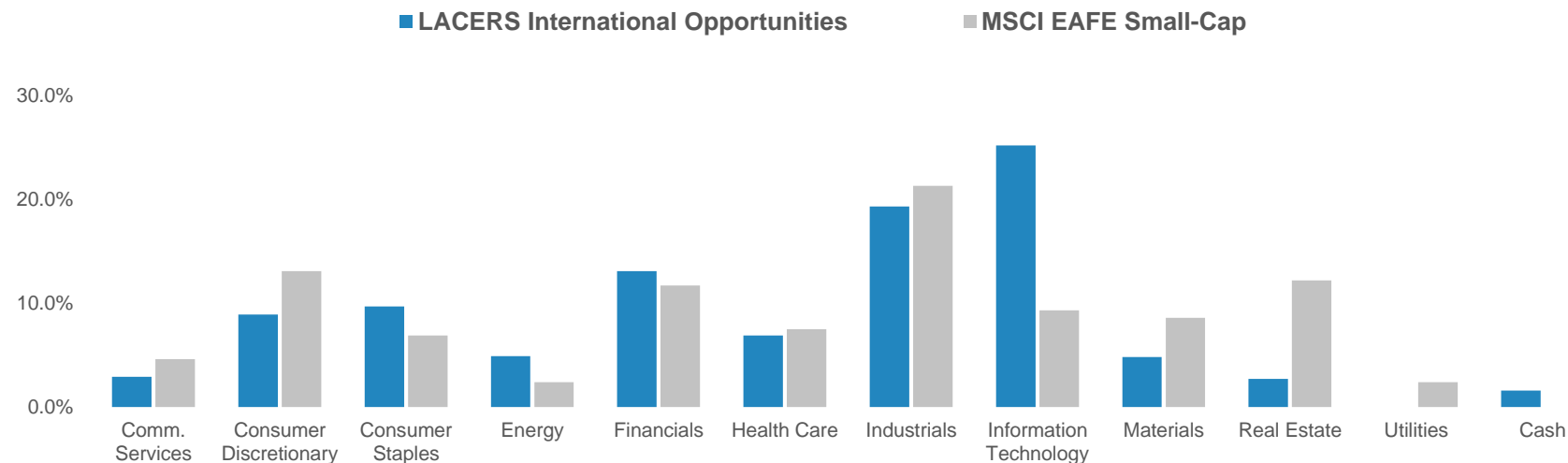
TOP TEN HOLDINGS: AS OF DECEMBER 31, 2018

LACERS PORTFOLIO

<u>Top 10 Holdings</u>	<u>% Portfolio Weight</u>
Burford Capital Ltd.	4.0%
Evolution Mining	3.1%
Teleperformance	3.0%
Intermediate Capital Group	2.5%
ASR Nederland	2.4%
Parkland Fuel Corp.	2.3%
Fancl Corp.	2.2%
Systema Corp.	2.2%
Afterpay Touch Group Ltd.	1.9%
Evolution Gaming Group	1.9%

SECTOR WEIGHTINGS: AS OF DECEMBER 31, 2018

LACERS INTERNATIONAL OPPORTUNITIES VS. MSCI EAFE SMALL-CAP INDEX



Sector	LACERS International Opportunities	MSCI EAFE Small-Cap Index
Communication Services	2.9%	4.6%
Consumer Discretionary	8.9%	13.1%
Consumer Staples	9.7%	6.9%
Energy	4.9%	2.4%
Financials	13.1%	11.7%
Health Care	6.9%	7.5%
Industrials	19.3%	21.3%
Information Technology	25.2%	9.3%
Materials	4.8%	8.6%
Real Estate	2.7%	12.2%
Utilities	0.0%	2.4%
Cash	1.6%	N/A
Total	100.0%	100.0%

COUNTRY ALLOCATION: AS OF DECEMBER 31, 2018

LACERS INTERNATIONAL OPPORTUNITIES VS. MSCI EAFE SMALL-CAP INDEX

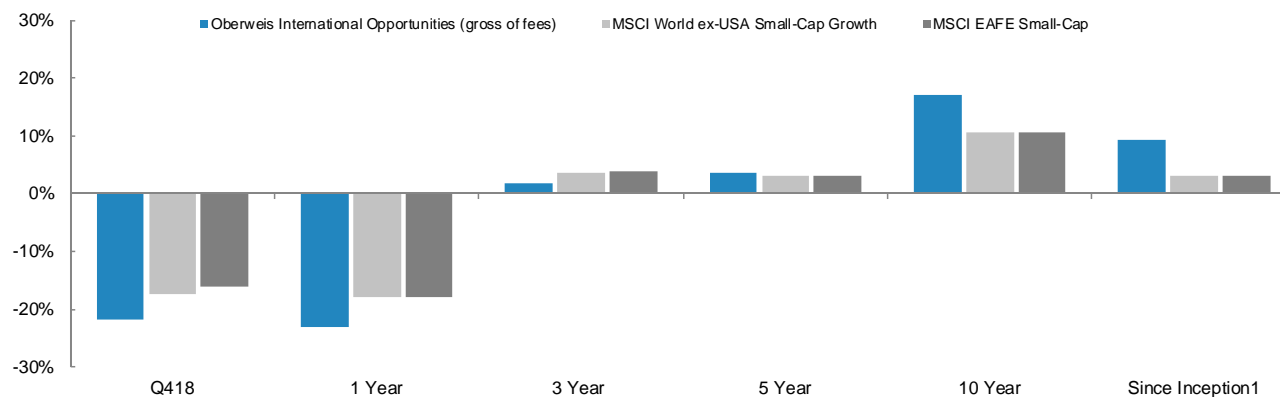
Country	LACERS International Opportunities	MSCI EAFE Small-Cap Index	Over-Under Weight
Japan	18.5%	31.5%	-13.0%
U.K.	16.7%	18.1%	-1.4%
Australia	11.3%	7.1%	4.2%
Canada	10.9%	0.0%	10.9%
Sweden	7.2%	5.5%	1.7%
China	6.5%	0.0%	6.5%
Germany	6.1%	5.6%	0.5%
France	4.9%	3.3%	1.6%
Netherlands	4.7%	2.6%	2.1%
Denmark	3.2%	1.8%	1.4%
Israel	2.6%	1.8%	0.8%
Norway	2.1%	2.1%	0.0%
Switzerland	1.4%	4.3%	-2.9%
Belgium	1.2%	2.0%	-0.8%
Hong Kong	0.1%	2.0%	-1.9%
Italy	0.0%	3.6%	-3.6%
Spain	0.0%	2.5%	-2.5%
Other Countries	1.0%	6.2%	-5.2%
Cash	1.6%	N/A	
	100.0%	100.0%	
Total Emerging Markets: MSCI Classification	6.5%	0.0%	N/A

As a % of Total Net Assets

Country Allocation is defined using MSCI's Country Classification methodology and represents countries whose allocation in the Strategy or Index is 2% or more. Country allocations representing less than 2% are categorized in "Other Countries."

Source: Thomson Reuters Eikon

INTERNATIONAL OPPORTUNITIES COMPOSITE AS OF DECEMBER 31, 2018

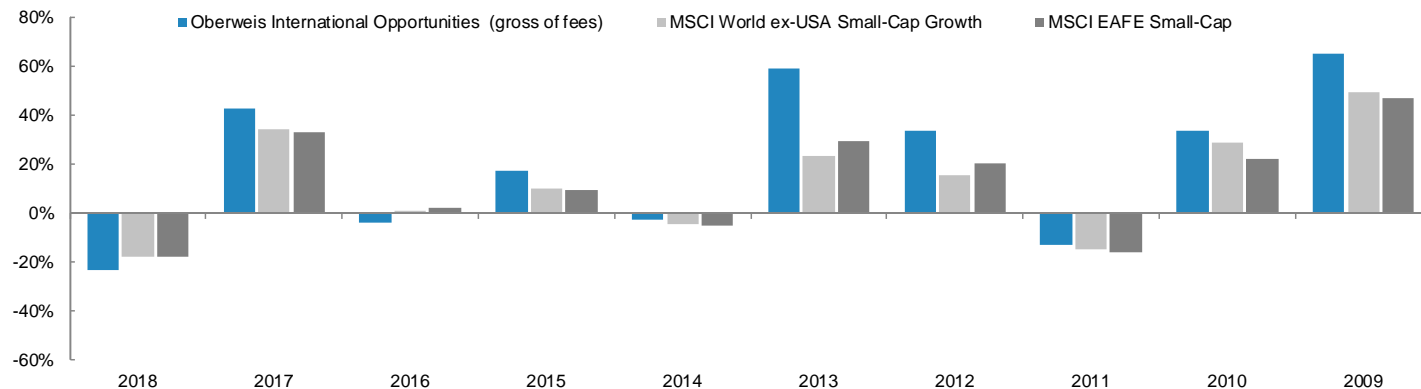


	Q418	1 Year	3 Year	5 Year	10 Year	Since Inception ¹	Cumulative Return Since Inception*
Oberweis International Opportunities (gross of fees)	-21.82%	-23.03%	1.70%	3.61%	17.09%	9.31%	188.84%
MSCI World ex-USA Small-Cap Growth	-17.49%	-17.78%	3.65%	3.10%	10.46%	3.00%	42.16%
MSCI EAFE Small-Cap	-16.05%	-17.89%	3.73%	3.06%	10.51%	3.05%	43.01%

The MSCI World ex-US Small-Cap Growth Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of small cap growth developed markets excluding the US, with dividends reinvested net of withholding tax.

¹Inception of the Oberweis International Opportunities Composite is February 1, 2007.

INTERNATIONAL OPPORTUNITIES COMPOSITE LAST 10 CALENDAR YEAR PERFORMANCE AS OF DECEMBER 31, 2018



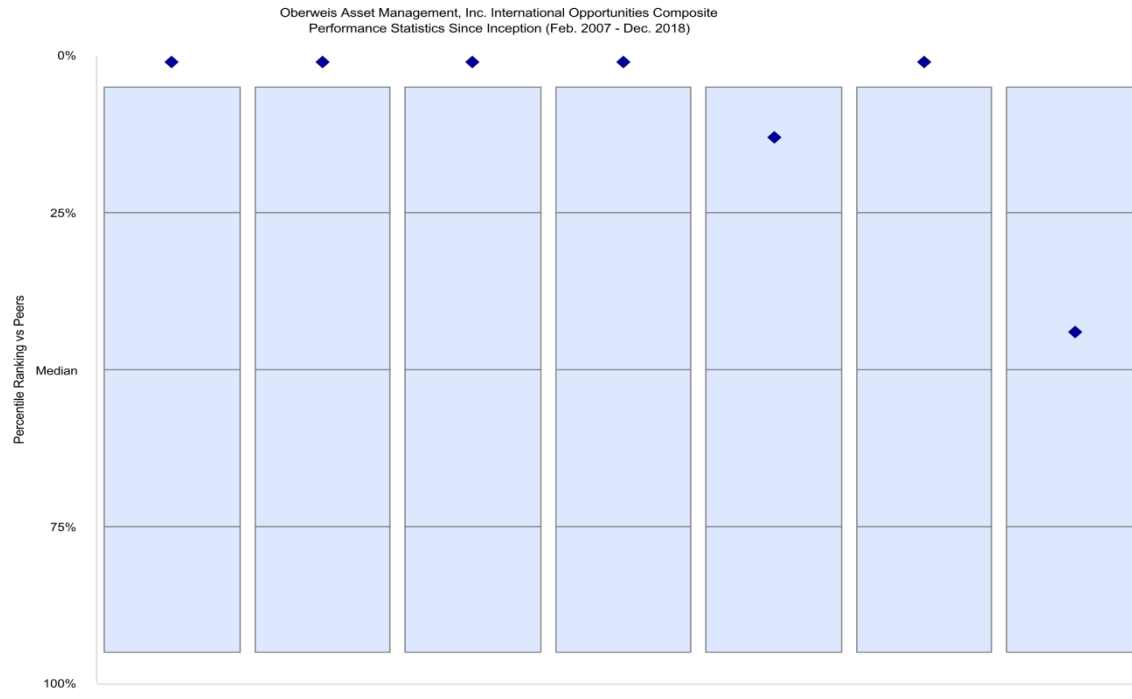
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Oberweis International Opportunities (gross of fees)	-23.03%	42.30%	-3.97%	16.96%	-2.92%	59.13%	33.53%	-13.03%	33.30%	64.61%
MSCI World ex-USA Small-Cap Growth	-17.78%	34.27%	0.86%	9.92%	-4.84%	23.32%	15.42%	-14.79%	28.47%	49.03%
MSCI EAFE Small-Cap	-17.89%	33.01%	2.18%	9.59%	-4.95%	29.30%	20.00%	-15.94%	22.04%	46.78%

The MSCI World ex-US Small-Cap Growth Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of small cap growth developed markets excluding the US, with dividends reinvested net of withholding tax.

*Inception of the Oberweis International Opportunities Composite is February 1, 2007.

PEER RANKING: AS OF DECEMBER 31, 2018

INTERNATIONAL OPPORTUNITIES COMPOSITE PERFORMANCE STATISTICS SINCE INCEPTION



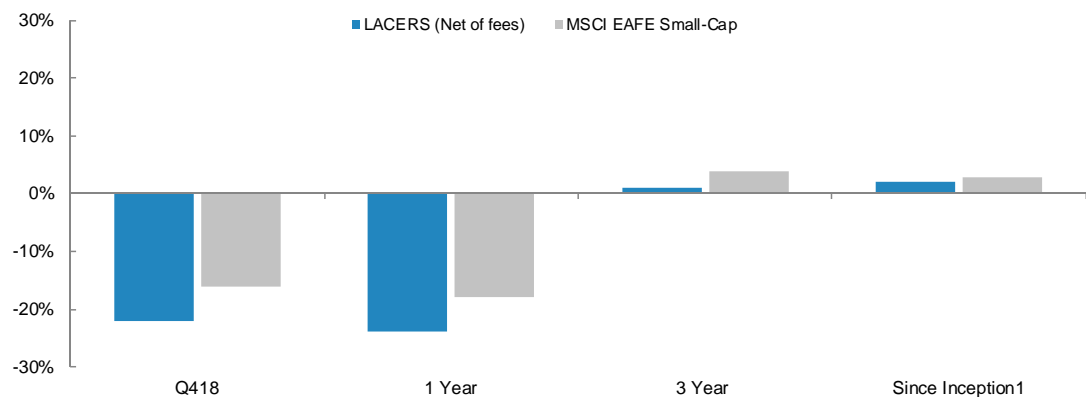
Universe: eVestment EAFE Small Cap Equity

	Returns		Annualized Alpha ¹		Sharpe Ratio ²		Sortino Ratio ²		Information Ratio ¹		Upside Market Capture ³		Downside Market Capture ³	
		Rk		Rk		Rk		Rk		Rk		Rk		Rk
5th percentile	7.20		4.73		0.38		0.53		0.84		112.54		80.72	
25th percentile	5.12		2.47		0.23		0.32		0.61		107.38		93.60	
Median	4.31		1.78		0.19		0.26		0.42		103.42		97.80	
75th percentile	3.64		1.00		0.15		0.20		0.27		96.76		99.96	
95th percentile	2.58		0.01		0.09		0.13		-0.03		92.03		101.56	
# of Observations	30		30		30		30		30		30		30	
◆ Oberweis: International Opportunities	9.31	1	6.93	1	0.38	1	0.53	1	0.71	13	129.48	1	97.56	44

Results displayed in USD.

¹MSCI World ex-US Small Cap-ND; ²FTSE 3-Month T-Bill

LACERS INTERNATIONAL OPPORTUNITIES AS OF DECEMBER 31, 2018



	Q418	1 Year	3 Year	Since Inception ¹	Cumulative Return Since Inception*
LACERS (Net of fees)	-22.16%	-23.79%	0.96%	2.14%	11.06%
MSCI EAFE Small-Cap	<u>-16.05%</u>	<u>-17.89%</u>	<u>3.73%</u>	<u>2.78%</u>	<u>14.58%</u>
Excess Return	-6.11%	-5.90%	-2.77%	-0.64%	-3.52%

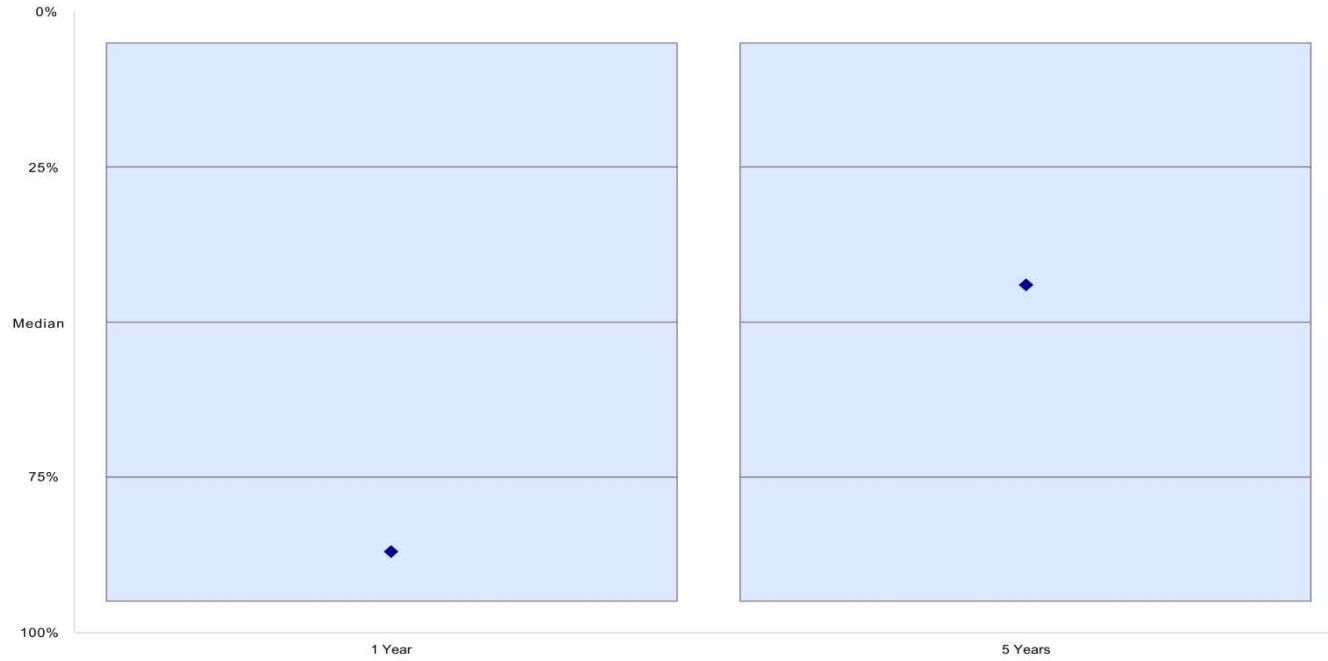
The MSCI EAFE Small-Cap Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of small cap growth developed markets excluding the US, with dividends reinvested net of withholding tax.

¹Inception of the LACERS portfolio is January 14, 2014.

PEER PERFORMANCE

LACERS INTERNATIONAL OPPORTUNITIES AS OF DECEMBER 31, 2018

Oberweis International Small Cap: LACERS Performance
Returns as of: December 31, 2018



Universe: eVestment EAFE Small Cap Equity

	1 Year		5 Years	
		Rk		Rk
5th percentile	-12.14		6.29	
25th percentile	-17.00		4.65	
Median	-19.23		3.42	
75th percentile	-22.02		2.33	
95th percentile	-25.13		0.31	
# of Observations	89		69	
◆ Oberweis: International Opportunities	-23.03	87	3.61	44

Results displayed in USD.

ATTRIBUTION ANALYSIS BY SECTOR

LACERS INTERNATIONAL OPPORTUNITIES PORTFOLIO VS. MSCI EAFE SMALL-CAP INDEX AS OF DECEMBER 31, 2018

ATTRIBUTION ANALYSIS

Portfolio Name : Los Angeles City Employees' Retirement System

Time Period : 12/31/2017-12/31/2018

Benchmark Name : MSCI Small Cap EAFE

Currency : U S Dollar

	AVERAGE WEIGHTS			RETURNS			ATTRIBUTION			
	Portfolio	Benchmark	Active	Portfolio	Benchmark	Active	Allocation	Selection	Total	
Universe Tot&Ave	100.00 %	100.00 %	0.00 %	-22.82	-17.54	-5.28	-1.73	-3.56	-5.28	-5.28
Financials	11.74 %	11.70 %	0.04 %	-13.73	-20.34	6.61	-0.08	0.63	0.55	
Cash & Equivalents	5.90 %	0.00 %	5.90 %	2.02	0.00	2.02	0.41	0.00	0.41	
Materials	5.47 %	9.05 %	-3.58 %	-19.87	-23.22	3.35	0.22	-0.09	0.13	
Consumer Discretionary	11.13 %	14.88 %	-3.73 %	-25.95	-21.87	-4.09	0.12	-0.24	-0.12	
Communication Services	2.28 %	2.18 %	0.10 %	-15.86	-17.49	1.62	-0.06	-0.15	-0.21	
Energy	3.74 %	2.70 %	1.05 %	-21.28	-18.90	-2.38	-0.39	-0.02	-0.41	
Utilities	1.05 %	2.09 %	-1.05 %	-26.26	-3.00	-23.25	-0.23	-0.26	-0.49	
Consumer Staples	5.77 %	6.78 %	-1.01 %	-22.60	-11.89	-10.70	0.09	-0.74	-0.65	
Information Technology	23.52 %	11.01 %	12.51 %	-22.64	-20.35	-2.29	-0.47	-0.35	-0.82	
Industrials	21.18 %	21.47 %	-0.29 %	-27.11	-22.40	-4.71	-0.09	-0.78	-0.87	
Real Estate	2.79 %	10.83 %	-8.04 %	-20.03	-4.97	-15.06	-0.94	-0.44	-1.38	
Health Care	5.42 %	7.33 %	-1.91 %	-21.81	-5.35	-16.45	-0.30	-1.13	-1.42	

ATTRIBUTION ANALYSIS BY SECTOR

LACERS INTERNATIONAL OPPORTUNITIES PORTFOLIO VS. MSCI EAFE SMALL-CAP INDEX AS OF DECEMBER 31, 2018

CONTRIBUTION SUMMARY

Portfolio Name : Los Angeles City Employees' Retirement System
 Benchmark Name : MSCI Small Cap EAFE

Time Period : 12/31/2017-12/31/2018
 Currency : U S Dollar

Top Contributors by Holding

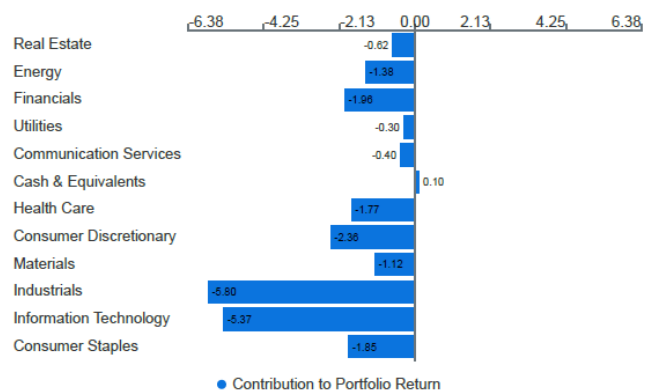
	Avg Wt	Return	Contrib
Top 10 Totals & Averages	10.98 %		3.96
BURFORD CAPITAL LTD	2.67 %	36.08	0.65
UBISOFT ENTERTAINMENT SA	1.25 %	35.12	0.61
DA CONSORTIUM HOLDINGS INC	0.79 %	69.29	0.60
EVOLUTION MINING LTD	2.02 %	28.70	0.54
SODASTREAM INTERNATIONAL LTD	0.70 %	30.26	0.36
TAIYO YUDEN CO LTD	0.49 %	-13.49	0.32
V TECHNOLOGY CO LTD	0.50 %	15.87	0.27
SYSTEMA CORP	1.45 %	46.82	0.25
TEMENOS AG	0.50 %	11.37	0.20
AIXTRON SE	0.63 %	-14.97	0.17

Bottom Contributors by Holding

	Avg Wt	Return	Contrib
Bottom 10 Totals & Averages	8.61 %		-6.32
JAPAN INVESTMENT ADVISER CO LTD	0.98 %	-36.36	-0.85
KEYWORDS STUDIOS PLC	1.74 %	-36.98	-0.69
AURELIUS EQUITY OPPORTUNITIES SE & CO KGAA	1.64 %	-42.13	-0.69
OUTSOURCING INC	1.38 %	-46.07	-0.65
CANADA GOOSE HOLDINGS INC	0.21 %	-32.16	-0.65
AFTERPAY TOUCH GROUP LTD	0.53 %	-43.76	-0.65
LEARNING TECHNOLOGIES GROUP PLC	0.22 %	-55.18	-0.63
AMG ADVANCED METALLURGICAL GROUP NV	0.68 %	-38.64	-0.53
ATS AUTOMATION TOOLING SYSTEMS INC	0.36 %	-33.90	-0.50
AUSTRIAMICROSYSTEMS AG (DUPLICATE)	0.87 %	-69.63	-0.48

Contribution by Sector

	Avg Wt	Return	Contrib
Top 5 Totals & Averages	17.49 %		-2.33
Cash & Equivalents	5.90 %	2.02	0.10
Utilities	1.05 %	-26.26	-0.30
Communication Services	2.28 %	-15.86	-0.40
Real Estate	2.79 %	-20.03	-0.62
Materials	5.47 %	-19.87	-1.12
Bottom 5 Totals & Averages	73.35 %		-17.34
Industrials	21.18 %	-27.11	-5.80
Information Technology	23.52 %	-22.64	-5.37
Consumer Discretionary	11.13 %	-25.95	-2.36
Financials	11.74 %	-13.73	-1.96
Consumer Staples	5.77 %	-22.60	-1.85



ATTRIBUTION ANALYSIS BY COUNTRY

LACERS INTERNATIONAL OPPORTUNITIES PORTFOLIO VS. MSCI EAFE SMALL-CAP INDEX AS OF DECEMBER 31, 2018

ATTRIBUTION ANALYSIS

Portfolio Name : Los Angeles City Employees' Retirement System
 Benchmark Name : MSCI Small Cap EAFE
 Time Period : 12/31/2017-12/31/2018
 Currency : U S Dollar

	AVERAGE WEIGHTS			RETURNS			ATTRIBUTION			
	Portfolio	Benchmark	Active	Portfolio	Benchmark	Active	Allocation	Selection	Total	
Universe Tot&Ave	100.00 %	100.00 %	0.00 %	-22.82	-17.54	-5.28	-1.64	-3.65	-5.28	-5.28
France	5.86 %	3.70 %	2.16 %	6.85	-29.82	36.67	-0.23	1.93	1.70	
Cash & Equivalents	5.90 %	0.00 %	5.90 %	2.02	0.00	2.02	0.41	0.00	0.41	
Denmark	2.54 %	1.73 %	0.81 %	-9.08	-10.93	1.85	-0.21	0.42	0.21	
Israel	0.83 %	1.73 %	-0.90 %	9.92	0.42	9.50	-0.04	0.22	0.19	
Finland	0.71 %	1.49 %	-0.78 %	7.69	-18.15	25.83	0.00	0.09	0.08	
Italy	0.00 %	3.80 %	-3.80 %	0.00	-19.07	19.07	0.07	0.00	0.07	
Hong Kong	0.33 %	1.96 %	-1.63 %	-71.18	-26.87	-44.31	0.15	-0.12	0.03	
N/A	0.00 %	0.12 %	-0.12 %	0.00	-29.70	29.70	0.01	0.00	0.01	
Switzerland	5.18 %	4.53 %	0.65 %	-37.08	-26.02	-11.06	0.09	-0.08	0.01	
Portugal	0.00 %	0.39 %	-0.39 %	0.00	-15.39	15.39	-0.01	0.00	-0.01	
Ireland	0.92 %	0.91 %	0.01 %	-5.42	-6.18	0.76	-0.07	0.05	-0.01	
Austria	0.00 %	0.95 %	-0.95 %	3.54	-15.22	18.76	-0.02	0.00	-0.02	
Belgium	0.13 %	1.81 %	-1.68 %	-1.88	-13.67	11.79	-0.04	0.00	-0.04	
China	4.78 %	0.07 %	4.71 %	-11.21	-9.24	-1.98	0.56	-0.62	-0.06	
Australia	7.01 %	6.80 %	0.21 %	-18.80	-16.38	-2.43	0.08	-0.18	-0.10	
Sweden	4.64 %	5.18 %	-0.54 %	-15.04	-11.55	-3.49	0.01	-0.15	-0.13	
Netherlands	3.84 %	2.59 %	1.25 %	-21.97	-20.98	-1.00	-0.06	-0.11	-0.17	
New Zealand	0.00 %	0.95 %	-0.95 %	0.00	4.98	-4.98	-0.18	0.00	-0.18	
Singapore	0.96 %	1.63 %	-0.68 %	-18.87	-8.87	-10.00	-0.19	0.00	-0.19	
U.K.	15.59 %	18.35 %	-2.76 %	-22.91	-19.86	-3.05	0.09	-0.30	-0.21	
Germany	6.03 %	5.84 %	0.20 %	-24.79	-23.50	-1.28	-0.07	-0.17	-0.25	
Norway	1.53 %	1.89 %	-0.36 %	-35.91	-8.01	-27.90	-0.11	-0.44	-0.55	
Spain	1.23 %	2.58 %	-1.35 %	-32.58	-17.81	-14.77	-0.09	-0.46	-0.55	
Canada	6.87 %	0.00 %	6.87 %	-30.44	0.00	-30.44	-1.46	0.00	-1.46	
Japan	25.10 %	30.99 %	-5.89 %	-33.08	-15.75	-17.34	-0.30	-3.74	-4.04	

ATTRIBUTION ANALYSIS BY COUNTRY

LACERS INTERNATIONAL OPPORTUNITIES PORTFOLIO VS. MSCI EAFE SMALL-CAP INDEX AS OF DECEMBER 31, 2018

CONTRIBUTION SUMMARY

Portfolio Name : Los Angeles City Employees' Retirement System

Time Period : 12/31/2017-12/31/2018

Benchmark Name : MSCI Small Cap EAFE

Currency : U S Dollar

Top Contributors by Holding

	Avg Wt	Return	Contrib
Top 10 Totals & Averages	10.98 %		3.96
BURFORD CAPITAL LTD	2.67 %	36.08	0.65
UBISOFT ENTERTAINMENT SA	1.25 %	35.12	0.61
DA CONSORTIUM HOLDINGS INC	0.79 %	69.29	0.60
EVOLUTION MINING LTD	2.02 %	28.70	0.54
SODASTREAM INTERNATIONAL LTD	0.70 %	30.26	0.36
TAIYO YUDEN CO LTD	0.49 %	-13.49	0.32
V TECHNOLOGY CO LTD	0.50 %	15.87	0.27
SYSTEMA CORP	1.45 %	46.82	0.25
TEMENOS AG	0.50 %	11.37	0.20
AIXTRON SE	0.63 %	-14.97	0.17

Bottom Contributors by Holding

	Avg Wt	Return	Contrib
Bottom 10 Totals & Averages	8.61 %		-6.32
JAPAN INVESTMENT ADVISER CO LTD	0.98 %	-36.36	-0.85
KEYWORDS STUDIOS PLC	1.74 %	-36.98	-0.69
AURELIUS EQUITY OPPORTUNITIES SE & CO KGAA	1.64 %	-42.13	-0.69
OUTSOURCING INC	1.38 %	-46.07	-0.65
CANADA GOOSE HOLDINGS INC	0.21 %	-32.16	-0.65
AFTERPAY TOUCH GROUP LTD	0.53 %	-43.76	-0.65
LEARNING TECHNOLOGIES GROUP PLC	0.22 %	-55.18	-0.63
AMG ADVANCED METALLURGICAL GROUP NV	0.68 %	-38.64	-0.53
ATS AUTOMATION TOOLING SYSTEMS INC	0.36 %	-33.90	-0.50
AUSTRIAMICROSYSTEMS AG (DUPLICATE)	0.87 %	-69.63	-0.48

Top Contributors by Sector

	Avg Wt	Return	Contrib
Top 5 Totals & Averages	13.31 %		0.83
France	5.86 %	6.85	0.48
Israel	0.83 %	9.92	0.22
Cash & Equivalents	5.90 %	2.02	0.10
Finland	0.71 %	7.69	0.03
Austria	0.00 %	3.54	0.00

Bottom Contributors by Sector

	Avg Wt	Return	Contrib
Bottom 5 Totals & Averages	60.61 %		-17.59
Japan	25.10 %	-33.08	-7.77
U.K.	15.59 %	-22.91	-3.24
Canada	6.87 %	-30.44	-3.15
Germany	6.03 %	-24.79	-1.72
Australia	7.01 %	-18.80	-1.70

ATTRIBUTION OF PERFORMANCE

- At the Sector level, YTD performance was driven by -356 bps in stock selection and -173 bps impact from allocation effect.
- Stock selection was particularly strong in Financials (+63 bps), offset by poor selections in Health Care (-113 bps) and Industrials (-78 bps).
- At the Country level, YTD performance was driven by -365 bps in stock selection and -164 bps impact from allocation effect.
- Stock selection was particularly strong in France (+193 bps) and Denmark (+42 bps), offset by poor selections in Japan (-374 bps) and Spain (-46 bps).

INTERNATIONAL OPPORTUNITIES COMPOSITE ANNUAL GIPS REPORT

Year	Gross Total Return (%)	Net Total Return (%)	Benchmark Return (%)	Number of Accounts	Asset-Weighted St Dev (%)	Composite 3-Year Annualized St Dev (%)	Benchmark 3-Year Annualized St Dev (%)	Composite Assets (\$ mm)	Percent of Firm Assets Managed
2017	42.30	41.14	34.27	15	0.14	11.01	11.90	3,426.1	85.4%
2016	-3.97	-4.99	0.86	15	0.19	11.81	12.57	2,390.8	86.0%
2015	16.96	15.87	9.92	16	0.35	12.43	11.34	2,047.0	81.6%
2014	-2.92	-3.95	-4.84	11	0.76	15.61	12.95	1,008.9	68.7%
2013	59.13	57.91	23.32	6	N/A	19.35	16.03	478.5	43.8%
2012	33.53	32.23	15.42	2	N/A	22.65	19.96	114.9	16.3%
2011	-13.03	-13.95	-14.79	2	N/A	24.55	22.37	88.3	15.1%
2010	33.30	31.96	28.47	2	N/A			108.8	12.8%
2009	64.61	63.01	49.03	2	N/A			85.7	9.2%
2008	-58.28	-59.00	-50.08	2	N/A			56.9	9.3%

Notes to Performance

- I. Oberweis Asset Management, Inc. (OAM) claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. OAM has been independently verified for the periods January 1, 1993 through December 31, 2017.
- Verification assesses whether (1) the firm has complied with 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 International Opportunities Composite has been examined for the periods February 1, 2007 through December 31, 2017. The verification and performance examination reports are available upon request.
- II. OAM is an independent investment management firm registered under the Investment Advisor Act of 1940, founded in 1989, that invests in high growth companies around the world. The firm specializes in Small and Mid-Capitalization growth strategies globally for institutional investors and its own proprietary mutual fund family. Registration does not imply a certain level of skill or training. Firm assets presented represent all accounts where OAM has been engaged as investment adviser. A complete list and description of firm composites is available upon request.
- III. The following standards describe performance presented herein:
- The International Opportunities Composite was created in February 2007. The reporting currency is U.S. Dollar. Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.
 - Gross performance is computed before deducting advisory fees. Generally, the advisory fees for separate accounts are 1.00% on the first \$50 million, 0.90% on the next \$50 million and 0.80% on all additional assets. Actual fees are used in the net return calculation.
 - The composite returns disclosed were derived solely from the performance of a registered open-end investment company for the period February 1, 2007 through June 30, 2008.
 - The International Opportunities Composite includes all fully discretionary accounts in excess of \$5 million invested in the International Opportunities strategy, which primarily invests in the securities of non-U.S. companies with a market capitalization of less than \$5 billion at the time of investment. Oberweis does not use derivatives in any account in the composite except the use of foreign currency contracts in conjunction with the normal settlement of security trades in currencies other than the base currency of the composite accounts. Effective January 1, 2013 the equity segment was increased to 90% from 70%.
 - Mutual funds included in the International Opportunities Composite are valued in accordance with regulatory fair value requirements to prevent market timing. The same investments held by other portfolios in the composite are valued using closing prices in local markets as well as different exchange rates. While these differences are not expected to be material, at any given point in time the different sources could result in materially different returns.
- IV. The standard deviation of portfolio returns has not been presented for the years 2008-2013 as the composite consisted of five or less accounts during these years. For accounts managed all months in the presentation year, the asset-weighted standard deviation of account returns within the composite is presented as a measure of internal dispersion. The three-year annualized ex-post standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The annualized standard deviation is not presented for 2008 through 2010 because it was not required for periods prior to 2011.
- V. Consultants and investors supplied with these performance results are advised to use this data in accordance with guidelines issued by the United States Securities and Exchange Commission. Past performance is no guarantee of future results. The performance presented is inclusive of commissions and transaction costs and assumes reinvestment of any dividends, capital gains, or other earnings. The client's return will be reduced by the advisory fees and other expenses it may incur in the management of its account. The investment advisory fees are described in Part II of the Form ADV. The advisory fee, compounded over a period of years, will have an adverse effect on the value of the client's portfolio.
- VI. The benchmark for this composite is the MSCI World Ex-US Small-Cap Growth Index (Net). The MSCI World Ex-US Small-Cap Growth Index (Net) is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of small cap growth developed markets excluding the US, with minimum dividends reinvested net of withholding tax. Benchmark returns are not covered by the report of independent verifiers.

IMPORTANT DISCLOSURES

This presentation is for one-on-one presentations only and not for public dissemination.

Composite Returns presented are historical and include the reinvestment of dividends and other income. Past results are not indicative of future performance.

All composite returns are dollar weighted gross of fees. The performance results do not reflect the deduction of investment advisory fees. Client investment returns will be reduced by advisory fees and other expenses incurred in the management of their account. OAM's investment advisory fees are described in Part II of its Form ADV. The advisory fee, compounded over a period of years, will have an adverse effect on the value of the client's portfolio.

IMPORTANT FOOTNOTES

Page 8

- ¹ "Analysts' Responsiveness and Market Underreaction to Earnings Announcements", Yuan Zhang, Columbia University, 2004
- ² Empirical Finance Research, LLC. April 1, 2009. Volume 2, Issue 3
- ³ "How Active is Your Manager? A New Measure That Predicts Performance", Cremers, M. and Antti Petajisto, Yale University, 2006
- ⁴ "The Secret to Portfolio Construction", Empirical Research Partners, Oct 2006
- ⁵ "Best Ideas", Randy Cohen, Christopher Polk, and Bernhard Silli, Harvard Business School, London School of Economics, March 2009

Page 9

- ¹ "Analysts' Responsiveness and Market Underreaction to Earnings Announcements", Yuan Zhang, October 2004
- ² "Market Efficiency, Long-term Returns, and Behavioral Finance", Journal of Financial Economics, Fama, 1997
- ³ "Underreaction, Trading Volume, and Post-Earnings Announcement Drift", Choi and Kim, September 2001
- ⁴ "A Model of Investor Sentiment", Barberis, Shleifer, and Vishny, October 1996 & March 1998

Page 10

- ¹ "A Model of Investor Sentiment", Barberis, Shleifer, and Vishny, October 1996 & March 1998
- ² Empirical Finance Research, LLC. April 1, 2009. Volume 2, Issue 3
- ³ "Underreaction to Information about Future Earnings: The Corrective Role of Non-Earnings-Surprise Information", Shane, July 2000
- ⁴ Howards Marks, CFA
- ⁵ "What Drives Sell-side Analyst Compensation at High-status Banks?", Groysberg, Healy, Maber, Harvard Business School 2008

Page 13

- ¹ ERP is one of the world's leading portfolio strategy and quantitative research firms. It consistently ranks as a top provider of quantitative research and portfolio strategy in Institutional Investor's All-American Research Poll (2003 – 2014)

QUARTER & YEAR IN REVIEW

Equity trends for our portfolio and universe in 2018 centered around the following:

- Japan was our worst performing country given a negative style headwind where companies with negative earnings revisions outperformed companies with positive earnings revisions. Our strategy is naturally exposed to companies with positive earnings revisions.
- France was our most positive contributing country driven entirely by positive stock selection.
- Canada appears to be a negative detractor given the stated LACERS benchmark (MSCI Small Cap EAFE) doesn't include Canada while our benchmark (MSCI World Ex-USA Small Cap Growth Index) does include Canada.
- Negative stock selection in Healthcare and negative allocation in Real Estate (the Real Estate sector outperformed for the year and an underweight allocation negatively impacted returns) hurt performance.
- Positive stock selection in Financials helped performance.
- A good portion of our underperformance in 2018 was due to the market's increased focus on short-term earnings over long-term earnings causing many of our companies to decline substantially despite continued strong fundamentals. As a result, the portfolio experienced a period of valuation contraction due to negative sentiment as risk was reduced given fears of uncertainty around trade, slowing global growth and changes in central bank policy. When the market focuses too much on near-term earnings rather than long-term earnings, our strategy faces short-term headwinds. We expect these difficult periods to occur occasionally, but fortunately, they are the exception rather than the rule. As fear spread during the fourth quarter, valuations within our asset class contracted. The average P/E of our benchmark index dropped from 20.0x at the end of 2017 to 16.1x at the end of 2018. During times of fear and volatility, it is not unusual for the market to over-discount risk for international small cap growth stocks. These broadly lower valuations have allowed us to buy companies with higher average growth rates without having to pay higher P/E ratios. In our experience, out-of-favor periods for our process often lead to attractive valuations, which can set the stage for unusually favorable purchase opportunities, potentially yielding above-average returns once the headwinds subside.

QUARTER & YEAR IN REVIEW

Outlook: One of the 3 best buying opportunities since the strategies inception are based on the following 5 pillars:

1. Our universe (developed world ex-US small cap equities) is trading at attractive valuations. Our universe is trading nearly 30% below long term average multiples and the lowest level since year end 2011.
2. Our benchmark valuations declined by 20% over the course of 2018. The benchmark is a more refined and likely applicable universe for our investments and suggests that valuations for the types of companies we would be interested in also saw valuation contraction.
3. In 2 out of the last 3 calendar years, our style has been out of favor. The strategy has been around for 12 calendar years outperforming in 9 out of the 12. We have underperformed in 2 years out of the last 3. However, both the 2016 and 2018 underperformance was impacted by negative style headwinds. In 2016, across our universe of countries, companies with the fewest positive revisions outperformed companies with the most positive revisions by some 600bps for the year. In 2018 in Japan, companies with negative earnings revisions did better than companies with positive earnings revisions. Such adverse style environments will occur from time to time, however, happening 2 out of the last 3 years is unusual. Moreover, while such periods can be difficult in the short run, as long as portfolio holding companies fundamentals continue to match our philosophy and process (reporting better than expected earnings results and seeing their future earnings estimates be revised higher) we will continue to hold those positions. It is our experience that when our style is out of favor, 'value' gets built into the portfolio, then it's a matter of **when** not **if** that value gets recognized. We believe value has been built in the portfolio given the style headwind of 2018.
4. The 10 largest detractors to our performance in 2018 were still in the portfolio at the end of 2018, a first for the strategy in its 12 year history. On average each calendar year, when looking at the top detractors, we generally have 8 companies that miss earnings expectations, negatively impacting performance, resulting in a sale from the portfolio. However in 2018 all of the top 10 detractors continued to beat earnings expectations but simply saw their valuations contract. This was therefore a sentiment based contraction not a fundamental contraction. We will be well positioned when the market inevitably returns to valuing businesses on fundamentals.
5. Over the full year 2018, the strategy's price-to-earnings-to-growth (PEG) ratio declined by over 20%. This reading is one of the lowest PEG's ratios that we've seen coming into a year.

COMPETITIVE ADVANTAGES

- Disciplined, rational investment philosophy based on hard facts - an empirically proven, clearly documented, and persistent source of alpha. Ample research supports this investment philosophy with strong empirical evidence, all of which is available on request.
- Proven, unique, effective and efficient investment research process specifically designed to exploit this persistent source of alpha
- Specialized investment team, focused on small/mid-cap stocks only
- Globally-experienced investment team with cultural and language understanding
- Focused, boutique nature of all firm resources
- Capacity to be nimble due to firm culture and team structure
- Non-bureaucratic decision making process
- Strong fundamental research supported by a strong network of business contacts (incl. Harvard, Kellogg and Chicago business schools alumni networks)
- Proprietary and extensive position and portfolio monitoring process
- Extensive risk management and portfolio optimization supported by peer-leading quantitative research firms Empirical Research Partners, LLC and Northfield Information Services, Inc.
- Strong sell discipline (supported by shorting expertise)
- Committed to style consistency, even in times when style is temporarily out of favor (in fact, those usually are the best times to invest in the strategy)

APPENDIX



Jeff Papp, CFA
Assistant Portfolio Manager
Principal

Jeff joined Oberweis Asset Management in 2004 and is the Assistant Portfolio Manager for the International Opportunities team. Jeff began his career working on the U.S. team at Oberweis, and was later a founding team member of OAM's China Opportunities strategy. While simultaneously working on the China strategy, Jeff helped launch the International Opportunities strategy and worked as an Analyst on the International Opportunities team from November 2006 through March 2008. From October 2005 to August 2013, he worked as a Senior Analyst on the China Opportunities strategy and continued to collaborate with the International Opportunities team on Asian equities. He rejoined the International Opportunities team full-time in August 2013 as a Senior Analyst and was promoted to Assistant Portfolio Manager in September 2014. Jeff is a holder of the Chartered Financial Analyst (CFA) designation and is a member of the Investment Analysts Society of Chicago and the CFA Institute. He earned a BS in Finance with high honors from the University of Illinois. Jeff has been a frequent guest on CNBC, Bloomberg Television and Fox Business. He has also provided commentary on various investment issues to Bloomberg News, Investor's Business Daily, and TheStreet.com.



Brian K. Lee
Director of Marketing & Client Service
Principal

Brian joined Oberweis Asset Management in April of 2002 to establish and lead the firm's institutional marketing and client service efforts. Brian earned an MBA from Loyola Marymount University and a BA in Finance from Loyola Marymount University. Previously, he was employed by Delaware Investments/Lincoln Financial Distributors, where he served as a Director of Marketing. Prior to that, he worked for Wilshire Associates in both marketing and client service roles.

WORKFORCE COMPOSITION REPORT

Vendor Oberweis Asset Management, Inc.
 Address 3333 Warrenville Road
 Suite 500
 Lisle, IL 60532

Date completed: January 29, 2019

Category Non-U.S. Developed Market Small-Cap
 Equities

TOTAL COMPOSITION OF WORK FORCE

<u>Occupation</u>	African	Hispanic	Asian or	American Indian/	Caucasian	Total	Percent (%)	Gender	
	American	Full Time	Pacific Islander	Alaskan Native	(Non Hispanic)	Employees	Minority	<u>Male</u>	<u>Female</u>
	<u>Full Time</u>	<u>Full Time</u>	<u>Full Time</u>	<u>Full Time</u>	<u>Full Time</u>	<u>Full Time</u>	<u>Full Time</u>	<u>Full Time</u>	<u>Full Time</u>
Officials & Managers	0	0	1	0	8	9	11.11%	9	0
Professionals	0	0	6	0	5	11	54.55%	9	2
Technicians	0	0	0	0	1	1	0.00%	1	0
Sales Workers	0	0	1	0	2	3	33.33%	2	1
Office/Clerical	0	2	0	0	5	7	28.57%	4	3
Semi-Skilled	0	0	0	0	0	0	0.00%	0	0
Unskilled	0	0	0	0	0	0	0.00%	0	0
Service Workers	0	0	0	0	0	0	0.00%	0	0
Other	0	0	0	0	0	0	0.00%	0	0
Total	0	2	8	0	21	31	32.26%	25	6



LACERS

LOS ANGELES CITY EMPLOYEES'
RETIREMENT SYSTEM



Report to Investment Committee

From: Neil M. Guglielmo, General Manager

Agenda of: FEBRUARY 12, 2019

ITEM: VII

SUBJECT: REPORT ON LACERS COMMISSION RECAPTURE PROGRAM AND SOFT DOLLARS

Recommendation

That the Committee receive and file this report.

Discussion

At its meeting of October 9, 2018, during the discussion of the Brokerage Activity Report for fiscal year ending 2018, the Committee requested additional information on commission recapture and soft dollar usage at LACERS. This report provides an overview of how LACERS commission recapture program and the use of soft dollars have evolved over time.

LACERS Commission Recapture Program

Brokerage commissions are paid to execute purchases and sales of publicly traded equities. Commissions typically comprise of costs for two services from a broker: (1) the cost of execution for completing a securities trade; and (2) the cost of investment research and services provided to the investment manager. A commission recapture program may enable a pension plan to unbundle commissions and pay only for execution, recovering a portion of commission costs via rebates from participating brokers. These rebates may subsequently be used to defray expenses associated with the overall administration of the plan. In a commission recapture program, the plan informs its investment managers of an agreement with a participating broker or brokers to recapture a mutually agreed upon percentage of brokerage costs incurred with making securities trades. Investment managers are encouraged to contact the plan's commission recapture brokers when searching for best execution of security transactions.

LACERS has engaged in commission recapture since the early 1990s. Historically, rebates were received in two forms: (1) cash, which would be wired from the commission recapture broker to LACERS custodian bank on a routine basis; and (2) credits, which were held on account with the commission recapture broker (formerly referred to as soft dollars in LACERS Investment Policy as these credits were not redeemed for cash). Credits were used to supplement LACERS annual budget by defraying certain unbudgeted expenses such as Bloomberg licenses, proxy voting services, CEM Benchmarking studies, and computer hardware. Invoices for these expenses were submitted to the commission recapture broker for payment (rather paying invoices through LACERS usual accounting

process). LACERS halted the practice of using credits to pay for expenses in 2010, in favor of appropriating funds for these expenses in LACERS annual budget to enhance transparency and accounting practices. This approach was consistent with a 2010 best practice recommendation from the Government Finance Officers Association stating that pension plans should receive all recaptured commissions in hard dollars (as opposed to soft dollars) to use towards reducing overall administrative expense. In December 2015, the Board approved an Investment Policy revision to remove references to LACERS use of commission recapture credits (or soft dollars as they were referred to in the Policy).

LACERS commission recapture program continues to generate cash rebates through its sole commission recapture broker, Cowen Inc. As discussed in the Brokerage Activity Report for fiscal year ending 2018 presented to the Investment Committee on October 9, 2018, LACERS recaptured at total of \$9,220 in fiscal year 2018. Over the last several years, the total amount of cash rebates received on a fiscal year basis has been minimal, averaging 0.33% of total commissions paid, as presented in the table below. Consistent with industry trends following the 2008 Global Financial Crisis, the cash flow potential from commission recapture programs has decreased due to commission compression, increased use of electronic trading platforms, lower trading turnover, and greater use of passive investing.

Fiscal Year Ending	Public Equities Value	Total Commissions Paid	Commissions Recaptured*	% Recaptured
2011	\$6,340,847,652	\$6,262,746	\$28,602	0.46%
2012	\$5,954,823,717	\$5,453,043	\$9,711	0.18%
2013	\$7,154,797,093	\$4,040,522	\$12,025	0.30%
2014	\$8,734,913,150	\$4,769,240	\$13,767	0.29%
2015	\$8,140,041,867	\$4,716,725	\$4,210	0.09%
2016	\$7,526,252,028	\$3,256,840	\$19,969	0.61%
2017	\$9,026,771,428	\$3,161,510	\$14,634	0.46%
2018	\$9,788,168,707	\$3,808,796	\$9,220	0.24%

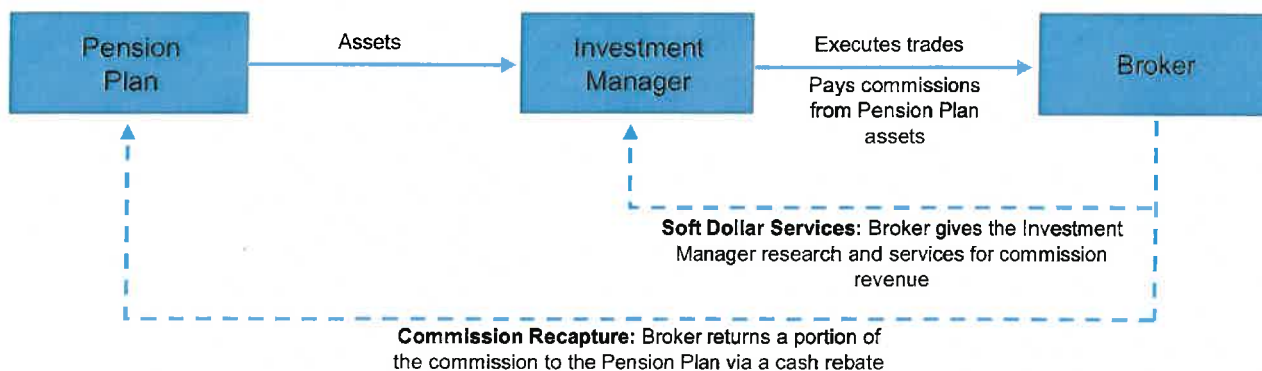
NEPC, LLC, LACERS General Fund Consultant, surveyed its public fund clients and found that a majority do not have active commission recapture programs. Trading costs have decreased and more execution-only commission trades are being transacted; therefore, revenue expectations have declined significantly in recent years, consistent with LACERS experience.

Investment Manager Soft Dollar Usage

Within the investment industry, soft dollars most commonly refers to an investment manager's practice of using client brokerage commissions to purchase investment research and services that help the manager make investment decisions. LACERS investment managers may use soft dollars pursuant to Section 28(e) of the Securities Exchange Act of 1934. Section 28(e) provides a safe harbor to investment managers using soft dollars from liability for breach of best execution standards and fiduciary duty, subject to certain conditions. The investment manager may pay a commission that exceeds the commission another broker would have charged if the manager determines in good faith that the amount of commission charged was reasonable in relation to the value of brokerage and/or research services provided. LACERS investment managers are required by contract to disclose soft dollar usage and maintain appropriate records of services received.

The following flow chart provides a depiction of current commission recapture program and investment manager soft dollar practices:

Flow of Commission Recapture Rebates and Soft Dollars



Staff will continue to provide the Committee with an annual report on brokerage activity pursuant to the Brokerage Policy section of the Investment Policy (section V.C). The next report will be presented within four months of fiscal year ending June 30, 2019.

Strategic Plan Impact Statement

A review of LACERS Commission Recapture Program is consistent with Goal V (uphold good governance practices which affirm transparency, accountability, and fiduciary duty).

This report was prepared by Barbara Sandoval, Investment Officer II, Investment Division.

RJ:BF:BS:SG:AZ