

MWRA EMPLOYEES' RETIREMENT BOARD MEETING

AGENDA

Thursday, December 17, 2020 10:00 a.m.

MWRA, 2 Griffin Way

Via Remote Participation

Item 1 10:00 a.m. Meeting called to order

OLD BUSINESS

- Item 2 Standing Committee Reports
- i. By-Laws Committee: Member Kevin McKenna
 - ii. Human Resources Committee: Member Thomas J. Durkin, Member Frank Zecha
 - iii. Special Committee, Stipend: Chair James M. Fleming, Member Kevin McKenna
 - iv. Job Review Committee: Member James M. Fleming; Member Thomas J. Durkin

NEW BUSINESS

- Item 3 Approval of Minutes – VOTE
- a) November 19, 2020 Minutes
 - b) November 19, 2020 Executive Session Minutes
- Item 4 Approval of Warrants – VOTE
- a) Warrant 12-2020
 - b) Warrant 12-2020A – Payroll
- Item 5 Approval of Monthly Transfers 12-2020 – VOTE
- Item 6 Acknowledgement of retirement applications under G.L. c 32 §5 – VOTE
- a) John Wright DOR 11/14/2020
 - b) Michael Maguire DOR 11/16/2020
 - c) Raymond Beaudoin DOR 11/21/2020
 - d) Darryl Harrison DOR 11/23/2020
 - e) Francis Letizia DOR 12/5/2020
- Item 7 Approval of Bank Reconciliations – VOTE
- a) February 2020
 - b) March 2020
 - c) April 2020
 - d) May 2020
 - e) June 2020
 - f) July 2020
 - g) August 2020
 - h) September 2020
 - i) October 2020
 - j) November 2020
- Item 8 2021 MWRA Employees' Retirement System's Proposed Budget – VOTE
- Item 9 Emerging Market Equity Search Finalists Presentations via telephone
- 10:30 a.m. a) ABS Investment Management
 - 10:50 a.m. b) Axiom
 - 11:15 a.m. c) Columbia Threadneedle

11:35 a.m. d) William Blair

Item 10

NEPC

- a) Flash Report as of 11/30/2020
- b) Asset Allocation Rebalance Summary – VOTE
- c) Emerging Market Equity Search Finalists Presentation
- d) Loomis Sayles Dan Fuss Transition

Item 11 12:30 p.m.

Legal

- a) Unpaid Leaves and Creditable Service – Request from Michael McKenna for one month creditable service for the month of December 2019 and one month of creditable for the month of January 2020 pursuant to G.L. c. 32, § 4(1)(c), which allows the Board to grant up to one month creditable service without contribution – VOTE
- b) PERAC legislative filings for 2021-2022

.....**FOR YOUR INFORMATION and REVIEW**

- Item 99-1 Attorney General response regarding the Open Meeting Law inquiry
- Item 99-2 Landmark follow-up on LIBOR

The Board reserves the right to consider items on the agenda out of order. The listing of items is those reasonably anticipated by the Chair to be discussed received at least forty-eight (48) hours prior to the meeting. Not all items listed may in fact be discussed and other items not listed may also be brought up for discussion to the extent permitted by law. Items identified for discussion in Executive Session may be conducted in open session, in addition to, or in lieu of discussion in Executive Session.

Date of next scheduled Retirement Board meeting is Thursday, January 28, 2021, 10:00 a.m., Chelsea

**MASSACHUSETTS WATER RESOURCES
AUTHORITY EMPLOYEES' RETIREMENT
BOARD MEETING
NOVEMBER 19, 2020**

A meeting of the MWRA Employees' Retirement Board was held via conference call on Thursday, November 19, 2020, due to safety concerns regarding the Coronavirus. The toll-free number for the call was included on the public meeting notice posted on the MWRA Employees' Retirement System's and Secretary of State's websites.

Participating in the meeting by conference call were James M. Fleming, Thomas J. Durkin, Andrew Pappastergion, Frank Zecha, Carolyn Russo, Julie McManus, and Sebastian Grzejka. Mr. McKenna was delayed due to a scheduling conflict. Members of the public including Gar Chung from Financial Investment News attended. Chairman Fleming called the meeting to order at 10:08 a.m.

- 1) Call the meeting to order
- 2) Committee Reports
 - By-Laws Committee: No Report
 - Human Resources Committee: No Report
 - Special Committee, Stipend: No Report
 - Job Review Committee: No Report
- 3) Approval of one month of creditable service for Michael McKenna for the month of December 2019 and one month of creditable for the month of January 2020 pursuant to G.L. c. 32, § 4(1)(c), which allows the Board to grant up to one month creditable service without contribution – matter was tabled at the October meeting to determine whether the award is consistent with Board policy and to revisit whether Mr. McKenna may have additional time to which he may be entitled.

On a motion made by Mr. Durkin and seconded by Mr. Pappastergion:

VOTED

to remove from the table the above request of Mr. Michael McKenna for service credit pursuant to C. 32 s.4(1)(c). 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

Mr. Pappastergion asked whether Staff had clarified the issue with Mr. McKenna's request, and the Retirement Coordinator responded that she does not really understand why the matter was tabled initially, given that the Board has previously given one month of credit per calendar year to members under 4(1)(c).

On a motion made by Mr. Durkin and seconded by Mr. Pappastergion:

VOTED

to return to the table the above request of Mr. Michael McKenna for service credit pursuant to C. 32 s.4(1)(c), so that Staff may seek a written opinion from Board Counsel as to the basis for the position that PERAC has asserted that the Board may grant only one month per leave rather than one month per calendar year, as had previously been its practice. 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

- 4) Approval of October 19, 2020 Minutes – VOTE

On a motion made by Mr. Pappastergion and seconded by Mr. Durkin:

VOTED

to approve the minutes of the October 29, 2020 meeting as presented. 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Fleming voting yes

- 5) Approval of Warrants – VOTE
 a) 11-2020 Warrant
 b) 11-2020A – Retiree Payroll

On an omnibus motion made by Mr. Pappastergion and seconded by Mr. Durkin:

VOTED

to approve Warrant 11-2020 and Warrant 11-2020A – Retiree Payroll as presented. 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes.

- 6) Approval of Monthly Transfers 11/2020 – VOTE

On a motion made by Mr. Zecha and seconded by Mr. Pappastergion:

VOTED

to approve Monthly Transfers 11/2020 as presented. 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

- 7) Acknowledgement of retirement applications under G.L. c 32 §5 – VOTE
 a) Robert P. Cecchini DOR 10/24/2020
 b) Stephen Greenwood DOR 11/1/2020
 c) Audrey Mintz DOR 11/7/2020

On an omnibus motion made by Mr. Durkin and seconded by Mr. Pappastergion:

VOTED

to acknowledge the above-listed October and November 2020 retirements. 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

8) Approval of Actuarial Services Provider – VOTE

The Executive Director completed a tally sheet of the individual Board Members' rankings of the three RFP respondents as well as the composite ranking which was distributed in the Board Packages. Mr. Zecha stated that Segal had received the highest composite ranking. While acknowledging that Segal had received the highest composite ranking by the Board, Mr. Durkin noted that Segal was also comparatively expensive. Mr. Fleming noted that while Stone Consulting offered services at a lower price, he has some concerns that Stone is a "One-man shop." Mr. Zecha informed the Board that he had spoken to Segal in regard to another respondent's commentary at the October meeting as to their using older assumptions, and Segal indicated that they use the same set of assumptions used by the State for consistency. Mr. Durkin noted that on the Authority's side, in the production of the CAFR that the Auditing Firm reviews the actuarial assumptions prior to incorporating the Actuary's numbers into the financials. Mr. Pappastergion remarked that he had given Stone a higher rating initially due to the lower fees, but changed it due to the fact that Mr. Stone had only incorporated a four-year pricing schedule with an option in year five, while the RFP required a five-year pricing schedule. Mr. Durkin stated that the Retirement System will be paying the Actuary selected from the System's investment income, and noted that Mr. Zecha has consistently advocated for lower fees from the Managers. Mr. Zecha responded that he would have no problem asking Segal to lower their fees, but that such a request may not be made prior to the Board's making a final selection of the vendor in accordance with the RFP. Mr. Durkin stated that he appreciates the Board's attentiveness to the issue of the fees. Mr. Fleming stated that he has been impressed by Segal's work product, the Valuations as well as the CAFR contributions, and their accessibility to respond to Board's inquiries and to provide clarity about the valuation results.

On a motion made by Mr. Pappastergion and seconded by Mr. Durkin

VOTED

to select Segal as the Actuarial Services vendor for a five-year period in accordance with the RFP, in consideration of their receiving the highest composite rating from the members of the Board. 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

- 9) Manager Due Diligence Presentations via telephone
- a) Morgan Stanley
 - b) Step Stone
 - c) Landmark
 - d) Cerberus

Ms. Cheyenne Sparrow, Executive Director of Morgan Stanley Real Estate presented in regard to the Prime Property Fund's performance. Mr. Zecha cautioned Ms. Sparrow in regard to disclosure of proprietary information, since there are three members of the public in attendance on the call. Ms. Sparrow reported that although no one could have anticipated the pandemic, because it was so long into the cycle, Morgan Stanley had already made changes to the portfolio that benefitted the fund. In comparison to the benchmark Prime is underweight in Retail and Office, which have been hurt by the pandemic, while relatively overweight in Industrial and storage, both of which have done well. Industrial has seen growth due to the expansion in online shopping. Morgan Stanley has its own property management team and a portfolio management team with over thirty years of experience, and which employs a consistent approach rather than reacting to events. Prime also has lower leverage relative to the index, so there is sufficient borrowing capacity should opportunities arise. The leased rate is 92%. Mr. Zecha asked about the collection rate in the midst of the Pandemic. Ms. Sparrow responded that under normal circumstances the collection rate is 100%, and that collections are at pre-pandemic levels with the exception of retail, which is at roughly 70% for September & October, due to government-imposed closures. Morgan Stanley has tracked the amount collected in the month to normal collections rather than amount paid vs. amount due. Mr. Grzejka asked how Morgan Stanley is valuing the properties given the pressure on retail, and whether the portfolio focus has changed for purchases. Ms. Sparrow responded that the appraisals are done quarterly by independent specialists who use nation-wide valuation levels and data, including three or four firms which rotate so none is assigned to the same property for a long period of time. The fund has not purchased retail in several years, valuations have fallen, New York office has declined, and the fund has instead focused on purchasing Apartments, Industrial, and Healthcare. The fund currently has \$892m in the incoming queue, with \$600m waiting to go out. Mr. Fleming asked about the MWRAERS investment. Ms. Sparrow noted that the System first invested \$1m in 1995, with periodic additional investment, and has a \$9m gain since inception. Mr. Zecha inquired about the fees, and Ms. Sparrow stated the fees are 84basis points with a NOI (Net Operating Income) growth fee of 5 bps per 1% of growth. Ms. Sparrow signed off the call at 10:48 a.m.

Mr. Mark Rivitz presented on behalf of Stepstone. Mr. Grzejka cautioned Mr. Rivitz in regard to discussing proprietary information since it is a public meeting, and Mr. Zecha noted that Gar Chung from Financial Investment News and two other members of the public are on the call. Mr. Rivitz noted that while there

have been some movements on ownership of the firm, there will be no new investments made, and that the MWRAERS has \$644,000 remaining value in the fund, which Stepstone is seeking to liquidate. The fund has been hurt by Latin American investments due to corruption and exchange rates, hotel and retail properties, which has slowed the return on the remaining 18 assets. Tristan, Alsis and HIS have been the biggest detractors, with FPA, Fortress Japan and Madison among the top performers. Mr. Rivitz does not expect any future calls, noting that although sales of the remaining assets have been slowed by Covid-19, that the demand for secondaries is low right now, and they do not want to have a "fire sale." Mr. Fleming asked if the portfolio will be affected by the President's Executive Order in regard to assets in China. Mr. Rivitz reported that he does not expect there to be any effect. Mr. Rivitz left the virtual meeting at 11:05 a.m.

Mr. Onnie Mayshak presented on behalf of Landmark. Mr. Grzejka cautioned Mr. Mayshak against disclosing any proprietary information because the meeting is public and there are unidentified individuals on the call. Mr. Mayshak noted that Fund VI has performed well with a net IRR of approximately 19%, and has a small residual value. The fund is diverse with Retail and Lodging acting as drags on the portfolio and Residential and Industrial performing well. Fund VIII is still in its early stages but is expected to have second quartile performance. The fund is 70% through the investment period with 162 partnership interests, and a net IRR of 13.6%. Covid-19 is presenting opportunities for the fund, with increasing pricing power and the ability to offer liquidity solutions. In regard to the PE investment in Fund XV, Mr. Mayshak reported an IRR of approximately 10%, with a low use of leverage. Landmark has called about 60% of commitments, and is anticipating additional calls as well as distributions, and Mr. Mayshak offered to provide the expected call schedule upon request. The fund is very diverse with 1800 underlying company interests, and no sector bets. Mr. Durkin asked with LIBOR going away what index will Landmark use? Mr. Mayshak said he would need to follow up on that question. Mr. Durkin then asked that Mr. Mayshak comment on the Boston real estate market. Mr. Mayshak stated that he doesn't expect the pandemic to have a large impact in the long term. He commented that Boston is a "Global City" and that people have short memories. He stated he expects some movement out to the suburbs, but noted that people don't take the decision to move their residence lightly. Mr. Mayshak left the call at 11:26 a.m.

Mr. Durkin asked what was meant by the GFC referenced by some of the managers, and Mr. Grzejka responded "Global Financial Crisis" of 2007-2008. Mr. Grzejka noted that NEPC had been priced out of their quarters in Cambridge by tech companies seeking to be near a potential workforce resource and had therefore moved to Boston. He commented that he thinks it will take longer for the market to rebound, and expects downsizing as companies realize that they don't need as much space and that demand will therefore shift. He also noted that if the T cuts service some have argued people will transition to cars, and will not easily shift back.

Mr. Chris Schiermbock called in on behalf of Cerberus. Mr. Grzejka cautioned Mr. Schiermbock in regard to discussing proprietary information since it is a public meeting. Mr. Schiermbock stated that one of the firm's partner's had passed away but that it did not affect this particular fund, Fund III. The fund has returned 110% of capital, with more distributions expected. Because the fund is a 2012 vintage, Covid-19 has had minimal impact on existing investments. The fund has limited exposure to hospitality and retail, and had already de-risked assets early on in the deals. Covid-19 has however had an impact on the sale of the remaining assets, and Mr. Schiermbock stated that in his view it will be 2022 before all of this comes back. The portfolio is conservatively positioned with 60% of the remaining assets in Grocery such as Albertson's. Of the System's initial investment of \$1m, Cerberus has distributed \$2m with a remaining NAV of \$683,000, top quartile returns and an IRR of 10.7%. He noted that Cerberus does not expect to call the remaining \$365,000 commitment, and that the fund is in the liquidation phase. Mr. Schiermbock signed off the call at 11:45 a.m.

- 10) NEPC
 - a) Flash Report as of 10/31/2020
 - b) Asset Allocation Rebalance Summary – VOTE
 - c) Emerging Market Equity Search
 - d) Polen Capital Investment Objectives, Guidelines & Restrictions
 - e) Loomis Investment Objectives, Guidelines & Restrictions
 - f) PRIM PE Vintage Year 2021 Commitment Deadline
 - g) Investment Report 9/30/2020
 - h) Private Equity Report 6/30/2020
 - i) Real Estate Report 6/30/2020

In regard to the Flash report, Mr. Grzejka stated that the failure to secure a stimulus agreement the Covid-19 resurgence and fear of lockdown, as well as the election caused the markets to pull back in October, and contributed to volatility. He stated the “working from home” stocks, which encompasses the connectivity services and equipment necessary to telework, have contributed to growth momentum, while the value side has been hurt by the energy sector, financials, and lower interest rates. However, Value outperformed Growth in October, primarily due to vaccine-related companies. Overall the Large Cap portfolio returns are in line with the benchmark, while in Non-US markets Baillie Gifford is ahead of their benchmark by 300bps. Fixed Income has been negatively impacted by gyrations in interest rates. The Hedge Fund portfolio is slightly positive, although PRIT's performance numbers for October have not yet been released. Mr. Grzejka noted that he had verified that the restriction that half

of the value of the System's Hedge Fund investments must be in the PRIT Hedge fund sleeve is determined at the time of investment. The System was therefore in full compliance with the restriction at the time of its investments in UBS and Corbin, although currently the PRIT Hedge fund has dropped below the 50% level due to Corbin's and UBS's having outperformed PRIT's Hedge Fund. Mr. Grzejka stated that the Real Estate managers have not yet reported their quarterly numbers. Mr. Zecha asked Mr. Grzejka how the fund is doing month-to-date for November, and Mr. Grzejka reported that if all things remain as they are now he would expect positive returns of around 4.5%. Mr. Fleming stated that he hopes the fund will close over \$600m for the first time in November.

Mr. Grzejka stated that the rebalance was done to meet the System's cash needs, as well as to take some of the proceeds from the November run-up in US equities off the table and rebalance to established target allocations. NEPC is recommending that the Board take \$9m from US Equity and allocate \$6m of the proceeds to Bonds, and \$3m to cash.

Rhumblin S&P Index	(\$3,000,000)
Polen	(\$1,500,000)
Robeco	(\$2,500,000)
Loomis Small Cap	(\$2,000,000)
Lord Abbett Fixed income	\$3,000,000
Rhumblin US TIPS	\$3,000,000
Cash	\$3,000,000

On a motion made by Mr. Durkin and seconded by Mr. Pappastergion:
VOTED
to accept the recommendation of NEPC to make the above rebalance transfers. 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

Mr. Grzejka noted that when the Emerging Markets selection is made some of the temporary allocations will be reversed or modified, and that the managers affected have been so informed.

Mr. Grzejka stated that the deadline for investment in the PRIT 2021 Private Equity vintage year is approaching. He said that he expects VY2021 to be Equity-focused, with mid-buyout and venture. Mr. Fleming asked why no RFP is required and asked what the alternative would be. Mr. Grzejka responded that the PRIT investments are excluded by statute from the RFP requirement, and that the alternative would be for the Board to do an RFP for the System's roughly \$15m expected Private Equity commitment for 2021. He stated that a \$4m or

\$5m commitment to PRIT's VY2021 would represent a small proportion of the System's Private Equity portfolio and that the increase in the recommended amount for investment corresponds to the growth of the System's portfolio overall.

On a motion made by Mr. Pappastergion and seconded by Mr. Durkin:

VOTED

to accept the recommendation of NEPC to make an allocation of \$5,000,000 to the PRIT Private Equity. 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

Mr. Grzejka stated that NEPC has completed its review of the 13 remaining potential Emerging Markets managers. He stated that NEPC is in the process of studying how the Executive Order relative to certain investments in China will affect the portfolio, if at all, as well as the potential for the reversal of the Order in January. Mr. Grzejka stated that there is an inherent growth expectation associated with EM investments, but that often results in higher volatility in the class. It is more important to examine whether the firm is well-positioned for the future rather than looking back, we do not want to pay active fees for an index-like product, and need to look for the quality component (valuations) as well. Mr. Fleming suggested that the Board invite the firms designated as "Highly Advantageous" by NEPC under the rating system: Axiom, Columbia, William Blair and ABS to make presentations to the Board. Mr. Durkin concurred.

On a motion made by Mr. Durkin and seconded by Mr. Pappastergion:

VOTED

to select as finalists in the Emerging Markets search Axiom, Columbia, William Blair and ABS given the firms' ratings as "Highly Advantageous" and to invite them to make presentations to the Board. 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

Regarding scheduling, Mr. Grzejka inquired whether the EM presentations should be scheduled for the December or January meeting given that several managers due-diligence presentations are outstanding. Mr. Fleming requested that the prospective Emerging Markets managers be scheduled for the December meeting, and that the remaining due-diligence presentations be scheduled for January. Mr. Zecha stated that he remains available for interim meetings as necessary.

11) Legal Update

- a) Acceptance of Section 7 Retirement Application re. Francis Kearns
- b) Proposed Lump Sum Settlement for Janet DiGregorio
- c) Matthew Romero Community Advisory Committee Employment

Attorney Gibson and Attorney McDonough joined the call to present the legal update. Attorney Gibson recommended that the Board enter Executive Session under Purpose 7.

On a motion made by Mr. Durkin and seconded by Mr. Pappastergion:
VOTED
to convene in Executive Session under Purpose 7 of the open Meeting Law. 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

A virtual “breakout room” was established for this purpose consisting only of Board, Staff, and Counsel. The Board entered Executive Session at 12:49 p.m. The Executive Director was instructed to text Mr. Grzejka to terminate the breakout session at its conclusion and to re-join the open meeting.

On a motion made by Mr. Zecha and seconded by Mr. Durkin:
VOTED
to terminate the Executive Session and reconvene in Open Session 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

The Board returned to open Session at 1:22 p.m.

On a motion made by Mr. Pappastergion and seconded by Mr. Zecha:
VOTED
to accept the application of Mr. Francis Kearns for Accidental Disability Retirement and to request that PERAC appoint a medical panel to examine the applicant. 4-0, roll call with Mr. Durkin voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

Mr. McKenna joined the meeting at 1:23 p.m.

A motion was made by Mr. Zecha and seconded by Mr. Pappastergion to consent to the Lump Sum Settlement of the Worker’s Compensation claim of Janet DiGregorio. Mr. Zecha asked Attorney Gibson whether Ms. DiGregorio is represented by competent counsel. Board Counsel responded that Ms. DiGregorio’s attorney is experienced and that his firm has worked on several MWRA Worker’s compensation and retirement cases. Mr. Pappastergion offered an amendment to authorize the Executive Director to execute on behalf of the Board the Settlement Agreement form.

On the motion made by Mr. Zecha and seconded by Mr. Pappastergion:
VOTED

to consent to the Lump Sum Settlement of the Worker's Compensation claim of Janet DiGregorio and to authorize the Executive Director to execute on behalf of the Board the Settlement Agreement form. 5-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes

Board Counsel Requested that the Executive Director summarize the issue before the Board in regard to a request for purchase of creditable service made by Matthew Romero. Board Counsel stated that the MWRA Employees' Retirement Board had accepted the MWRA Advisory Board as a Member Unit of the Retirement System under the statute in a process vetted by PERAC. The Community Advisory Committee (CAC) for the Massachusetts Port Authority has by mutual agreement been separate, but its employees are public employees, the entity itself is funded by Massport but they are housed separately in Brookline, and Mr. Romero was provided an alternative 401k plan. The question is whether the MWRA Employees' Retirement Board may accept the period over which Mr. Romero worked for the Massport CAC, since the Massport Retirement Board's Executive Director stated that the Massport Board will not accept liability for the time. Board Counsel stated the Board may approve the service or deny the request, and let Mr. Romero appeal, possibly adding the Massport Retirement Board as a respondent.

Mr. Fleming inquired as to why the MWRA Board would approve the service if Mr. Romero had another plan and was paying into it while employed at Massport CAC. Board Counsel stated that paying into an alternate plan would not preclude Mr. Romero from purchasing the service. Attorney McDonough remarked that in a similar case a member was allowed to purchase service because the governmental unit did not have a Retirement System. Attorney Gibson noted that a decision by the Board to grant the creditable service is defensible, the CAC is undeniably a governmental unit, Mr. Romero is a member of a retirement system as required, and acceptance has been denied by Massport's Retirement System. Mr. Zecha asked whether Mr. Romero was paid hourly wages or salary, and Mr. Gibson responded that Mr. Romero was a salaried employee working under an employment contract. Mr. Durkin asked whether Mr. Romero may receive both a 401k type benefit and a pension and Attorney McDonough responded that many State executives have both, and some have both Social Security and a pension. Mr. Durkin asked if it was the intention of the employer that Mr. Romero to contribute to an alternative plan rather than to accrue a pension, how we defend his getting both. Attorney McDonough responded that he believes the alternative plan was intended to compensate Mr. Romero because he was not allowed to join MPAERS, and Attorney Gibson noted that the 401k contributions would likely be rolled over into the MWRAERS to complete the buyback, if permitted. Mr. McKenna inquired whether Mr. Romero had withdrawn his funds from MWRAERS and the

Executive Director responded that he had not. Mr. McKenna noted that Mr. Romero accepted the terms of his contract when he was hired. Board Counsel noted that Mr. Romero had no way of predicting that he would be returning to MWRA's Advisory Board at the time he went to work for Massport's CAC, that Executives often have a back-and-forth mixture of public and private sector service, and that Mr. Romero's career path is not all that unusual. Mr. Zecha asked whether he may use the salary toward his "high three" to which Attorney McDonough responded that he may not. Mr. Pappastergion noted that the point is likely moot, given that the Advisory Board's Executive Director will likely be retiring and that Mr. Romero may end up stepping into the role, and given Mr. Romero's age and years of service he will likely be working for some time prior to retiring himself. Board Counsel stated that in his opinion Mr. Romero should not be denied the service credit because his employment was in the public service, and that Massport should accept their CAC's employees into the System but we can't force them to do so, and that the Executive Director had received an Email from MPAERS's Executive Director denying acceptance of the service. Mr. Zecha made a motion that the Board request an official vote and a written response from the Massport Retirement Board. Mr. Pappastergion stated the we already received one from their Executive Director. Mr. Durkin questioned whether the Massport Board would take a position opposing that which was already put forth by their Executive Director. Attorney Gibson stated that we could request a vote of the Massport Board in order to trigger appeal rights, for the action of denial or failure to act if the Massport Board refuses to bring the matter to a vote.

On the motion by Mr. Zecha and seconded by Mr. Fleming:

VOTED

to request a formal vote and written notice of the Massachusetts Port Authority Employees' Retirement Board regarding the acceptance or denial of the service of Mr. Romero for his service at the Massport CAC. 4-1, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting no, Mr. Zecha voting yes, and Mr. Fleming voting yes

Mr. Durkin then made a motion to accept the service of Mr. Romero with the CAC and to allow Mr. Romero to buy back the time, stating that the Board can do both. The motion was seconded by Mr. Pappastergion. Mr. Zecha suggested that the acceptance be deemed upon receipt of notice of the Massport Retirement Board's denial. Mr. Durkin questioned what will happen if Massport refuses to respond or to bring the matter to a vote. Mr. Durkin then suggested that the acceptance of Mr. Romero's service by MWRAERS be deemed to have occurred upon receipt of notice of the denial by MPAERB or upon the expiration of 3 months without a response from MPAERB.

On the motion by Mr. Durkin and seconded by Mr. Pappastergion, as amended:

VOTED

to accept the CAC service of and to permit the buyback for said service by Mr. Romero upon receipt of denial of such service by MPAERS, or upon the expiration of three months without a response from MPAERS. 4-1, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting no

Attorney Gibson reported that the moratorium on earnings and hourly limits for superannuation retirees is expected to be extended through 2021. In addition, the legislation which would provide an additional opportunity for Veterans to purchase military service credit is likely to pass. Mr. Gibson reported that PERAC recently clarified its position in regard to who is a disinterested party and therefore able to act as a witness on retirement forms, opining that Board Staff are eligible to sign as witnesses, but Board members are not since they must vote on retirement applications.

Attorney McDonough reported that *Capozzi* remains before CRAB. Mr. McKenna thanked Attorney McDonough for pursuing this on behalf of the member, and Attorney McDonough in turn thanked the Executive Director for her great ideas and arguments relative to the case, and questioned why she is not being paid as an attorney. Mr. Zecha noted that he will be sure to consider that in the next salary negotiation with the Executive Director.

Attorney Gibson mentioned that many of the 5th Members' positions are currently being advertised, and that PERAC, in a recent reversal, has now stated that the posting for the 5th Member's position may include a statement as to whether the incumbent intends to apply or not. PERAC has historically permitted similar language to be included on election ballots for the two Retirement Board elected positions.

The Retirement Board was presented with the following informational documents in the meeting package:

91A Termination Notices

Staff will schedule termination hearings for the December meeting for any retirees remaining for whom PERAC has not sent the Board a confirmation of compliance.

On motion by Mr. Zecha and seconded by Mr. Pappastergion:

VOTED

to adjourn and the meeting by conference call. Call was terminated at

2:15 p.m. 5-0, roll call with Mr. Durkin voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes, and Mr. Fleming voting yes.

The next regularly scheduled meeting of the MWRA Employees' Retirement Board will be held Thursday, December 17, 2020 at Massachusetts Water Resources Authority, 2 Griffin Way, Chelsea, at 10:00 a.m., if permissible, otherwise, will be held by publicly advertised conference call.

James M. Fleming, Elected Member

Kevin McKenna, Elected Member

Andrew Pappastergion, Ex Officio

Thomas J. Durkin, Appointed Member

Frank Zecha, Fifth Member



Massachusetts Water Resources Authority Employees' Retirement System

Emerging Markets Strategic Portfolio

December 2020

A Differentiated Approach with a Focus on Local Specialists

Emerging markets are inefficient and ripe for alpha generation through **stock selection**.

Our approach is to **select local specialists** to pick stocks in their own markets.

The resulting alpha generation is **not dependent on style biases or country selection**.

The ABS team has **three decades of experience** building **cost-effective solutions** for US institutions.

The strategy has generated **net excess returns** since inception.

ABS Emerging Markets Strategic Fund

Specialists	17 Specialists
Style	Core / All cap (large, mid and small cap)
Performance	4.6% outperformance in 2020
AUM	\$1,101 million
Fee	Negotiated fee for MWRA (75bps)

*Relative performance measured against the MSCI Emerging Markets IMI Index.

AUM figure is estimated as of December 1, 2020 and is subject to change. The MSCI Emerging Markets IMI Index includes the reinvestment of dividends the impact of currency and is net of foreign taxes, symbol MIMUEMRN; MSCI EM IMI is not the ABS EM Strategic Portfolio's benchmark and is shown for informational purposes only. Performance data updated through October 31, 2020. Performance numbers are estimates, include reinvestment of earnings, are net of a flat 0.75% p.a. management fee and are subject to change. Return information is calculated by ABS using performance information believed to be reliable and provided by the underlying managers. Such information is provided "as is" and may not be independently verified. ABS assumes no responsibility for the accuracy of this information and undertakes no independent verification of it. From December 2017 onwards, the returns for the ABS EM Strategic Portfolio presented herein are actual fund returns. Past returns are not a guarantee of future results. Please see end of this presentation for important disclosure information.

Introduction to ABS Investment Management

ABS Summary

\$6.6B assets under management

19 investment professionals

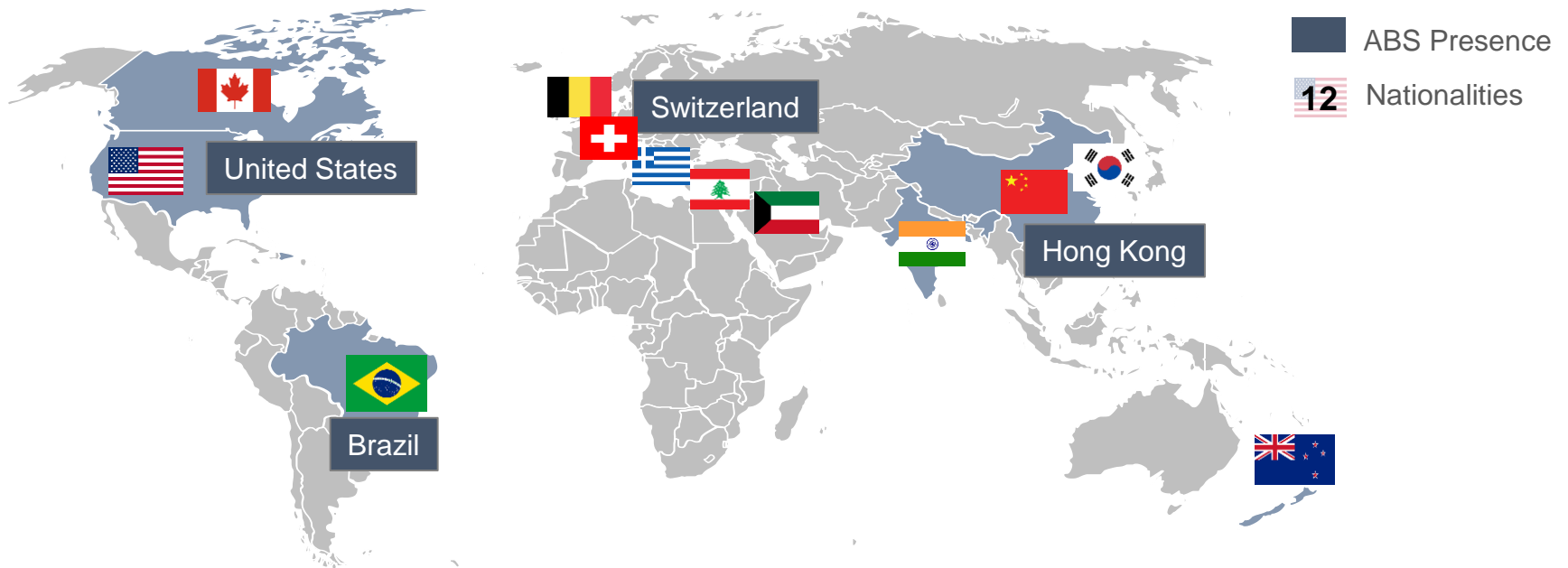
31 employees

12 nationalities and **13** languages spoken

21 equity partners

11+ years average investment team ABS tenure

Diverse Team with Presence Around the Globe



Firm AUM are approximate as of December 1, 2020 and is subject to change. The above reflect the opinions of ABS and is subject to change at any time, without notice to investors.

Employee Detail

	Name	Role	Industry Experience	ABS Experience	Equity Ownership	Operating Committee	Management Committee
Qualitative Analysis	Alain De Coster	Portfolio Manager	38 Years	18 Years	✓	✓	✓
	Laurence Russian, CFA	Portfolio Manager	27 Years	18 Years	✓	✓	✓
	Guilherme Valle, CFA	Portfolio Manager	28 Years	18 Years	✓	✓	✓
	Michael Halper, CFA	Head of Research	19 Years	17 Years	✓	✓	
	Donald Leung, CFA (Hong Kong)	Investment Analyst	19 Years	17 Years	✓		
	Omar Yacoub, CFA, CAIA	Investment Analyst	19 Years	13 Years	✓		
	Jeff Alleva, CFA	Investment Analyst	16 Years	12 Years	✓		
	Natascha Willans (São Paulo)	Investment Analyst	13 Years	7 Years	✓		
	Colin Caneff	Investment Analyst	5 Years	2 Years			
	Yousif Al-Shamali	Investment Analyst	1 Year	1 Year			
Quant	Sean White, CFA	Head of Quant/Risk	20 Years	15 Years	✓	✓	
	Ioanna Chatzistamatiou	Quant/Risk Analyst	21 Years	13 Years			
	Brendon Qu, CFA, FRM	Quant/Risk Analyst	9 Years	9 Years	✓		
	Jun Seong Jang	Quant/Risk Analyst	2 Years	2 Years			
Ops DD	David Finn, CPA	CFO/CCO	24 Years	18 Years	✓	✓	✓
	Frank Docimo, CPA	Ops Due Diligence Analyst	21 Years	14 Years	✓		
	Greg Moroney, CAIA	Ops Due Diligence Analyst	17 Years	15 Years	✓		
	Christian von Ballmoos (Zurich)	Ops Due Diligence Analyst	23 Years	12 Years	✓		
	Ishpreet Chadha, Esq.	Ops Due Diligence Analyst	8 Years	8 Years	✓		
Investment Team		19 Investment Professionals	Avg: 18 Years	Avg: 12 Years	15 Partners	6 Members	4 Members
Ops	John Mulfinger, CPA	Accounting Manager	18 Years	11 Years	✓		
	Dayana Kemraj	Operations Manager	16 Years	16 Years	✓		
	Brittney McNeal	Fund Accountant	6 Years	6 Years			
	Samantha Funigiello	Tax Manager	10 Years	2 Years			
	Alison Hill	IT / Office Manager	12 Years	12 Years	✓		
	Jon Feinberg	Marketing	18 Years	11 Years	✓	✓	
Bus. Dev.	Celina Rodriguez, CAIA	Marketing	6 Years	6 Years	✓		
	Chris Carmody	Marketing	17 Years	3 Years			
	Nick Dutter	Marketing	12 Years	2 Years			
	Thomas Kelley	Marketing	1 Year	1 Year			
	Jestine Roberts	Investor Relations	23 Years	10 Years	✓		
	Samantha Dolce	Investor Relations	8 Years	4 Years			
31 Employees		12 Nationalities	Avg: 16 Years	Avg: 10 Years	21 Partners	7 Members	4 Members

Experience and equity ownership as of October 1, 2020. Experience is rounded to the nearest whole year.

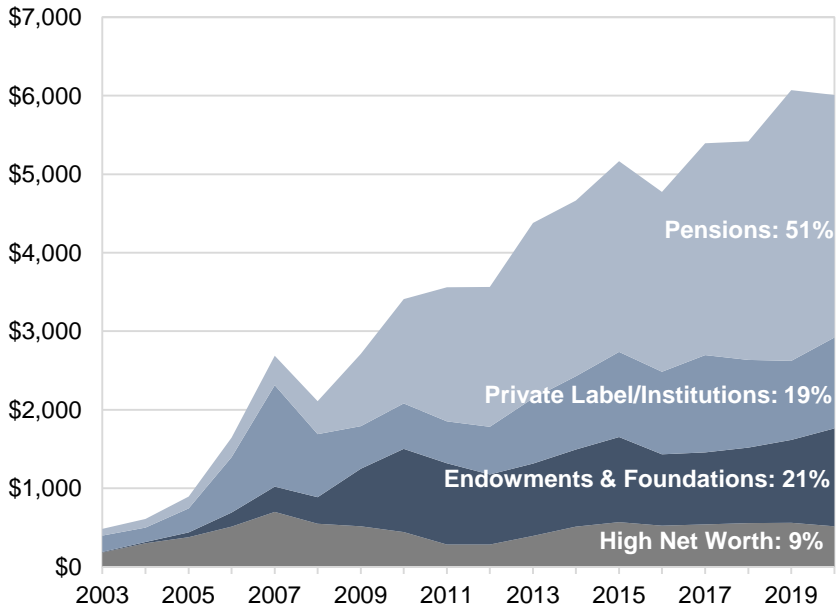
Assets Under Management



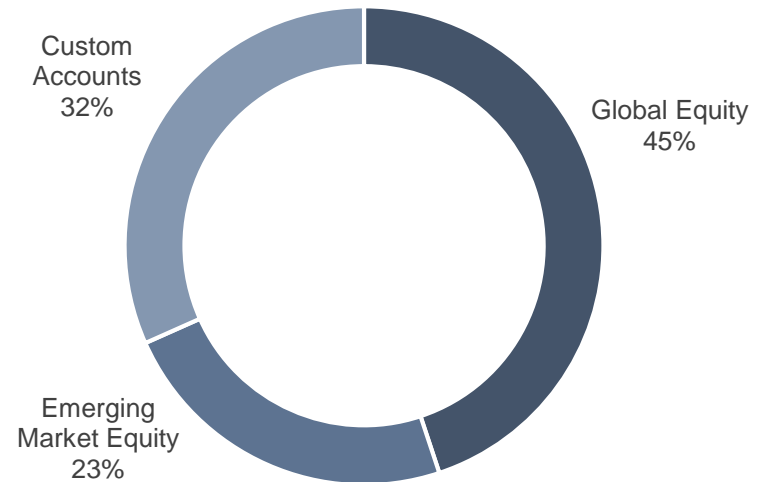
\$6.6 Billion
Assets Under Management



ABS AUM by Client Type (\$MM)



ABS AUM by Strategy Type



Firm AUM is estimated as of December 1, 2020 and is subject to change. ABS AUM by client and strategy type as of October 1, 2020. The above reflect the opinions of ABS and is subject to change at any time, without notice to investors.

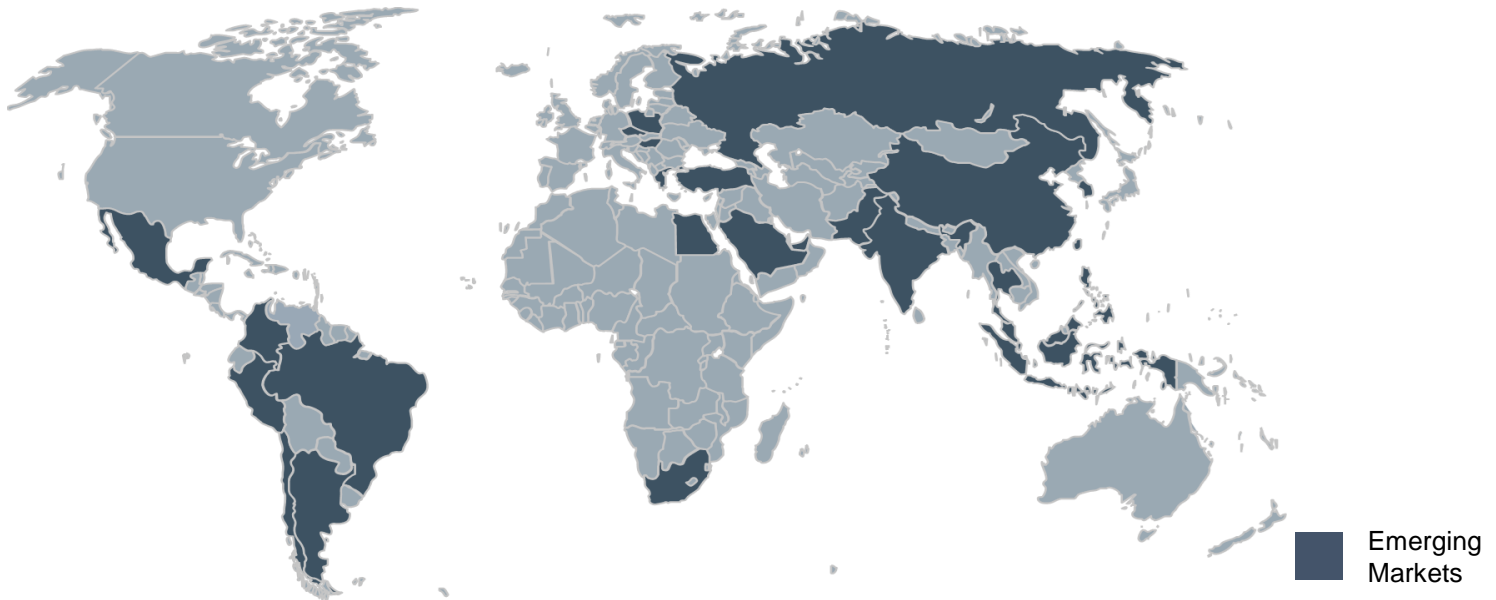
Product Profile

Strategy Type	Structure	Inception	AUM	Net Range	Return Objective	Risk Objective
Global Equity		1/1/2003	\$2,930M	30-75%	Market-like returns over full cycle	Less volatility than the MSCI ACWI
ABS Global Portfolio	3(c)7 Offshore	1/1/2003	\$1,147M	30-60%	MSCI ACWI	~50% MSCI ACWI
ABS Global ERISA Portfolio	3(c)1 ERISA	1/1/2006	\$918M	30-60%	MSCI ACWI	~50% MSCI ACWI
ABS Limited Partnership	3(c)7 LP	7/1/2003	\$441M	30-60%	MSCI ACWI	~50% MSCI ACWI
ABS Directional Global Portfolio	3(c)7 ERISA	3/1/2013	\$242M	50-75%	MSCI ACWI	< MSCI ACWI
ABS L/S Strategies Fund	1099 RIC	3/1/2011*	\$182M	30-60%	MSCI ACWI	~50% MSCI ACWI
Emerging Market Equity		7/1/2012	\$1,603M	Over 50%	Market-plus returns over full cycle	
ABS EM Strategic Portfolio	3(c)1 LP	12/1/2017	\$1,101M	Long-Only	> MSCI EM IMI Index	= MSCI EM IMI Index
ABS Emerging Markets Portfolio	3(c)7 ERISA	7/1/2012	\$366M	50-75%	MSCI EM Index	< MSCI EM Index
ABS EM Direct Portfolio	3(c)1 LLC	4/1/2018	\$92M	Long-Only	> MSCI EM Index	= MSCI EM IMI Index
ABS Emerging Markets LP	3(c)7 LP	1/1/2013	\$42M	50-75%	MSCI EM Index	< MSCI EM Index
ABS China Direct Portfolio	3(c)1 LP	2/1/2020	\$2M	Long-Only	> MSCI Golden Dragon	= MSCI Golden Dragon
Custom Accounts (11 portfolios)		3/1/2003	\$2,058M			
Custom Equity Long/Short (9)	Various	3/1/2003	\$1,818M	Varies	Global / EM / Custom	< Target Market
Custom Low Exposure (2)	Various	1/1/2009	\$240M	0-40%	LIBOR+ / Flexible	< 5% / Variable
Total Assets			\$6,591M			

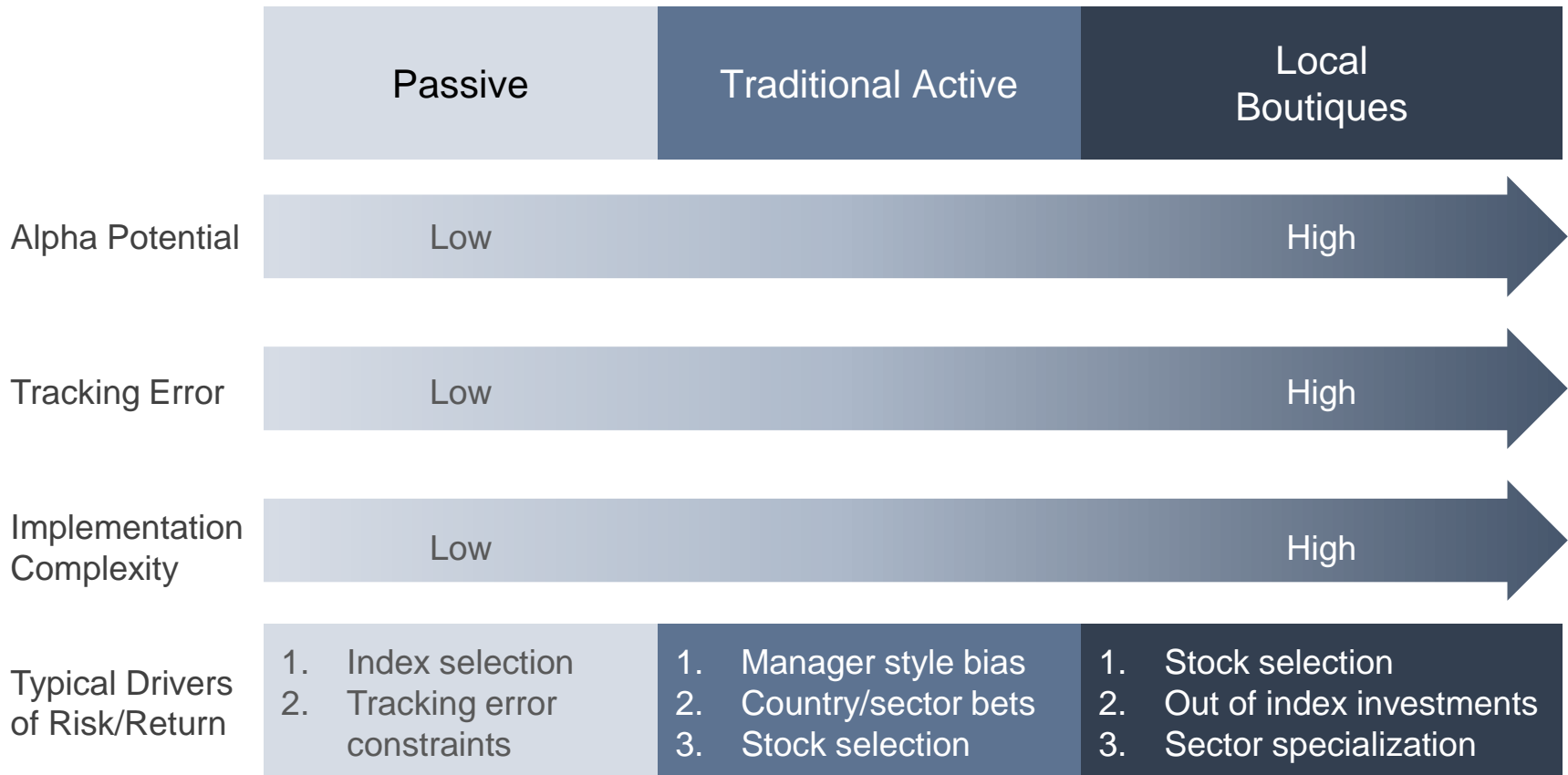
AUM figure is estimated as of December 1, 2020 and is subject to change. Net Range represents the normal net exposure range for each portfolio, but is not a hard limit. *ABS L/S Strategies Fund was converted into a Registered Investment Company (RIC) on 1/1/2016, prior to that, the portfolio was a 3(c)1 Delaware domiciled fund. Please see the end of this presentation for important disclosure information.

ABS Approach to Emerging Markets Investing

ABS Approach to Accessing Alpha in Emerging Markets



Different Approaches to Investing in Emerging Market Equity



Local Specialists

Specialized

Regional experts possess detailed and unique knowledge of local companies and their markets.

14 out of the 17 specialists are based in their country of expertise.

Small and Nimble

13 specialists with AUM of \$500M or less.

Performance Oriented

Specialists are incentivized to outperform rather than gather assets.

Organizational Simplicity

Single strategy firms with aligned incentives

Small investment teams with an average of 12 people

Data updated through November 1, 2020. Graphs are provided for illustrative purposes only and should not be relied upon to make an investment decision. Please see the end of this presentation for important disclosure information.

ABS EM Investment Team Overview

Dedicated Qualitative EM Team



Guilherme Valle, CFA
Co-Founder and Managing Member



Omar Yacoub, CFA, CAIA
Investment Analyst
Coverage: Global EM, Frontier, EMEA



Donald Leung, CFA
Investment Analyst
Coverage: Asia



Natascha Willans
Investment Analyst
Coverage: Latin America



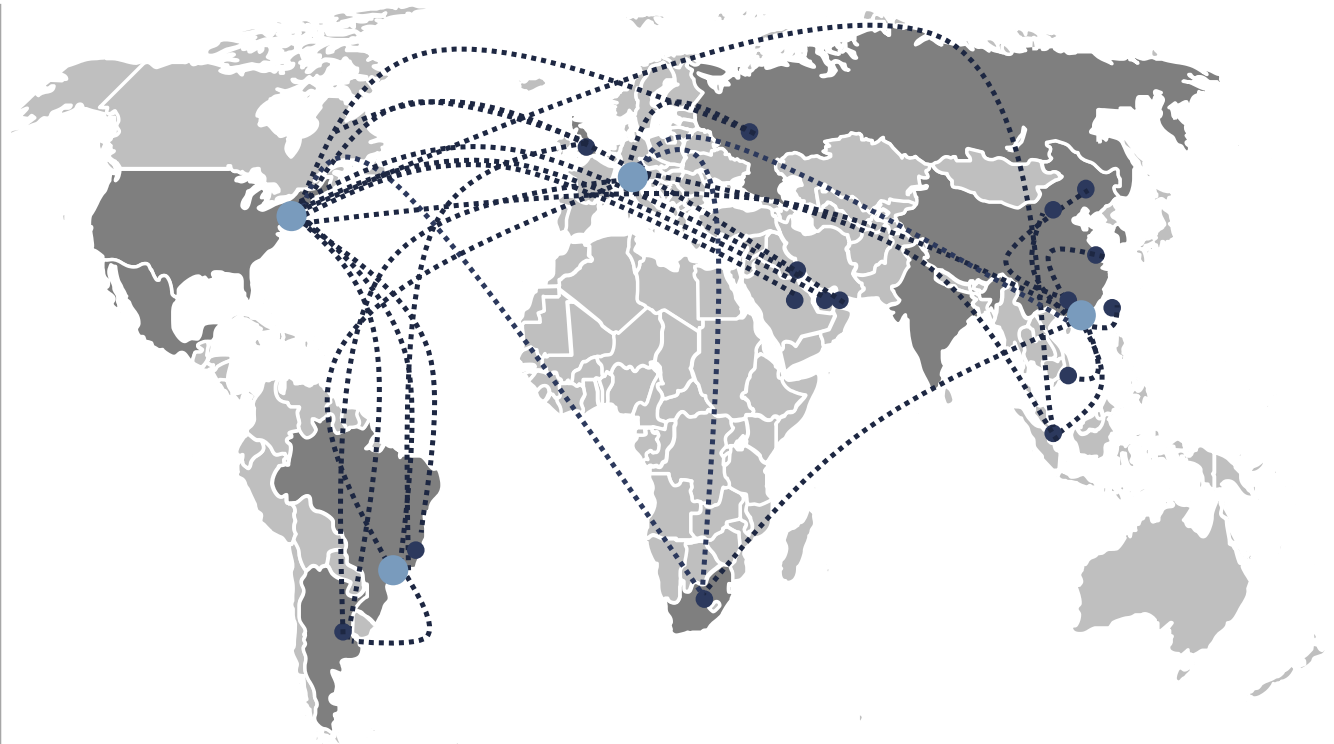
Yousif Al-Shamali
Investment Analyst
Coverage: Middle East

Intensive Research Process

Research Travel Efforts in 2019

- Hong Kong
- Shanghai
- Singapore
- Ho Chi Minh City
- Taipei
- Buenos Aires
- São Paulo
- London
- Moscow
- Johannesburg
- Rio de Janeiro
- Shenyang
- Beijing
- Shenzhen
- Riyadh
- Dubai
- Abu Dhabi
- Kuwait city

18
cities



- ABS Office Location
- Manager Location
- Trip Location

Data as of 2019

ABS Emerging Markets Strategic Portfolio (EMS)

ABS EMS: Product Description

Investment Objective	Excess return over the MSCI Emerging Markets IMI Index over a full market cycle
Fund Launch	December 2017
AUM	US\$ 1,101 million*
Number of Local Specialists	Typically 15 - 20
Style	Core / Agnostic
Country Allocation	+/- 15% relative to the index
Sector Allocation	+/- 15% relative to the index

* Estimated AUM figure is estimated as of December 1, 2020 and is subject to change. Please see the end of this presentation for important disclosure information

ABS EMS: Focus on Local Specialists

ABS EMS Portfolio Breakdown

EM Europe/ME	Location	Allocation
Russia	Moscow	4.2%
Middle East SMA	Dubai	3.7%

Global EM	Location	Allocation
Frontier	London	1.4%

China	Location	Allocation
China New Economy SMA	Hong Kong	10.9%
China GARP SMA	Singapore	8.1%
China Value SMA	Shanghai	7.5%
China A	Shanghai	6.2%

Latin America	Location	Allocation
Brazil	São Paulo	4.5%
Latam ex-Brazil	Mexico City	2.9%
Latam ex-Brazil 2	Buenos Aires	0.5%*

Other Asia	Location	Allocation
Taiwan SMA	Taipei	13.0%
India GARP	Mumbai	9.5%
Asia Large SMA	Edinburgh	6.7%
Korea SMA	Seoul	9.8%
Asia Small Cap	Hong Kong	4.1%
SE Asia SMA	Singapore	3.5%

Africa	Location	Allocation
South Africa SMA	Johannesburg	3.5%

*Manager added on November 16, 2020. Allocation as of that date.

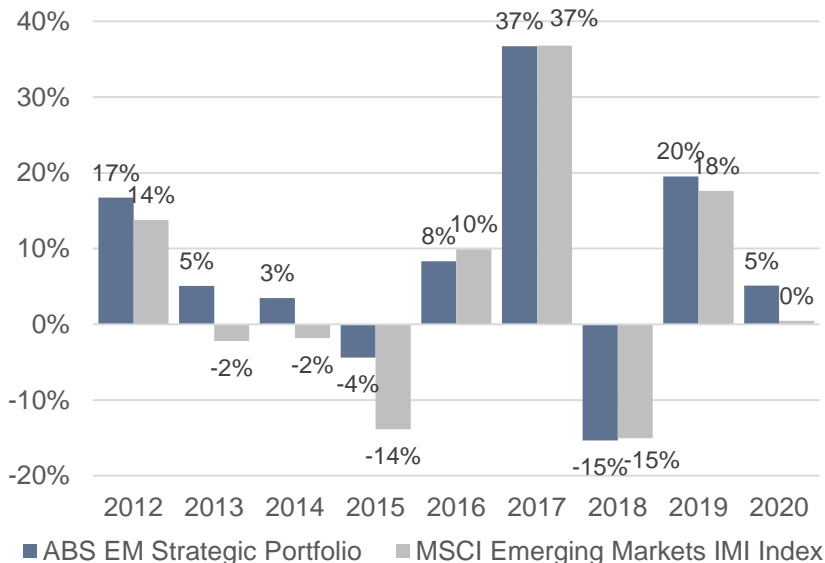
Data updated through November 1, 2020. Graphs are provided for illustrative purposes only and should not be relied upon to make an investment decision. Please see the end of this presentation for important disclosure information.

ABS EMS: Return & Risk

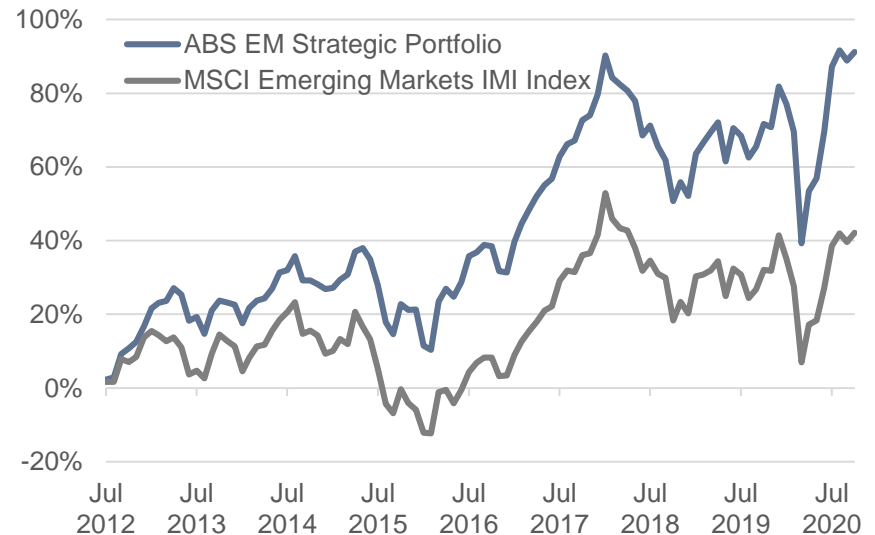
Annualized Risk/Return Statistics (includes Carve Out performance)

July 2012 – October 2020	QTD	YTD	1-Year	3-Year	5-Year	Annualized Return	Annualized Standard Deviation
ABS EM Strategic Portfolio	1.3%	5.1%	11.4%	3.5%	9.3%	8.1%	14.7%
MSCI Emerging Markets IMI Index	1.8%	0.5%	7.6%	1.5%	7.4%	4.3%	15.9%

Annual Returns (includes Carve Out)



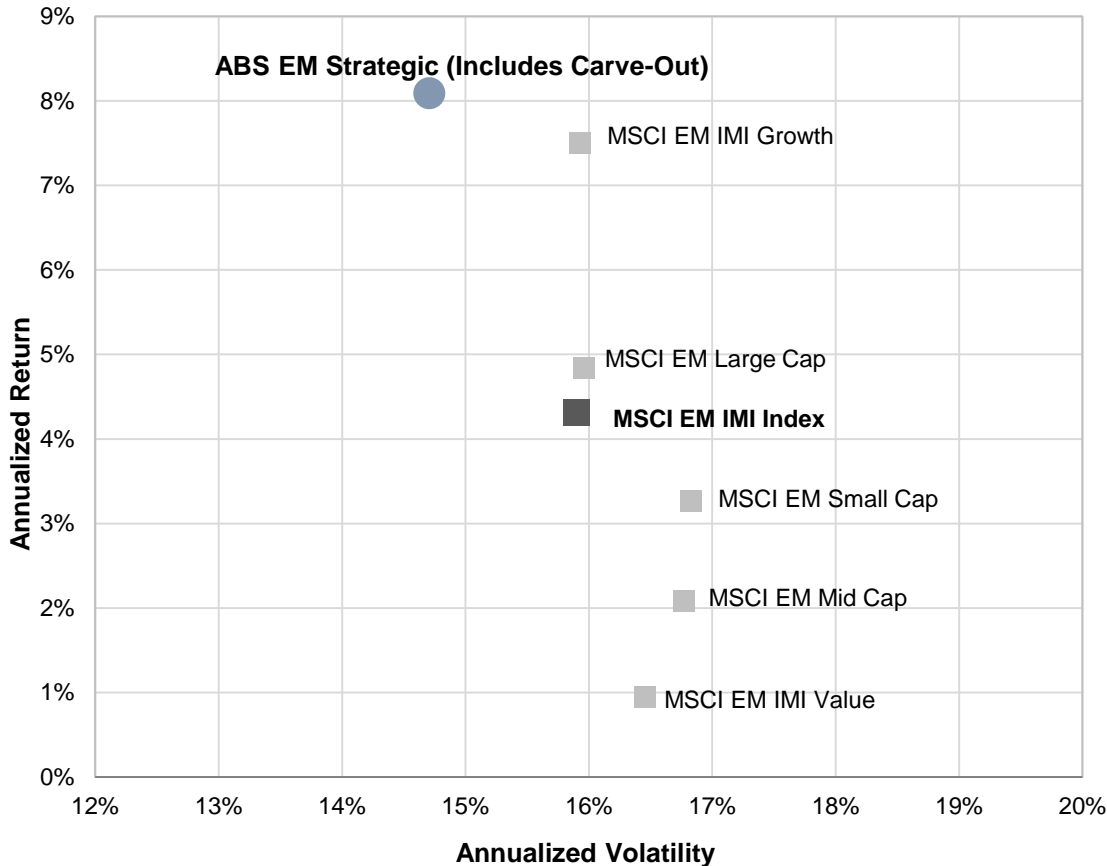
Cumulative Returns (includes Carve Out)



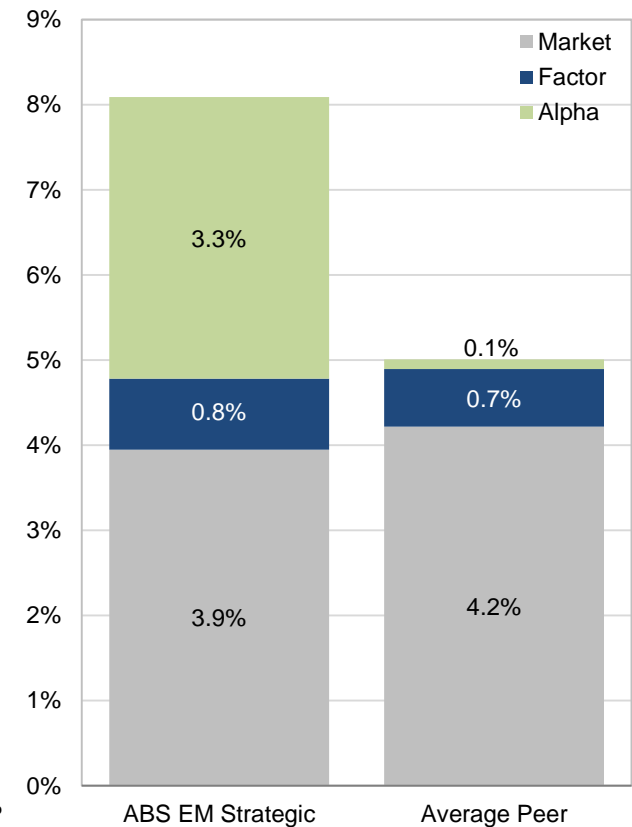
Data updated through October 31, 2020. The MSCI Emerging Markets IMI Index includes the reinvestment of dividends the impact of currency and is net of foreign taxes, symbol MIMUEMRN; MSCI EM IMI is not the ABS EM Strategic Portfolio's benchmark and is shown for informational purposes only. Performance numbers are estimates, include reinvestment of earnings, are net of a flat 0.75% p.a. management fee and are subject to change. Prior to December 2017, the back-tested returns for the ABS EM Strategic Portfolio presented herein are calculated by applying the above stated management fee rate to the net returns of the long only managers from ABS Emerging Markets Portfolio. Return information is calculated by ABS using performance information believed to be reliable and provided by the underlying managers. Such information is provided "as is" and may not be independently verified. ABS assumes no responsibility for the accuracy of this information and undertakes no independent verification of it. From December 2017 onwards, the returns for the ABS EM Strategic Portfolio presented herein are actual fund returns. Past returns are not a guarantee of future results. Graphs are provided for illustrative purposes only and should not be relied upon to make an investment decision. Please see end of this presentation for important disclosure information.

ABS EMS: Risk/Return Analysis

Risk/Return Relative to MSCI EM Indexes

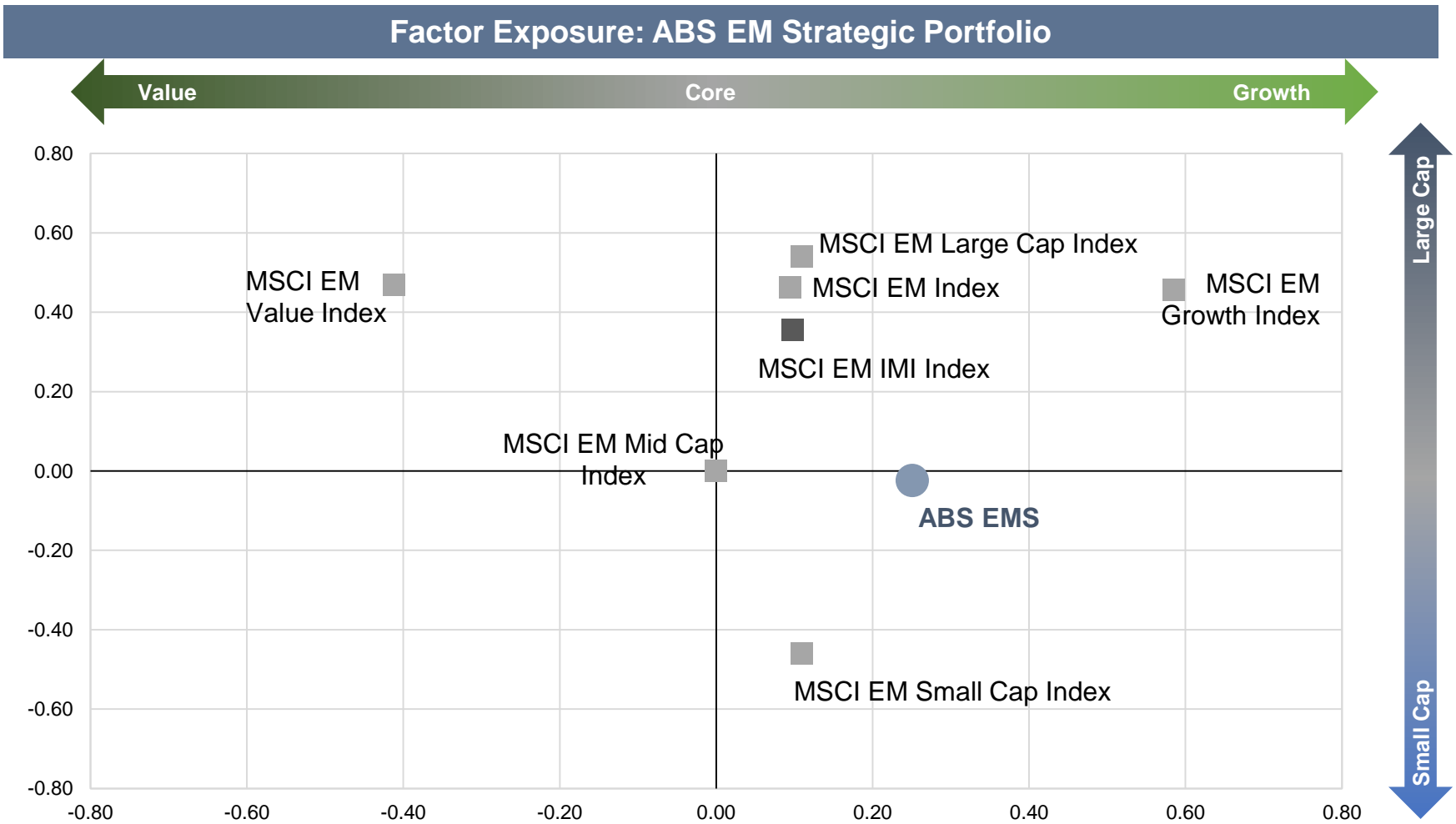


Components of Returns



Data updated through October 31, 2020. Please refer to prior page for performance disclosure concerning carveout data. Performance numbers are estimates, include reinvestment of earnings, are net of a flat 0.75% p.a. management fee and are subject to change. Components of return analysis based on historical regression of monthly returns relative to the MSCI EM IMI Index for Market, MSCI EM IMI Growth, MSCI EM IMI Value, and MSCI EM Small Cap Indexes for Factor, and excess returns for Stock/Alpha. Average Peer data is based on a Bloomberg screen of all US-listed mutual funds that are classified as active global emerging markets with AUM above \$250M as of July 1, 2020 with track records from July 2012 to June 2020 (69 funds). Graphs are provided for illustrative purposes only and should not be relied upon to make an investment decision. Please see the end of this presentation for important disclosure information.

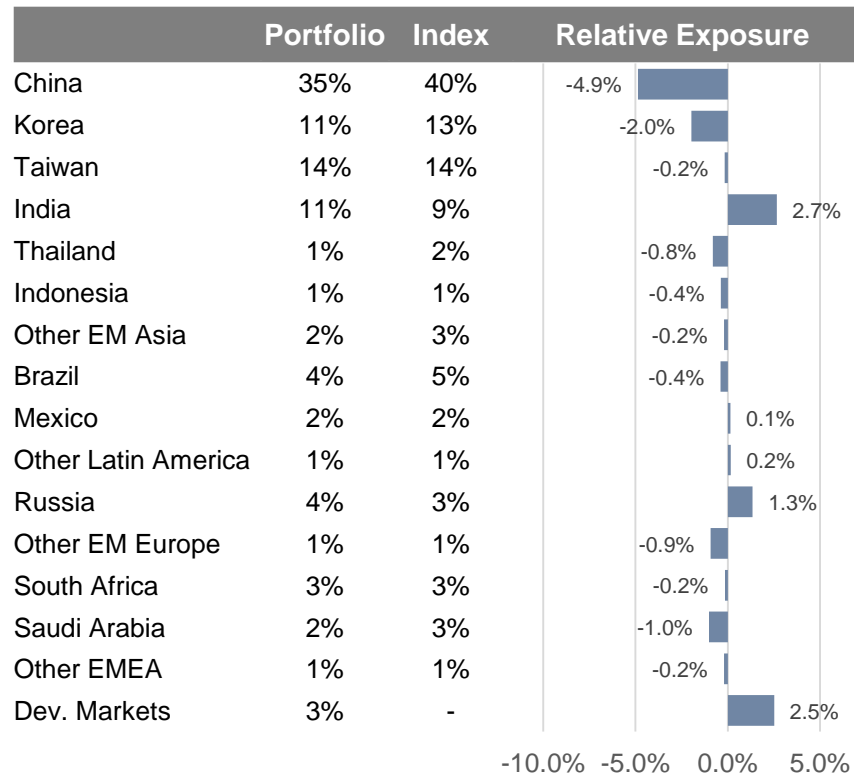
ABS EMS: Factor Exposure



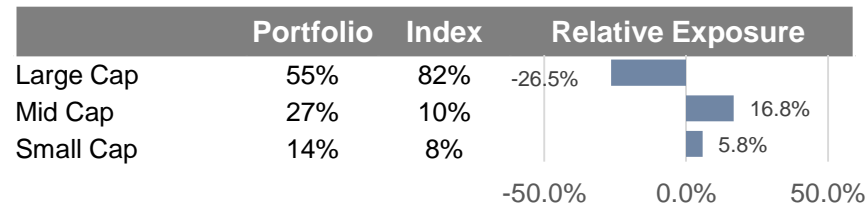
Data updated through October 31, 2020. Performance numbers are estimates, include reinvestment of earnings, are net of a flat 0.75% p.a. management fee and are subject to change. Source for MSCI EM indices from MSCI. Graphs are provided for illustrative purposes only and should not be relied upon to make an investment decision. Please see the end of this presentation for important disclosure information, including disclosures concerning carveout data.

ABS EMS: Current Exposure by Geography, Sector & Market Cap

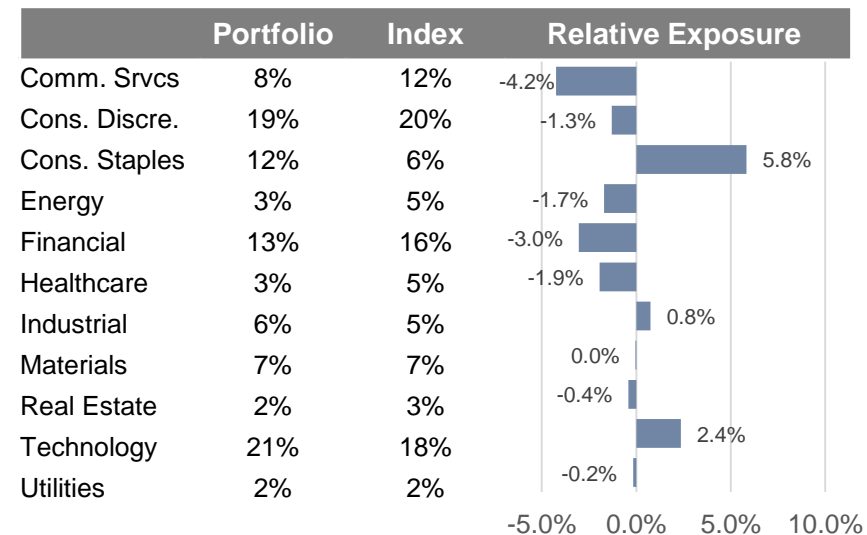
Portfolio Allocation by Geography



Portfolio Allocation by Market Cap



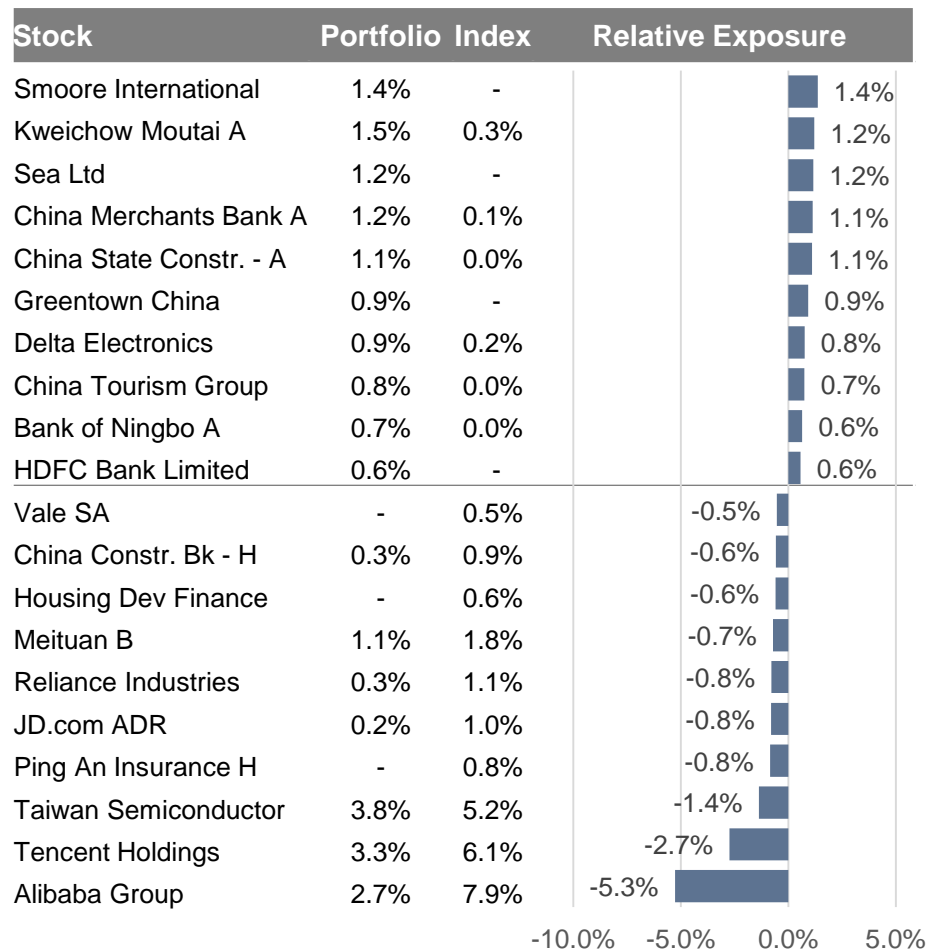
Portfolio Allocation by Sector



Data estimated as of November 1, 2020. Exposure data is based on information provided by the underlying managers, is subject to change and is not independently verified. Please see the end of this presentation for important disclosure information.

ABS EMS: Portfolio Holdings

Top and Bottom 10 Relative Allocations by Stock



Portfolio Summary

Measure	ABS EMS
Total Holdings	481
Unique Stocks (not in index)	177
Active Share	64%

Data as of October 31, 2020. Please see the end of this presentation for important disclosure information. Top 10 holdings inclusion criteria are not performance based.

Conclusion

ABS Emerging Markets

- Emerging Markets countries are rich environments for alpha generation
- We believe local specialists are well positioned to capture alpha
- ABS has a global team with over 25 years of experience working with local specialists to structure portfolios for institutional investors
- ABS has outperformed the index since inception, with few country or style biases

Appendix

Important Disclosures

ABS Emerging Markets Strategic Portfolio: This presentation was prepared to provide some general background, current statistics and performance returns for the ABS Emerging Markets Strategic Fund LP (for purposes of this paragraph, the "Fund" or "Portfolio") and its preceding carve out since July 1, 2012 as described above using the fee terms of 0.75% management fee per annum. Fees are not necessarily representative of any client's actual returns. Based on the timing of capital contributions or higher performance and /or management fees, the returns achieved by an existing investor over a shorter or identical period may be materially lower. Furthermore, in considering the prior performance information contained herein, prospective investors should bear in mind that past performance is no guarantee of future results and there can be no assurance that the Fund will achieve comparable results. There can also be no assurance that any targeted returns contained in this presentation can be realized or that actual results will not be materially lower than those targeted.

ABS EM Strategic Carve Out Methodology: Each month, the percentage allocation of each long-only manager in the ABS Emerging Markets Portfolio was multiplied by the fund's monthly performance to determine each fund's attribution to the portfolio. Then we removed the funds that are not long-only and re-scaled the allocations as if the long-only funds represented 100% of portfolio. The process was repeated each month to determine a monthly return on invested capital for the 20 different funds that we have invested with in the ABS Emerging Markets Portfolio. The minimum number of long-only funds in the portfolio was 3, and the maximum was 14. Date range: July 2012 - November 2017 (net of underlying manager fees and a 0.75% management fee applied at the ABS level).

Carve-out performance results are based upon a segment of the emerging markets strategies managed by ABS and were not managed separately but as part of a larger strategy. Results should not be considered indicative of the skill of the adviser. During the period 2012-November 2017 ABS was not managing assets according to the strategy depicted. Carve-out performance does not include other fees or charges for administration, custody or any other expenses included with the management of a fund. No cash balance or cash flow is included in the calculation. Clients may experience a loss. No representation is being made that any fund will or is likely to achieve profits or losses similar to those shown herein.

Hypothetical, back-tested performances have many inherent limitations only some of which are described as follows: (i) Hypothetical, back-tested results are achieved by means of retroactive application of a model designed using historical information, which may constitute the benefit of hindsight. (ii) Such performance is designed based on historical data, which may include revisions and/or the benefit of hindsight. (iii) Such performance does not reflect the adviser's decision making process if the adviser were actually managing a client's portfolio, which may include sentiment and/or emotional influences by market and/or economic events. (iv) Such performance does not reflect actual client asset trading and cannot accurately account for trading costs and the ability to withstand losses. (v) The information is based, in part, on hypothetical assumptions made for modeling purposes that may not be realized in the actual management of accounts. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used in achieving the returns have been stated or fully considered. Assumption changes may have a material impact on the model returns presented. Results may not reflect the impact of material market or economic factors that might have influenced the back-tested methodology if it had actually been in use during the period shown

This presentation shall not constitute an offer to sell or the solicitation of any offer to buy which may only be made at the time a qualified investor receives a final confidential private offering memorandum (the "Fund Documents") describing the Fund. In the event of any inconsistency between this presentation and the Fund Documents, the Fund Documents will govern. This presentation being provided to a prospective investor does not guarantee an investor's qualification for an investment in the Fund or the Fund's capacity for its investment. Such criteria may only be determined upon completion of the Subscription Material for the Fund. This presentation is strictly confidential and is not to be provided to any person without the approval of ABS Investment Management LLC. An investment in the Fund will involve significant risks, including the risk of loss of the amount invested. Although indices used in this presentation have been gathered using public and private sources and data we believe to be reliable, we make no representations as to their accuracy or completeness. The MSCI Emerging Markets TR Index includes the reinvestment of dividends, the impact of currency and is net of foreign taxes, symbol NDUUEEGF; it is not the Fund's benchmark and is provided for informational purposes only. Index performance returns do not reflect any management fees, transaction costs or expenses. Indexes are unmanaged and one cannot invest directly in an index. The Fund's financial statements are audited within 180 days after each year end and thus the prior year's annual return may be unaudited for up to six months into the current year. The most recent month's performance return is an internal estimate and has not been calculated by the Fund's third party administrator. References made to "ABS" herein refer to ABS Investment Management LLC, the investment manager to the Fund, which manages multiple portfolios other than the Fund. The size and nature of the other portfolios has varied since the Fund's inception and the size of the Fund relative to other ABS portfolios may materially differ at certain points in time. The underlying managers provided data used herein by ABS to calculate annualized returns, but have not reviewed this presentation for accuracy or completeness. The data utilized in the calculation of annualized returns since inception is purported to be net of all underlying manager fees and expenses, but has not necessarily been verified by ABS or an independent party.

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Important Disclosures

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Although indices used in this presentation have been gathered using public and private sources and data we believe to be reliable, we make no representations as to their accuracy or completeness. The MSCI All Country World Total Return Index (Local) includes the reinvestment of dividends net of foreign taxes, symbol NDLEACWF; it is not the Fund’s benchmark and is provided as we believe it provides a similar geographic exposure to how the Fund’s underlying managers may invest and is for informational purposes only. The HFRI FOF: Strategic Index consists of Fund of Funds exhibiting one or more of the following characteristics: seeks superior returns by primarily investing in funds that generally engage in more opportunistic strategies such as Equity Hedge, Sector Specific and Emerging Markets; exhibits a greater dispersion of returns and higher volatility compared to the HFRI Fund of Funds Composite Index, which possesses a lower risk/reward profile. A fund in the HFRI Fund of Fund Strategic Index tends to outperform the HFRI Fund of Fund Composite Index in up markets and underperform the index in down markets. Bloomberg ticker: HFRIFOFS. This index is being provided for comparative purposes relative to the other strategic Fund of Funds, is not the Fund’s benchmark, and is being provided for informational purposes only.

The MSCI All Country World Total Return Index (Local) includes the reinvestment of dividends net of foreign taxes, symbol NDLEACWF; it is not the Fund’s benchmark and is provided as we believe it provides a similar geographic exposure to how the Fund’s underlying managers may invest and is for informational purposes only.

The MSCI Emerging Markets Index includes the reinvestment of dividends, the impact of currency and is net of foreign taxes; it is not the Fund’s benchmark and is provided for informational purposes only. Index performance returns do not reflect any management fees, transaction costs or expenses.

The MSCI Emerging Markets Small Cap Index includes the reinvestment of dividends, the impact of currency and is net of foreign taxes, symbol MSLUEMRN; it is not the Fund’s benchmark and is provided for informational purposes only. Index performance returns do not reflect any management fees, transaction costs or expenses.

The MSCI Emerging Markets Mid Cap Index includes the reinvestment of dividends, the impact of currency and is net of foreign taxes, symbol MMDUEMRN; it is not the Fund’s benchmark and is provided for informational purposes only. Index performance returns do not reflect any management fees, transaction costs or expenses.

The MSCI Emerging Markets Large Cap Index includes the reinvestment of dividends, the impact of currency and is net of foreign taxes, symbol MLCUEMRN; it is not the Fund’s benchmark and is provided for informational purposes only. Index performance returns do not reflect any management fees, transaction costs or expenses.

The MSCI Emerging Markets Growth Index includes the reinvestment of dividends, the impact of currency and is net of foreign taxes, symbol NGUEEGFN; it is not the Fund’s benchmark and is provided for informational purposes only. Index performance returns do not reflect any management fees, transaction costs or expenses.

The MSCI Emerging Markets Value Index includes the reinvestment of dividends, the impact of currency and is net of foreign taxes, symbol NUVEEMVN; it is not the Fund’s benchmark and is provided for informational purposes only. Index performance returns do not reflect any management fees, transaction costs or expenses.

ABS Emerging Markets Strategic Portfolio, LP

Year	3 Year Annualized Return			3 Year Annualized Standard Deviation		Fund Assets (\$M)	Firm Assets (\$M)
	Fund Gross Return (%)	Fund Net Return (%)	Benchmark Return (%)	Fund Gross (%)	Benchmark (%)		
2017*	3.35	3.27	3.60	N/A	N/A	104	5,372
2018	-14.69	-15.51	-15.04	N/A	N/A	268	5,215
2019	20.41	19.29	17.64	N/A	N/A	699	6,070

* Performance for 2017 is for the period December 1, 2017-December 31, 2017

1. ABS Investment Management LLC claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. ABS Investment Management LLC has been independently verified for the periods January 1, 2015 through December 31, 2019. The verification report is available upon request. A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. Verification does not provide assurance on the accuracy of any specific performance report.
2. ABS Investment Management LLC is a privately owned investment manager registered with the SEC. The firm is an investment management firm specializing in global equity solutions, with extensive experience in both emerging markets and early stage investing. The firm primarily provides services to a broad array of sophisticated investors from around the world including Pension Plans (Public, Corporate and Taft Hartley), Endowments, Foundations, Insurance Companies and High Net Worth Individuals. ABS manages a family of global equity long/short multi-manager funds along with long-only and long-biased emerging market strategies.
3. The ABS Emerging Markets Strategic Portfolio invests in long-only emerging market equity managers. The Fund focuses on country and regional specialists in emerging markets countries as defined by the MSCI global classification standards. In addition, the portfolio has the ability to allocate up to 15% in opportunistic strategies in frontier and/or developed markets. The portfolio aims to be fully invested at all times and seeks to outperform the MSCI Emerging Markets IMI Index over a full market cycle with a similar level of risk. The Fund is valued monthly.
4. The benchmark provided is the MSCI Emerging Markets IMI Index includes the reinvestment of dividends, the impact of currency and is net of foreign taxes.
5. Gross fund returns are presented before the deduction of management fees but reflect the deduction of all trading and administrative expenses and underlying fund fees. Net returns are calculated by deducting 1/12th of 0.95% management fee monthly. Fund returns are net of withholding taxes. The management fee for Option SII is 0.95%. The expected total expense ratio for Option SII is 1.05%. All returns and assets are presented in US dollars.
6. The Fund inception date is December 1, 2017, which is the date of the first investment. List and description of limited and broad distribution pooled funds is available upon request. Policies for valuing investments, calculating performance, and preparing GIPS reports are available upon request. The three-year annualized standard deviation measures the variability of the fund and the benchmark returns over the preceding 36-month period. The fund track record does not span three years; therefore, this number is not available. GIPS® is a registered trademark of CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein. The Fund allocates a material amount of its assets to sub-advisors, directly and indirectly. In accordance with U.S. GAAP the Fund uses the net asset value provided by each of the underlying investment funds as its fair value methodology for all non-cash investments.



AXIOM
INVESTORS

Presentation to
MWRA Retirement System

Axiom Emerging Markets Equity Strategy

December 17, 2020



Biographies of presenters



Lindsay Chamberlain

Senior VP/Client Service and Marketing, *Axiom Investors*, 2013-Present
Director, Institutional Investments, *Artio Global Investors*, 2008-2013
Investor Relations, *JPMorgan*, 2007-2008
Sales Assistant, *Bank of America*, 2006-2007
Project Manager, *General Electric*, 2004-2006
B.S., Business Information Technology, *magna cum laude*, *Virginia Tech*



José Gerardo Morales, CFA

Senior Vice President/Portfolio Manager, *Axiom Investors*, 2017-Present
Portfolio Manager/CIO, *Mirae Asset Global Investment (USA)*, 2010-2016
Head of EM/Deputy CIO, LatAm & EMEA, *Mirae Asset Global Investment (UK)*, 2007-2010
Head of Emerging European Equities, *Pictet Asset Management*, 2006-2007
Director, Head of EMEA Emerging Markets, *WestLB Mellon Asset Management*, 2002-2006
Head of EMEA Emerging Markets, *HSBC Asset Management Ltd.*, 1999-2002
M.B.A., *Georgetown University*
B.Sc., Finance, *George Mason University*

Axiom Investors – Client focused and aligned



Established

1998



Fundamental, bottom-up

Focus on forward looking trends in operational drivers

Proven

Net of fee outperformance across all strategies since inception

Centralized

Greenwich, CT



Experienced

25+ years average PM experience
15+ years average analyst experience

Stable

10+ years average PM tenure at Axiom

Assets*

\$16.4 billion



Independent

100% employee-owned partnership
21 equity partners

Client focused and aligned

Employees invest – and reinvest – alongside clients

As of 9/30/20

*Assets include Assets Under Management (\$15.8B) & Assets Under Advisement (\$0.6B)

Partnering with professional investors around the world

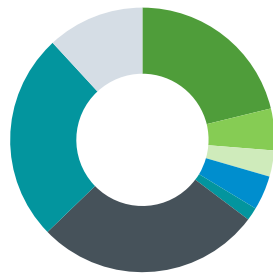


Client tenure



- 0 – 3 years: 33.5%
- 3 – 5 years: 13.9%
- 5 – 10 years: 22.6%
- 10+ years: 30.0%

Client base by type



- Corporate: 21.2%
- Endowments/Foundations: 5.1%
- Health care: 3.2%
- High Net Worth/Employee: 4.2%
- Other*: 1.6%
- Public: 27.5%
- Sovereign wealth: 25.4%
- Subadvised: 11.9%

Massachusetts Clients

John Hancock: Subadvised
 Pear Tree Funds: Subadvised
 City Public Funds (2 accounts)
 Pension Fund: Taft-Hartley
 E&F (7 accounts)

Public

City of Charlottesville
 City of Fresno
 Illinois Teachers
 Los Angeles City Employees
 State of Maryland
 City of Detroit
 State of North Dakota
 State of West Virginia
 New Mexico PERA

Corporate

Dominion
 National Football League
 NCR
 Auto Club Group

Subadvised

Northern Trust
 Russell Investments
 SEI

Sovereign funds

NPS (Korea)

Taft-Hartley

Oregon Laborers-Employers
 Pension Plan

Endowments and foundations

Florida State University Foundation
 Iowa State University Foundation
 Richard King Mellon Foundation
 University of Cincinnati
 University of Nebraska Foundation
 University of Oklahoma Foundation

Confidential. Please do not publish for general public.

As of 9/30/20

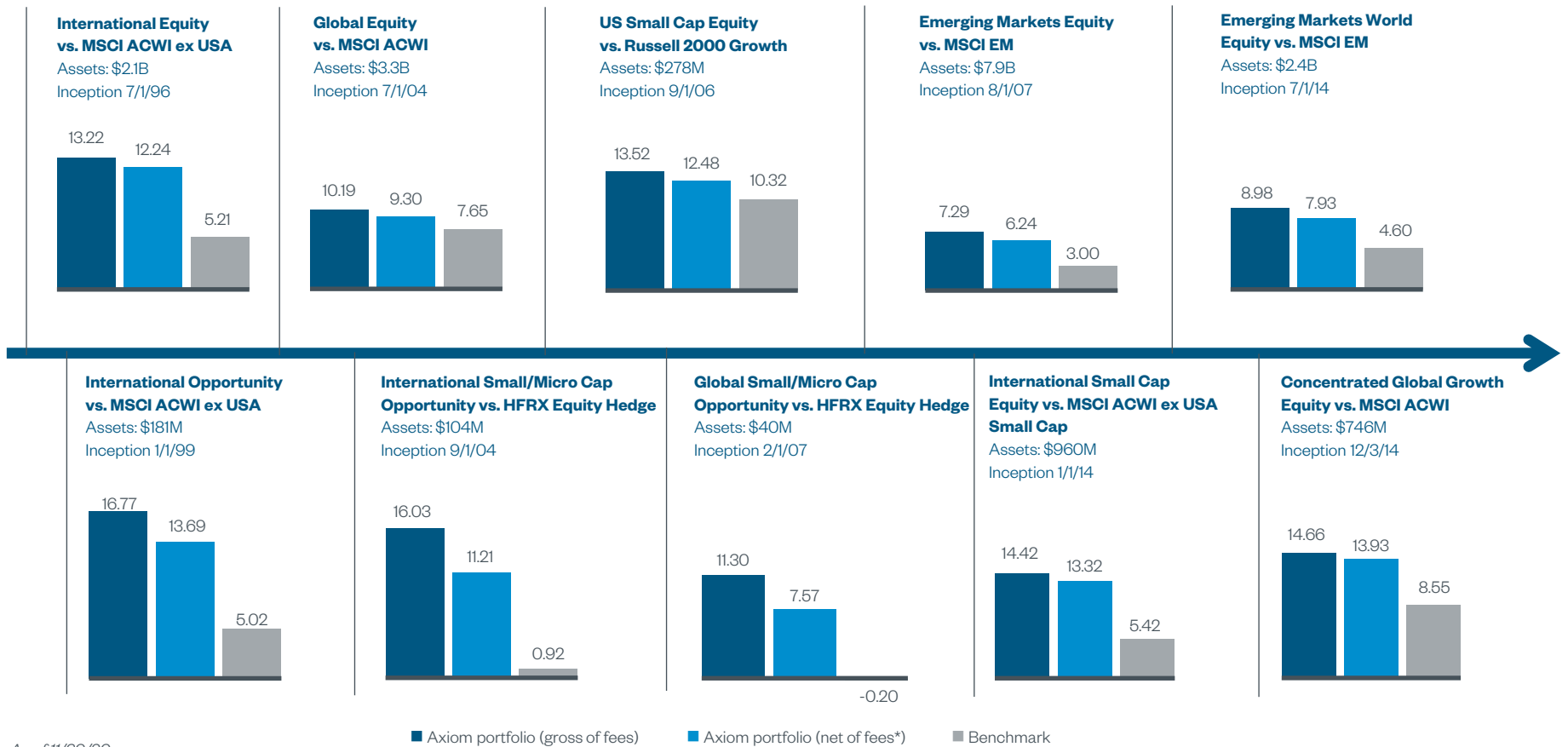
*Other includes insurance, union/Taft-Hartley and defined contribution plans.

This list is intended to represent a broad cross section of Axiom clients. None of the clients were selected on the basis of performance criteria and it is not known whether they approve of or disapprove of Axiom or the investment advisory services provided.

Proven results across all strategies



Inception-to-date percent returns, annualized



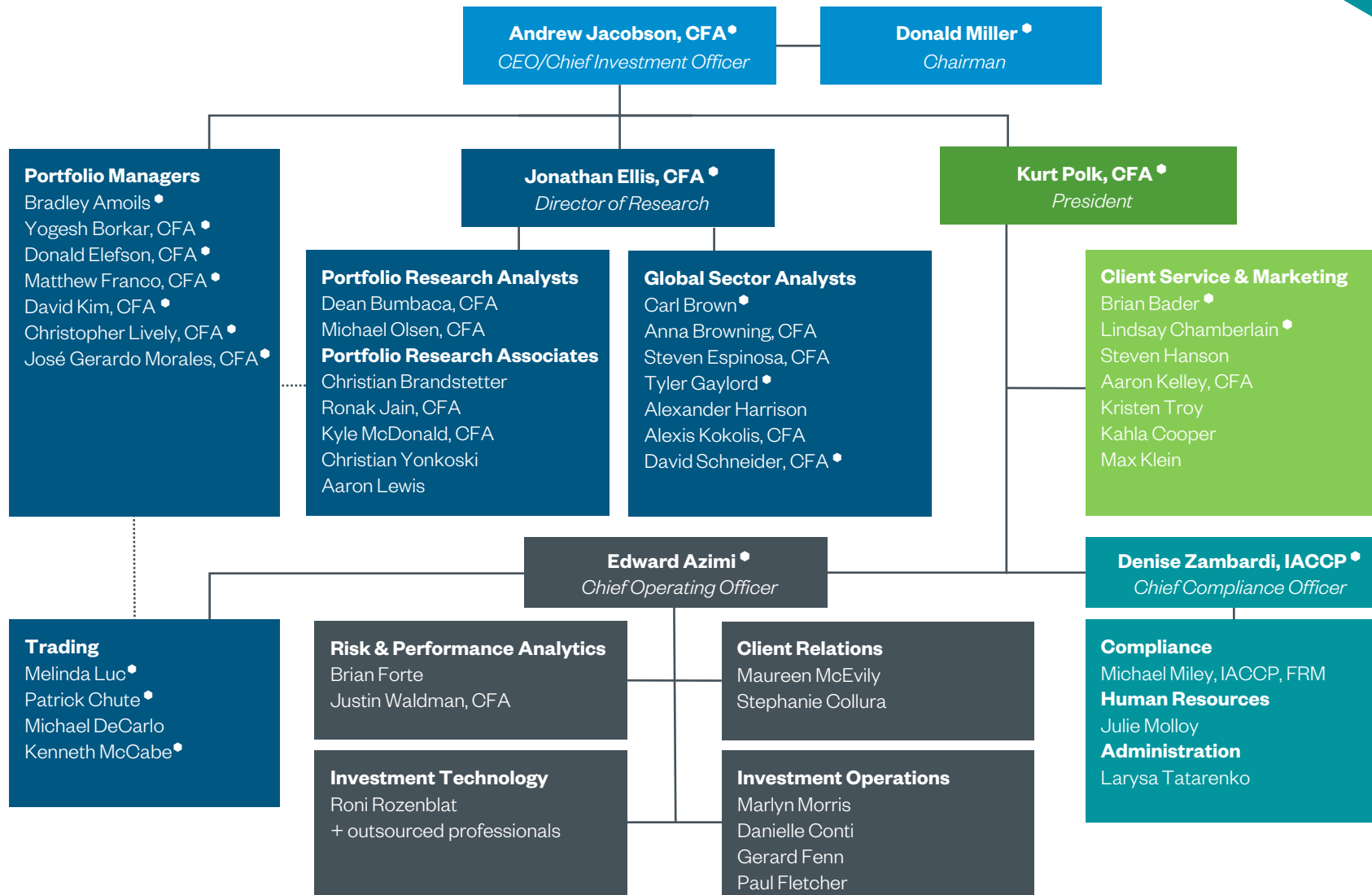
As of 11/30/20

US dollar terms

Assets include Assets Under Management (\$17.3B) & Assets Under Advisement (\$0.7B)

* Net-of-fee calculations are net of highest management fees, and where applicable, performance fees, and do not include individualized client administrative expenses. See disclosures in the back of the presentation for additional information.

A well-resourced partnership



An experienced and collaborative team



Axiom team facts

25+ years average PM experience

10+ years average PM tenure

15+ years average analyst experience

100% PMs who are partners

~50% global sector analysts who are partners

100% PMs and analysts who invest/reinvest alongside clients

Emerging Markets Equity Strategy Co-Lead Portfolio Manager



Christopher Lively, CFA
34 years of experience
12 years at Axiom

Emerging Markets Equity Strategy CIO, Co-Lead Portfolio Manager



Andrew Jacobson, CFA
33 years of experience
22 years at Axiom

Emerging Markets Equity Strategy Co-portfolio Manager



Donald Elefson, CFA
38 years of experience
9 years at Axiom

Emerging Markets Equity Strategy Co-portfolio Manager



José Gerardo Morales, CFA
32 years of experience
3 years at Axiom

Portfolio managers

Bradley Amoils

Global
(30 yrs. exp./18 yrs. Axiom)

Matthew Franco, CFA

Small/Micro cap
(25/22)

David Kim, CFA

Small/Micro cap/CGG
(23/15)

Yogesh Borkar, CFA

Small/Micro cap
(28/7)

Director of Research/ Portfolio Manager

Jonathan Ellis, CFA

Concentrated global growth (CGG)
(23/9)

Global sector research analysts

Carl Brown

Health Care
(27/4)

Anna Browning, CFA

Industrials & Materials
(18/1)

Steven Espinosa, CFA

IT & Comm. Services
(21/7)

Tyler Gaylord

Financials
(19/9)

Alexander Harrison

Consumer
(21/6)

Alexis Kokolis, CFA

Consumer
(16/5)

David Schneider, CFA

IT & Energy
(17/14)

Portfolio research analysts

Dean Bumbaca, CFA

International equity generalist
(10/10)

Michael Olsen, CFA

Emerging markets generalist
(11/11)

Research associates

Christian Brandstetter

US equity generalist
(6/6)

Ronak Jain, CFA

Global equity generalist
(11/2)

Aaron Lewis

Emerging markets generalist
(4/1)

Kyle McDonald, CFA

Small/micro generalist
(7/7)

Christian Yonkoski

International equity generalist
(4/1)

Traders

Melinda Luc

Head trader
(27/22)

Patrick Chute

(16/14)

Michael DeCarlo

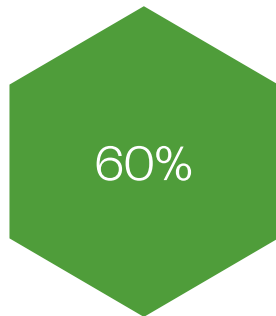
(30/12)

Kenneth McCabe

(24/17)

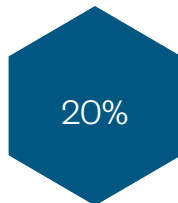
Consistent dynamic growth philosophy driving alpha

Fundamental | Repeatable | Transparent



Positive change

Forward looking focus on fundamental drivers, including ESG factors - consistent, real-time rankings across sectors, geographies and capitalizations



Sustainable growth

Performance tailwinds from compounding organic earnings growth and ESG alignment



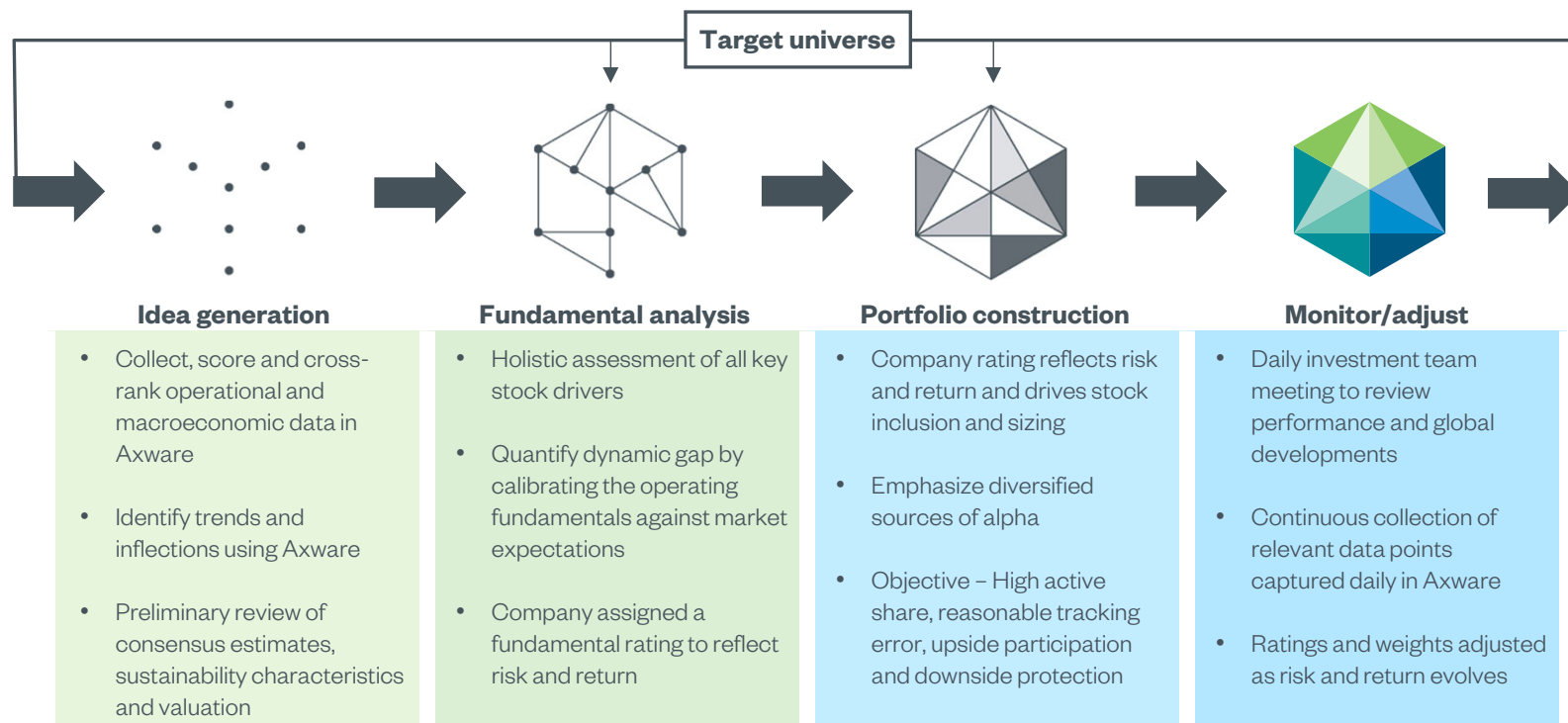
Valuation

Attractive valuation confirms upside potential and provides risk control benefits

Fundamental, repeatable, transparent process

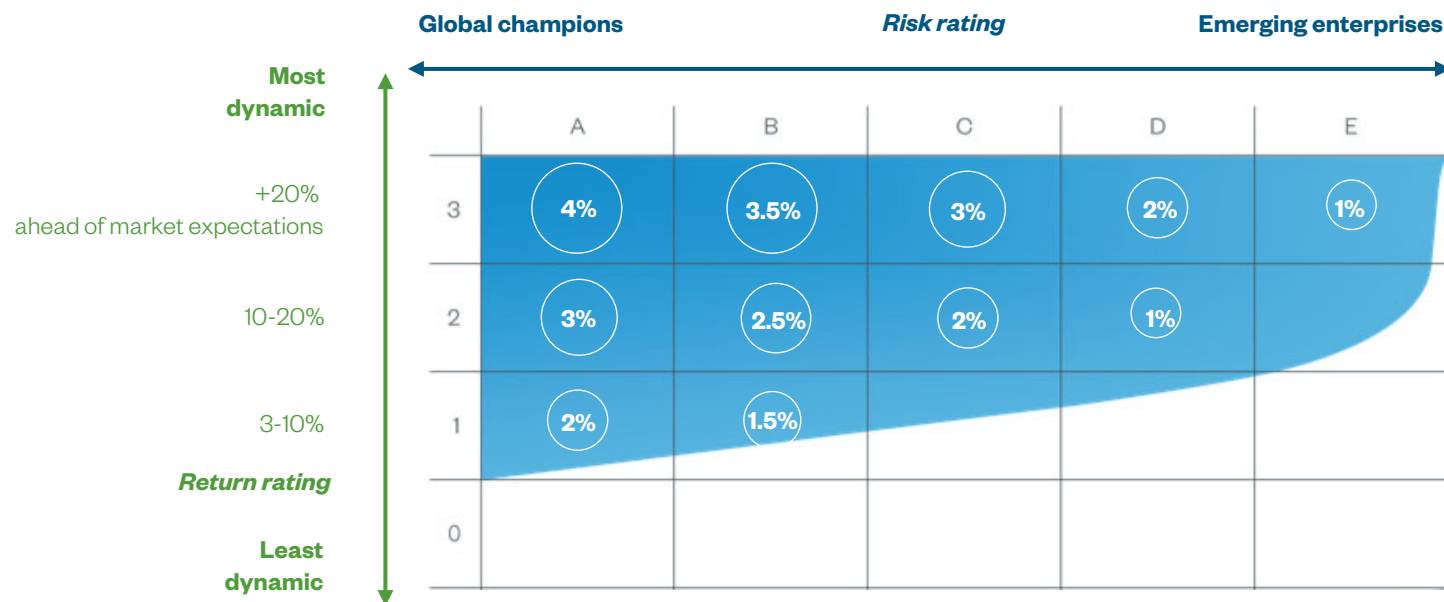


Axiom invests in companies that are dynamically growing and changing for the better more rapidly than generally expected and where the positive changes are not yet reflected in expectations or valuation.



Disciplined portfolio construction

Building portfolios with balanced risk/return characteristics



Investment summary



Inception August 1, 2007
Assets* \$7.3 B
Benchmark MSCI EM

Strategy guidelines	Axiom Emerging Markets Equity
Number of holdings	Typically 70-85 holdings
Position size	Limited to the greater of 5% or the index weight x 1.5
Sector guidelines	0-40%
Country guidelines	Limited to the greater of 30% or the index weight +15%

Axiom Emerging Markets Equity - Investment Vehicles

Commingled
Trusts

Separately Managed
Accounts

Collective Investment
Trusts

UCITS
Funds

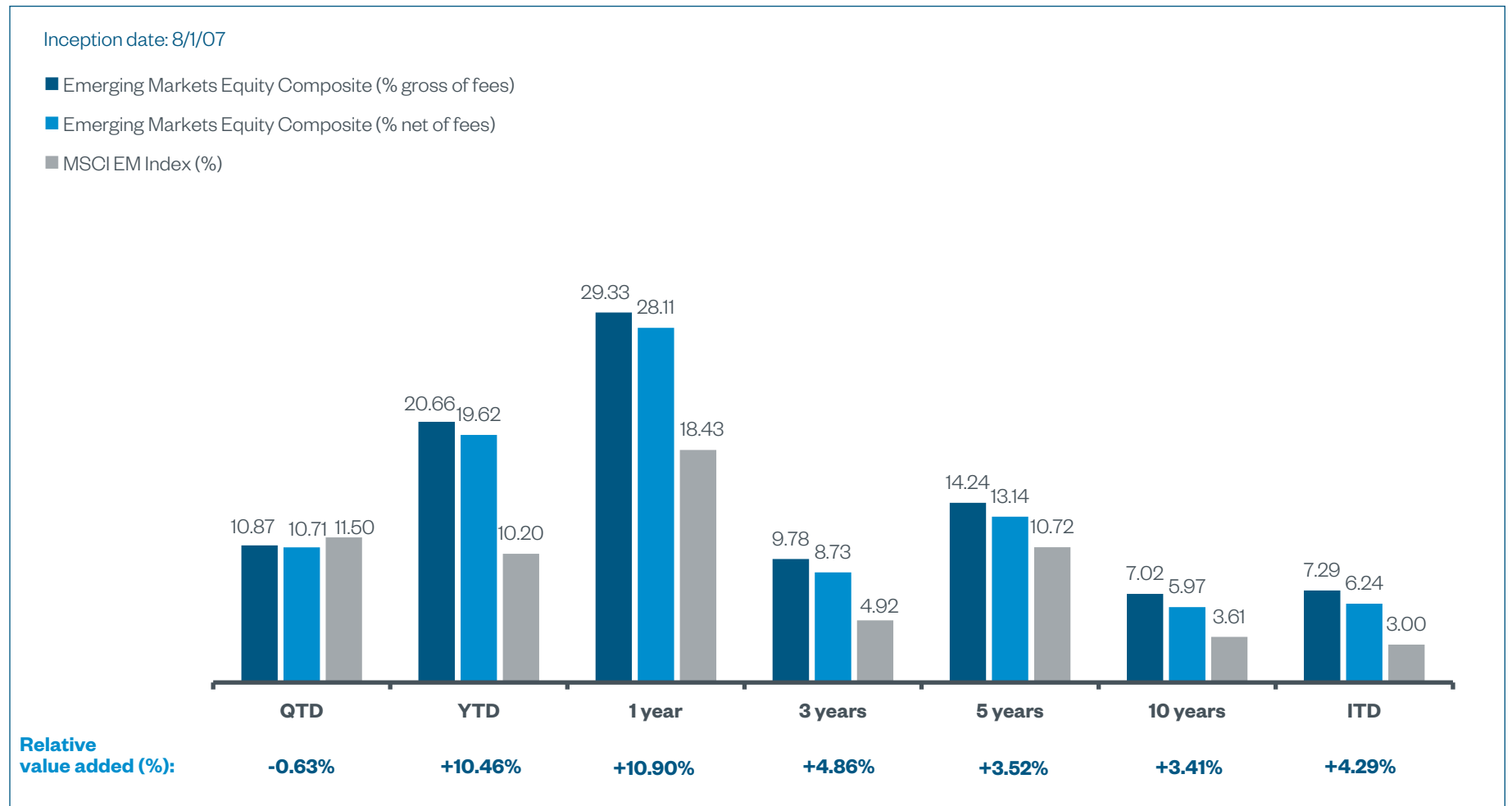
As of 9/30/20

*Assets include Assets Under Management & Assets Under Advisement

Axiom Emerging Markets Equity Strategy



Annualized returns

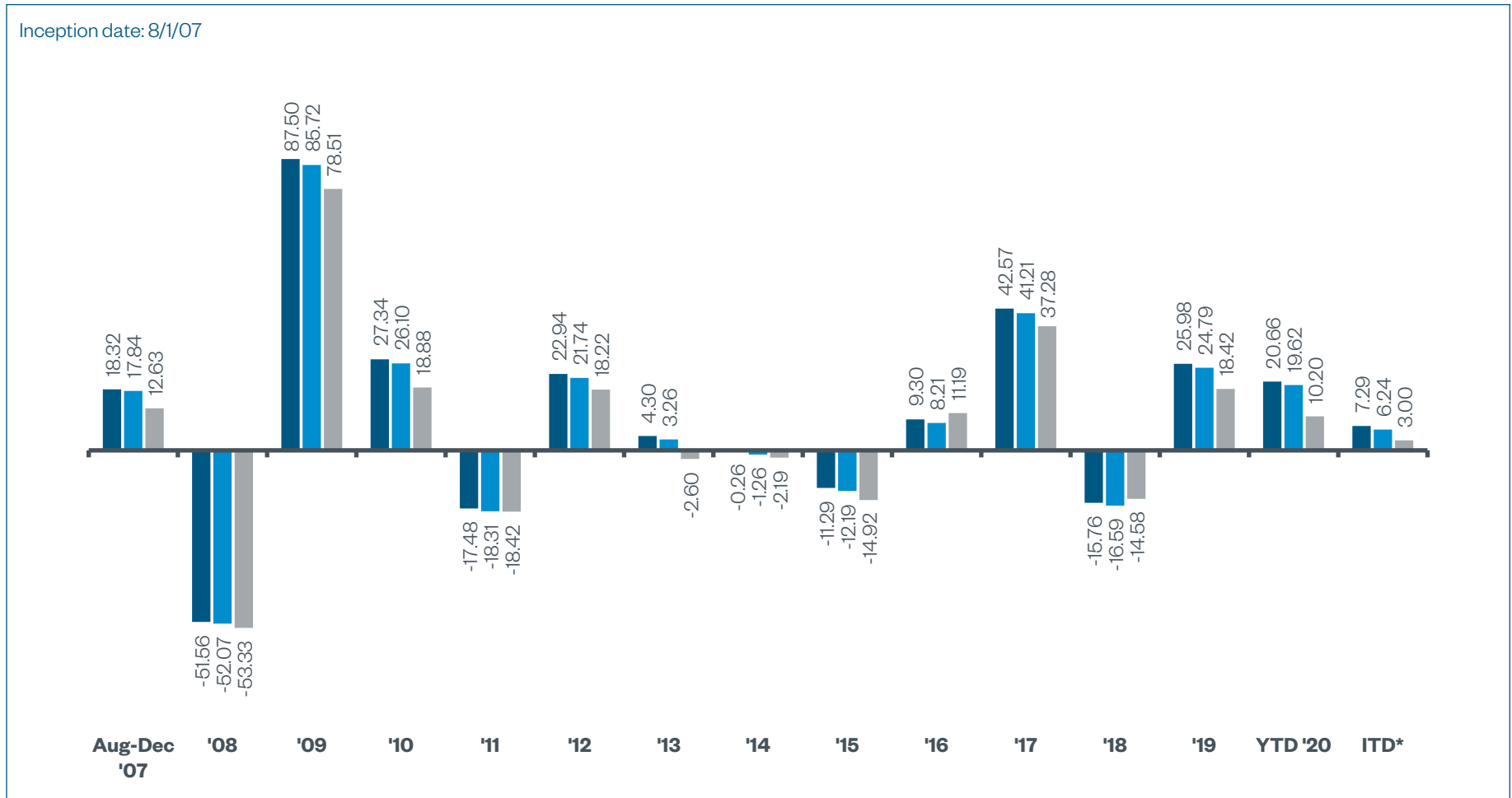


As of 11/30/20

US dollar terms

Please refer to the attached GIPS® compliant composite presentation for complete performance information. Past performance is no guarantee for future results.

Calendar-year returns



As of 11/30/20
 US dollar terms
 * Annualized

■ Emerging Markets Equity Composite (% gross of fees) ■ Emerging Markets Equity Composite (% net of fees) ■ MSCI EM Index (%)

Please refer to the attached GIPS® compliant composite presentation for complete performance information. Past performance is no guarantee for future results.

Risk/return analysis



Inception date: 8/1/07

	Axiom	MSCI EM
Cumulative Return (%)	155.6	48.4
Cumulative Excess Return (%)	107.2	-
Annualized Return (%)	7.3	3.0
Annualized Excess Return (%)	4.3	-
Batting Average (% Quarterly)	78.8	-
Annualized Standard Deviation (%)	22.4	22.2
Upside Capture Ratio (% Quarterly)	153.6	-
Downside Capture Ratio (% Quarterly)	98.0	-
Tracking Error (%)	3.3	-
Information Ratio	1.3	-
Annualized Sharpe Ratio	0.3	0.1
Annualized Sortino Ratio	0.4	0.1

Consistent, all-weather portfolio



Inception date: 8/1/07

Batting Average	Quarterly
All Periods	79%
Growth-led quarters	93%
Value-led quarters	59%
Index up quarters	91%
Index down quarters	60%

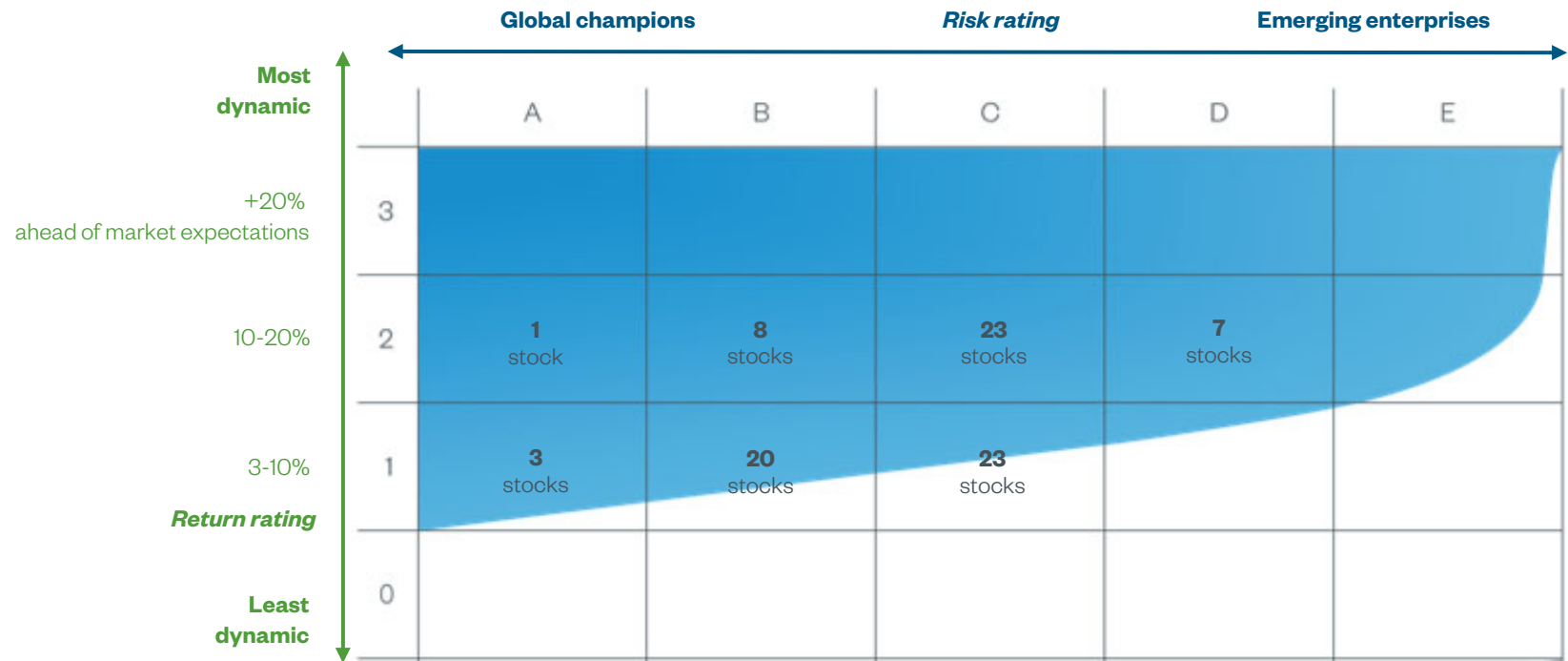
Positive excess returns	% of periods
Rolling 1-year periods	90%
Rolling 3-year periods	100%

Risk/Return Statistics*	Excess Return	Standard Deviation	Tracking Error	Information Ratio	Upside Capture	Downside Capture
3 years	4.87	19.34	3.17	1.53	115.91	95.40
5 years	3.52	17.31	3.01	1.17	115.80	96.98
10 years	3.41	17.68	3.00	1.14	114.62	97.22
Since inception	4.29	22.39	3.28	1.31	132.88	99.18

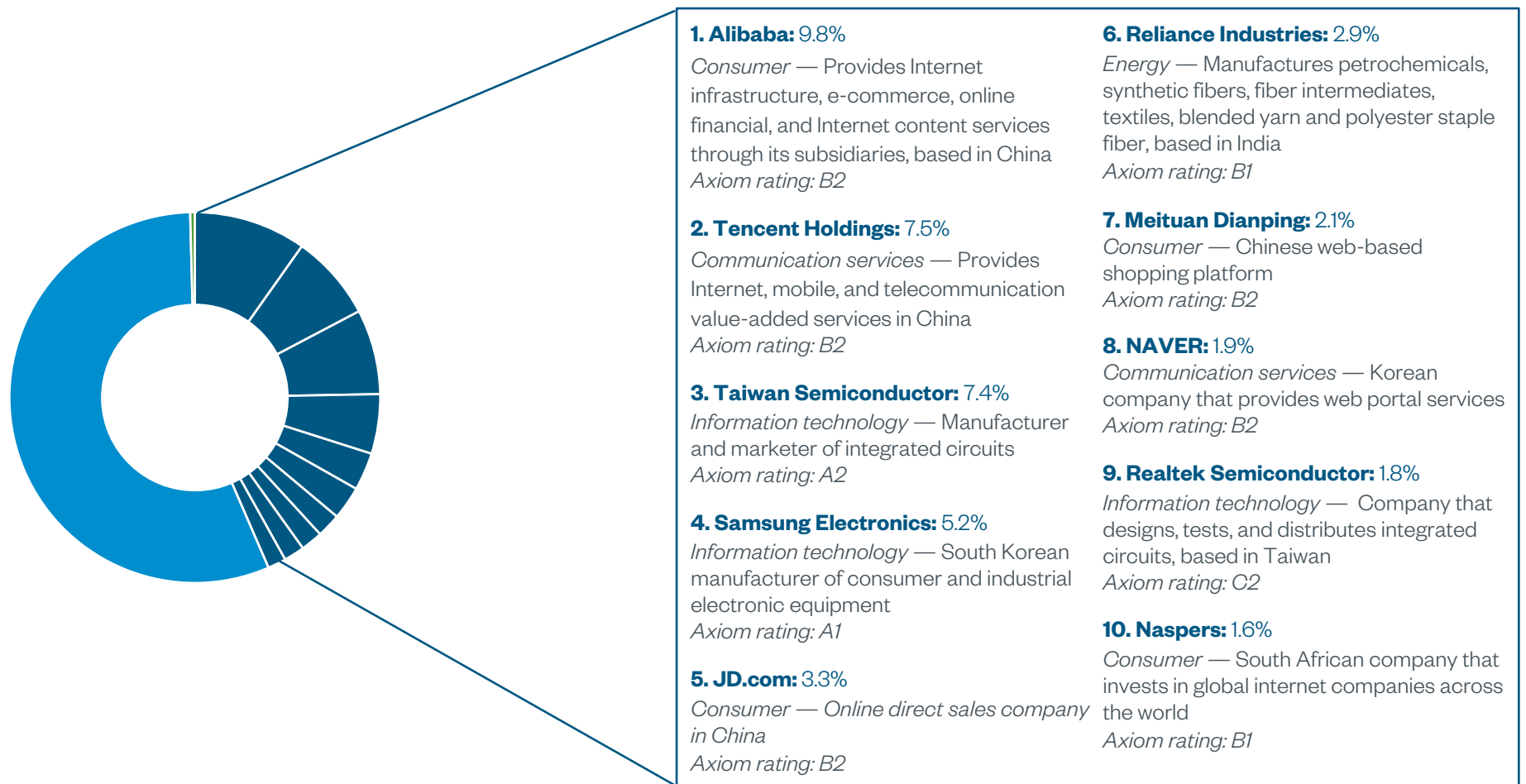


Current portfolio construction (based on Axiom ratings)

Axiom's rating grid is designed to build portfolios with well-balanced risk/return characteristics.



Top ten holdings



■ Top ten holdings: 43.5% ■ Other equities: 56.1% ■ Cash: 0.4%

This information is supplemental to the Investment Performance Disclosure Statement results.

As of 9/30/20

It should not be assumed that recommendations made in the future will be profitable or will equal the performance of the securities on this list.

Top ten active weights



	Axiom	MSCI EM	Active Over Weight
JD.com	3.34	1.04	2.31
Realtek Semiconductor	1.82	0.10	1.72
Taiwan Semiconductor	7.40	5.78	1.62
Reliance Industries	2.91	1.36	1.55
Tencent	7.47	5.94	1.54
NAVER	1.95	0.49	1.46
Sea Ltd.	1.44	0.00	1.44
Airtac International	1.40	0.04	1.36
HDFC Bank	1.33	0.00	1.33
MercadoLibre	1.27	0.00	1.27

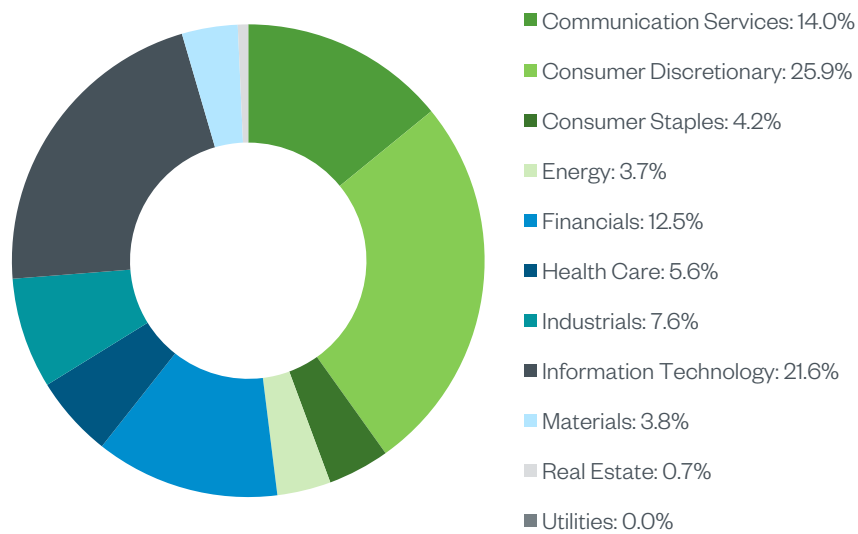
As of 9/30/20
US dollar terms

*Security weights are grouped by issuer

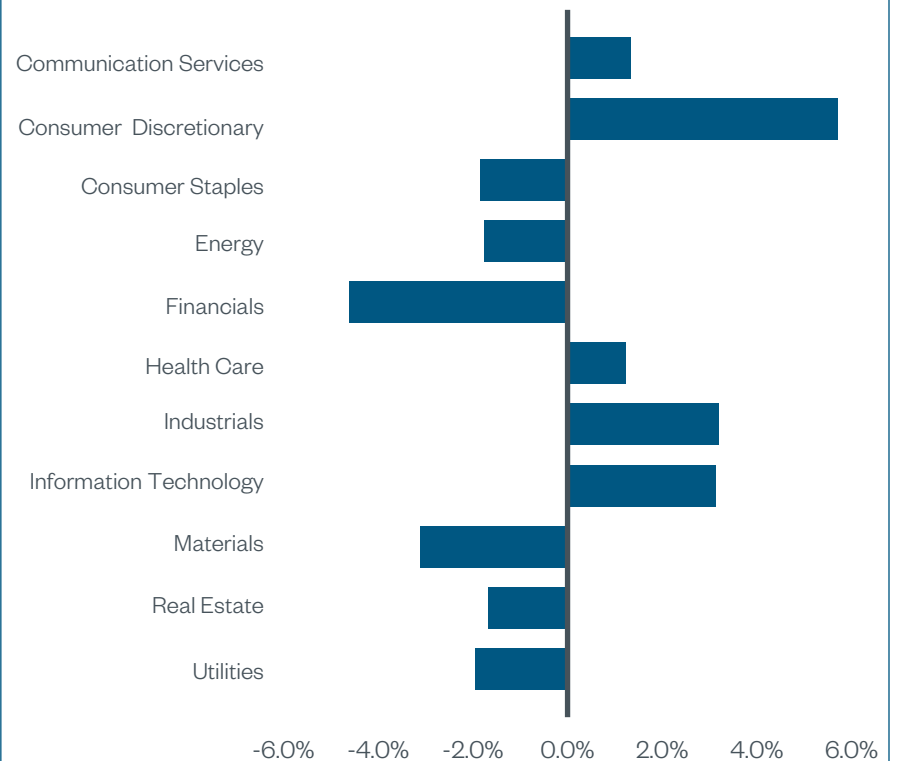
Sector allocations



Portfolio exposure by sector



Sector allocation vs. benchmark weight



As of 9/30/20

This information is supplemental to the Investment Performance Disclosure Statement results.

There can be no assurance that the Strategy will continue to hold these positions or that weightings do not change after September 30, 2020.

Country allocations



	Axiom ending weight	MSCI EM ending weight
Asia ex Japan	84.7	80.5
China	43.9	41.9
Hong Kong	1.2	0.0
India	8.8	8.2
Indonesia	1.1	1.2
South Korea	13.0	12.1
Philippines	0.8	0.7
Singapore	1.4	0.0
Taiwan	14.3	12.8
Vietnam	0.2	0.0
EMEA	6.0	12.2
Hungary	0.4	0.2
Russia	2.7	3.0
South Africa	3.0	3.5

	Axiom ending weight	MSCI EM ending weight
Latin America	7.6	7.2
Argentina	1.0	0.1
Brazil	5.4	4.6
Mexico	1.0	1.6
Peru	0.2	0.2
Canada & US	1.3	0.0
United States	1.3	0.0
Cash	0.4	
Total	100.0	

Portfolio characteristics



	Axiom	MSCI EM
Holdings	85	1,386
Weighted Average Market Capitalization (\$B)	\$210.9	\$177.9
Liquidity (\$M/Day)	\$1,063	\$878
Net Debt/Equity Ratio (%)	-18.7	12.4
Price Earnings Ratio	19.1	13.3
Earnings Growth Rate (%)	37.2	33.2
PEG Ratio (PE/Growth Rate)	0.5	0.4

Axiom Investors: Fees



Emerging Markets Equity Strategy	
Vehicle	Fee Schedule
Collective Investment Trust* Cusip: 05464N404	0.90% on the first \$200M 0.80% on the next \$200M 0.70% over \$400M Effective fee: 73 bps**

*Available to qualified investors, ERISA, and pension plans. All-inclusive fee that could be lower depending on the level of assets in the trust.

**Effective fee is based on the 11/30/20 asset level in the CIT.

Axiom – Competitive edge



FIRM & PEOPLE

Independent 100% employee-owned partnership

Client alignment through investment and re-investment alongside clients

Experienced and stable investment, client service and operations teams

PHILOSOPHY & PROCESS

Identification of dynamic growth opportunities using a consistent, repeatable and transparent process

ESG Integration with a focus on positive change

Axware to efficiently collect, score and synthesize data across sectors, geographies and market caps

PERFORMANCE & RISK

20+ year history of investing through various market cycles

Since inception net of fee outperformance across all strategies

Risk characteristics reflect disciplined portfolio construction

Appendix



Strategy performance



Strategy	Performance							Strategy Information		
	QTD	Cumulative YTD	1 Year	3 Years	5 Years	10 Years	ITD	AUM	AUA	Inception
Long Only¹										
International Equity (gross)	8.20	28.22	33.71	13.54	13.41	9.15	13.22	\$2.1B	-	7/1/1996
International Equity (net)	8.06	27.26	32.61	12.60	12.47	8.24	12.24			
Benchmark (MSCI ACWI ex USA)	11.01	4.98	9.52	3.82	7.38	5.16	5.21			
Global Equity (gross)	7.09	27.79	32.08	14.99	14.96	12.18	10.19	\$3.3B	-	7/1/2004
Global Equity (net)	6.95	26.83	31.00	14.04	14.03	11.29	9.30			
Benchmark (MSCI ACWI)	9.60	11.10	15.01	8.99	10.84	9.41	7.65			
US Small Cap (gross)	13.54	40.72	41.17	21.25	16.53	15.98	13.52	\$243M	\$35M	9/1/2006
US Small Cap (net)	13.39	39.67	40.02	20.25	15.58	15.05	12.48			
Benchmark (Russell 2000 Growth)	18.53	23.12	25.95	12.83	13.19	13.30	10.32			
Emerging Markets (gross)	10.87	20.66	29.33	9.78	14.24	7.02	7.29	\$7.9B	-	8/1/2007
Emerging Markets (net)	10.71	19.62	28.11	8.73	13.14	5.97	6.24			
Benchmark (MSCI EM)	11.50	10.20	18.43	4.92	10.72	3.61	3.00			
International Small Cap (gross)	10.04	29.00	35.08	13.42	15.37		14.42	\$960M	-	1/1/2014
International Small Cap (net)	9.88	27.89	33.81	12.35	14.27		13.32			
Benchmark (MSCI ACWI ex USA Small Cap)	10.82	6.78	12.04	3.29	7.92		5.42			
Emerging Markets World (gross)	10.06	22.86	31.21	10.19	14.54		8.98	\$1.7B	\$705M	7/1/2014
Emerging Markets World (net)	9.89	21.80	29.98	9.13	13.45		7.93			
Benchmark (MSCI EM)	11.50	10.20	18.43	4.92	10.72		4.60			
Concentrated Global Growth (gross)	4.44	30.39	35.17	18.46	16.62		14.66	\$746M	-	12/3/2014
Concentrated Global Growth (net)	4.29	29.41	34.07	17.48	15.82		13.93			
Benchmark (MSCI ACWI)	9.60	11.10	15.01	8.99	10.84		8.55			
Long/Short²										
Performance										
International Opportunity Fund (net)	12.15	29.82	36.74	12.75	12.21	9.12	13.69	\$181M	-	1/1/1999
Benchmark (MSCI ACWI ex USA)	11.01	4.98	9.52	3.82	7.38	5.16	5.02			
International Small/Micro Cap Opportunity Fund (net)	6.51	13.34	16.61	7.35	8.14	8.40	11.21	\$104M	-	9/1/2004
Benchmark (HFRX Equity Hedge)	4.03	0.95	2.18	0.75	1.97	0.91	0.92			
Global Small/Micro Cap Opportunity Fund (net)	7.30	14.17	17.40	7.73	8.97	8.97	7.57	\$40M	-	2/1/2007
Benchmark (HFRX Equity Hedge)	4.03	0.95	2.18	0.75	1.97	0.91	-0.20			

As of 11/30/20

¹Strategies are available via separate account, commingled fund, collective investment trust and UCIT.

²Strategies are available via separate account and commingled fund.

Portfolio Managers



Andrew Jacobson, CFA

CEO/Chief Investment Officer, *Axiom Investors*, 1998-Present
Executive VP, Portfolio Manager, *Columbus Circle Investors*, 1993-1998
Business Analyst, *Booz Allen Hamilton*, 1989-1991
Analyst, *Apax Associates*, 1988-1989
M.B.A., with distinction, *The Wharton School, University of Pennsylvania*
A.B., Molecular Biology, cum laude, *Princeton University*

Christopher Lively, CFA

Managing Director/Portfolio Manager, *Axiom Investors*, 2008-Present
Portfolio Manager, *Clay Finlay*, 2006-2008
Portfolio Manager, *Legg Mason (formerly Citigroup)*, 2000-2006
Portfolio Manager and Analyst, *The Pioneer Group*, 1993-2000
M.B.A., *Anderson Graduate School of Management, UCLA*
M.S., Foreign Service, *Georgetown University*
B.A., East Asian Studies, cum laude, *Harvard University*

Donald Elefson, CFA

Senior Vice President/Portfolio Manager, *Axiom Investors*, 2012-Present
Portfolio Manager, *Harding Loevner*, 2008-2012
Portfolio Manager, *US Trust*, 1999-2007
Portfolio Manager, *Smith Barney Asset Management*, 1994-1998
Analyst, *Merrill Lynch Asset Management*, 1989-1994
B.A., Economics, *University of Washington*

José Gerardo Morales, CFA

Senior Vice President/Portfolio Manager, *Axiom Investors*, 2017-Present
Portfolio Manager/CIO, *Mirae Asset Global Investment (USA)*, 2010-2016
Head of EM/Deputy CIO, LatAm & EMEA, *Mirae Asset Global Investment (UK)*, 2007-2010
Head of Emerging European Equities, *Pictet Asset Management*, 2006-2007
Director, Head of EMEA Emerging Markets, *WestLB Mellon Asset Management*, 2002-2006
Head of EMEA Emerging Markets, *HSBC Asset Management Ltd.*, 1999-2002
M.B.A., *Georgetown University*
B.Sc., Finance, *George Mason University*

Bradley Amoils

Managing Director/Portfolio Manager, *Axiom Investors*, 2002-Present
VP, Portfolio Manager, *American Century*, 1997-2002
Equity Research Analyst, *OppenheimerFunds*, 1995-1997
M.B.A., *Columbia Business School, Columbia University*
B.Sc., M.D. equivalent, *University of the Witwatersrand Johannesburg*

Matthew Franco, CFA

Managing Director/Portfolio Manager, *Axiom Investors*, 1998-Present
Research Analyst, *Columbus Circle Investors*, 1997-1998
Research Analyst, *R.L. Renck & Co.*, 1996-1997
B.S., Finance, summa cum laude, *Saint John's University*

David Kim, CFA

Senior Vice President/Portfolio Manager, *Axiom Investors*, 2005-Present
Analyst, *Pinnacle Associates*, 2002-2005
Associate, *Morgan Stanley*, 2000-2002
Associate, *DLJ International-London/Pershing*, 1998-2000
B.S., Finance & International Business, *Georgetown University*

Yogesh Borkar, CFA

Vice President/Portfolio Manager, *Axiom Investors*, 2013-Present
Associate Portfolio Manager, *Fidelity Investments*, 2005-2012
Senior Research Analyst, *DuPont Capital Management*, 2001-2005
Portfolio Manager/Senior Research Analyst, *ValueQuest/TA*, 1996-2001
Vice President, Global Research, *CIFAR Princeton*, 1989-1994
Author, *Rising Stars in Emerging Markets*, Published November 2013
M.B.A., *Yale University*
B.Com., Business Management, *University of Bombay*

Jonathan Ellis, CFA

Director of Research/Portfolio Manager, *Axiom Investors*, 2019-Present
Vice President/Research Analyst, *Axiom Investors*, 2011-2019
Director, Senior Equity Analyst, *Bank of America Merrill Lynch*, 1999-2011
Associate, *Pershing LLC*, 1998-1999
M.B.A., *Columbia Business School, Columbia University*
B.A., Economics, with honors, *Lafayette College*

Other Investment Professionals



Carl D. Brown

Research Analyst, *Axiom Investors*, 2016-Present
Assistant Portfolio Manager/Analyst, *Royce & Associates*, 2012-2016
Co-Portfolio Manager/Analyst, *Royce & Associates*, 2009-2012
Founding Partner/Portfolio Manager, *Rebus Partners*, 2008-2009
Portfolio Manager/Senior Analyst, *Cramer Rosenthal McGlynn, LLC*, 1999-2008
Analyst, *KPMG Peat Marwick*, 1994-1999
M.B.A., *The Stern School of Business, New York University*
B.A., International Relations, *University of Pennsylvania*

Anna K. Browning, CFA

Vice President/Research Analyst, *Axiom Investors*, 2019-Present
Director, Senior Equity Analyst, *Bank of America Merrill Lynch*, 2005-2019
Analyst, Investment Banking, *Citigroup*, 2003-2005
B.A., Economics, *cum laude*, *The Wharton School, University of Pennsylvania*

Steven Espinosa, CFA

Research Analyst, *Axiom Investors*, 2013-Present
Equity Research Analyst, *Neuberger Berman*, 2007-2013
Financial Advisor, *Merrill Lynch*, 2003-2005
Senior Banking Analyst, *JPMorgan*, 2000-2003
M.B.A., *The Stern School of Business, New York University*
B.S., Business Administration, *University of California, Berkeley*

Tyler Gaylord

Vice President/Research Analyst, *Axiom Investors*, 2012-Present
Equity Research Analyst, *Fidelity Management and Research*, 2006-2012
Fund Accountant, *Bank of New York*, 2002-2004
M.B.A., *The Stern School of Business, New York University*
B.S., Business Administration, *cum laude*, *University of Colorado*

Alexander Harrison

Research Analyst, *Axiom Investors*, 2014-Present
Vice President, Sector Analyst, *Blackrock Inc.*, 2010-2014
Vice President, Sector Analyst, *Nomura Asset Management*, 2006-2009
Associate, Financial Analyst, *Goldman, Sachs & Co.*, 2000-2005
M.B.A., Finance & Economics, *Columbia Business School, Columbia University*
B.S., Industrial & Labor Relations, *Cornell University*

Alexis Kokolis, CFA

Research Analyst, *Axiom Investors*, 2015-Present
Equity Research Analyst, *Alpine Woods Capital Investors*, 2012-2015
Analyst, *Fayez Sarofim & Co.*, 2008-2010
Senior Associate, *Alvarez & Marsal*, 2005-2008
M.B.A., *Columbia Business School, Columbia University*
B.B.A., Finance and B.A., *Plan II Honors, University of Texas at Austin*

David Schneider, CFA

Vice President/Research Analyst, *Axiom Investors*, 2007-Present
Senior Associate, *PricewaterhouseCoopers LLC*, 2004-2006
B.S., Finance & International Business, *with honors, Penn State University*

Dean Bumbaca, CFA

Analyst, *Axiom Investors*, 2017-Present
Research Associate, *Axiom Investors*, 2012-2017
Trading Assistant, *Axiom Investors*, 2012
Operations Associate, *Axiom Investors*, 2010-2012
B.B.A., School of Business, *University of Wisconsin-Madison*

Michael Olsen, CFA

Analyst, *Axiom Investors*, 2017-Present
Research Associate, *Axiom Investors*, 2010-2017
Operations Associate, *Axiom Investors*, 2009-2010
B.S., Finance, *magna cum laude, Fairfield University*

Other Investment Professionals



Christian Brandstetter

Research Associate, *Axiom Investors*, 2016-Present
Operations Associate, *Axiom Investors*, 2014-2016
Credit Rating Analyst, *The Bank of New York Mellon*, 2013-2014
B.A., Economics, *magna cum laude*, *Bucknell University*

Ronak Jain, CFA

Research Associate, *Axiom Investors*, 2018-Present
Research Associate, *Blackrock Inc.*, 2014-2017
PM Assistant, *Blackrock Inc.*, 2012-2014
Analytics Associate, *Blackrock Inc.*, 2009-2012
B.B.A., Finance & Investments, *Macaulay Honors College at Baruch College*

Aaron Lewis

Research Associate, *Axiom Investors*, 2019-Present
Equity Research Analyst, *State Street Global Advisors*, 2016 – 2019
Summer Analyst, *General Electric Asset Management*, 2015
Summer Analyst, *Morgan Stanley Wealth Management*, 2014
B.S., Business Administration, *Georgetown University McDonough School of Business*

Kyle McDonald, CFA

Research Associate, *Axiom Investors*, 2019-Present
Operations Associate, *Axiom Investors*, 2013-2019
Finance Intern, *Attend Charity*, 2012
B.S., Finance & International Business, *cum laude*, *Villanova University*

Christian Yonkoski

Research Associate, *Axiom Investors*, 2019-Present
Equity Research Associate, *Piper Jaffray*, 2018 – 2019
Equity Research Summer Associate, *Piper Jaffray*, 2017 - 2017
B.S., Business, *University of Minnesota, Curtis L. Carlson School of Management*

Melinda Luc

Senior Vice President/Head Trader, *Axiom Investors*, 1998-Present
Head Trader, VP, *Newport Pacific Management*, 1994-1998
B.A./B.S., International Business & Finance, *American University*

Patrick Chute

Vice President/Trader, European Equities, *Axiom Investors*, 2006-Present
Auditor, *Ernst & Young*, 2004-2006
B.S., Accounting, *summa cum laude*, *Sacred Heart University*

Michael DeCarlo

Trader, Asian Equities, *Axiom Investors*, 2008-Present
Trader, Director of Operations, *North Sound Capital*, 2004-2008
Vice President, Equity Financing Services, *Morgan Stanley*, 1993-2004
M.B.A., Global Finance, *Fordham Graduate School of Business*
B.S., *University of Southern California*

Kenneth McCabe

Vice President/Trader, *Axiom Investors*, 2004-Present
VP, International Equities Trader, *Citigroup Global Markets*, 1997-2004
M.B.A., Finance, *University of Connecticut*
B.A., Finance, *Pace University*

Executive leadership



Andrew Jacobson, CFA

CEO/Chief Investment Officer, *Axiom Investors*, 1998-Present
Executive VP, Portfolio Manager, *Columbus Circle Investors*, 1993-1998
Business Analyst, *Booz Allen Hamilton*, 1989-1991
Analyst, *Apax Associates*, 1988-1989
M.B.A., with distinction, *The Wharton School, University of Pennsylvania*
A.B., Molecular Biology, cum laude, *Princeton University*

Bradley Amoils

Managing Director/Portfolio Manager, *Axiom Investors*, 2002-Present
VP, Portfolio Manager, *American Century*, 1997-2002
Equity Research Analyst, *OppenheimerFunds*, 1995-1997
M.B.A., *Columbia Business School, Columbia University*
B.Sc., M.D. equivalent, *University of the Witwatersrand Johannesburg*

Donald Miller

Chairman, *Axiom Investors*, 1998-Present
Chairman/CEO, *Thomson Advisory Group LP, Asset Management*, 1990-1993
Chairman, *Greylock Financial Inc., Private Equity*, 1986-1994
Chairman, *Christensen Boyles Corporation, Mining Services*, 1986-1994
Board of Directors, *RPM International Inc.*, 1972-2012
Board of Directors, *Huffy Corporation*, 1986-2002
Board of Directors, *Layne Christensen Company*, 1994-2012
Board of Directors, *PIMCO Advisors L.P.*, 1994-1997
M.B.A., *Harvard Business School*
B.S., *Cornell University*

Denise Zambardi, IACCP

Senior Vice President/Chief Compliance Officer, *Axiom Investors*, 2002-Present
CFO, *Red Wolf Capital*, 2000-2002
VP, Operations, *Greenwich Partners, LLC*, 1993-2000
IACCP Certified Compliance Professional
Certification in Human Resource Studies, *Cornell University*
B.B.A., Finance, *Iona College*

Kurt Polk, CFA

President, *Axiom Investors*, 2016-Present
COO/Head of Distribution, *Axiom Investors*, 2014-2016
CEO, *Rainier Investment Management, Inc.*, 2002-2013
Marketing Portfolio Manager, *Sirach Capital Management*, 1998-2002
Captain, *United States Air Force*, 1994-1998
M.B.A., Finance, *Saint Mary's University*
B.A., Economics & Business, *Virginia Military Institute*

Matthew Franco, CFA

Managing Director/Portfolio Manager, *Axiom Investors*, 1998-Present
Research Analyst, *Columbus Circle Investors*, 1997-1998
Research Analyst, *R.L. Renck & Co.*, 1996-1997
B.S., Finance, *summa cum laude*, *Saint John's University*

Christopher Lively, CFA

Managing Director/Portfolio Manager, *Axiom Investors*, 2008-Present
Portfolio Manager, *Clay Finlay*, 2006-2008
Portfolio Manager, *Legg Mason (formerly Citigroup)*, 2000-2006
Portfolio Manager and Analyst, *The Pioneer Group*, 1993-2000
M.B.A., *Anderson Graduate School of Management, UCLA*
M.S., Foreign Service, *Georgetown University*
B.A., East Asian Studies, cum laude, *Harvard University*

Edward Azimi

Chief Operating Officer, *Axiom Investors*, 2016-Present
Deputy Chief Operating Officer, *Axiom Investors*, 2015-2016
Managing Director, Operations, *Epoch Investment Partners, Inc.*, 2006-2015
Director of Operations, *Cramer Rosenthal McGlynn, LLC*, 2001-2006
Assistant Vice President, *Cramer Rosenthal McGlynn, LLC*, 1997-2001
M.B.A., magna cum laude, *Lubin School of Business, Pace University*
B.B.A., Finance, cum laude, *Pace University*

Operations & Compliance



Edward Azimi

Chief Operating Officer, *Axiom Investors*, 2016-Present
Deputy Chief Operating Officer, *Axiom Investors*, 2015-2016
Managing Director, Operations, *Epoch Investment Partners, Inc.*, 2006-2015
Director of Operations, *Cramer Rosenthal McGlynn, LLC*, 2001-2006
Assistant Vice President, *Cramer Rosenthal McGlynn, LLC*, 1997-2001
M.B.A., *magna cum laude*, *Lubin School of Business, Pace University*
B.B.A., Finance, *cum laude*, *Pace University*

Maureen McEvily

Head of Client Relations, *Axiom Investors*, 2014-Present
Senior Marketing Associate, *Axiom Investors*, 2014
Associate Director, Institutional Investments, *Artio Global Investors*, 2007-2013
AVP, Institutional Client Service, *BNY Asset Management*, 2002-2007
B.S., Marketing & Management Information Systems, *State University of NY at Albany*

Brian Forte

Performance Measurement/Analytics, *Axiom Investors*, 2015-Present
Vice President, *Neuberger Berman*, 2006-2015
Senior Associate, *Morgan Stanley*, 2003-2006
B.S., Finance, *Florida Atlantic University*

Stephanie Collura

Senior Associate, Client Relations, *Axiom Investors*, 2017-Present
Client Relations Associate, *Axiom Investors*, 2014-2017
Marketing Associate, *Axiom Investors*, 2011-2014
Marketing Analyst, *Sterling Stamos Capital Management LP*, 2008-2011
M.A., Museum Studies, *The Fashion Institute of Technology*
B.A., History, *magna cum laude*, *Western Connecticut State University*

Denise Zambardi, IACCP

Senior Vice President/Chief Compliance Officer, *Axiom Investors*, 2002-Present
CFO, *Red Wolf Capital*, 2000-2002
VP, Operations, *Greenwich Partners, LLC*, 1993-2000
IACCP Certified Compliance Professional
Certification in Human Resource Studies, *Cornell University*
B.B.A., Finance, *Iona College*

Marlyn Morris

Vice President of Operations, *Axiom Investors*, 2018-Present
Operations Manager, *Axiom Investors*, 2004-2018
Private Client Administrator, *Sanford C. Bernstein & Co.*, 2002-2004
B.S., Business & Technology, *University of Connecticut*

Michael Miley, IACCP, FRM

Vice President/Compliance Manager, *Axiom Investors*, 2019-Present
Compliance Manager, *Axiom Investors*, 2006-2019
Operations, *Legg Mason Asset Management*, 2005-2006
IACCP Certified Compliance Professional
FRM, Financial Risk Manager
B.S., Finance, *magna cum laude*, *University of New Hampshire*

Justin Waldman, CFA

Data Analytics Associate, *Axiom Investors*, 2017-Present
Analytics Consulting Manager, *FactSet*, 2016-2017
Portfolio Analytics Specialist, *FactSet*, 2014-2016
Investment Management Consultant, *FactSet*, 2011-2013
B.S., Finance and Marketing, *summa cum laude*, *Tulane University*

Operations & Compliance



Danielle Conti

Operations Associate, *Axiom Investors*, 2015-Present
Operations Supervisor, *Rockit Solutions, LLC*, 2011-2015
Operations Associate, *DKR Fusion Management*, 2010-2011
B.A., Finance, *Manhattanville College*

Gerard Fenn

Operations Associate, *Axiom International Investors*, 2018-Present
Business Associate, *ARGA Investment Management*, 2015-2018
Equity Trader, *Chimera Securities*, 2014-2015
B.S., Finance & Accounting, *University of Colorado*

Paul Fletcher

Operations Associate, *Axiom International Investors*, 2015-Present
Trading Operations Analyst, *Vision Financial Markets*, 2013-2015
Operations Associate, *Vision Financial Markets*, 2011-2013
B.S., Business & Technology, *University of Connecticut*

Effie Abbassi

Senior Application Support & Development Assoc., *Axiom Investors*, 2020-Present
Technical Lead/IT Manager, *Franklin Templeton Investments/K2 Advisors LLC*, 2011-2020
Senior Development Manager/Project Manager, *Infonic AG*, 2011
Senior Developer Consultant, *Centura Solutions, Inc.*, 2009-2010
NY Senior Systems Architect, *Tremont Group Holdings, Inc.*, 2004-2009
B.S., Computer Science, *Manhattan College*

Roni Rozenblat

Senior Application Support & Development Assoc., *Axiom Investors*, 2015-Present
Independent Consultant, *DINA Technologies Inc*, 2014-2015
Vice President – Team Leader, *LUX Fund Technology & Solutions, LLC*, 2013-2014
Head of IT, *Alpine Woods Capital Investors*, 2009-2013
Implementation Manager, *HBMJ Consulting LLC*, 2006-2009
Software Developer, *GlobeOp Financial Services*, 2003-2006
Software Developer, *International Securities Exchange*, 2001-2003
Certificate in iOS (iPad, iPhone) App Development, *New York University*
M.S., Management, Concentration: Information Management, *Polytechnic Institute of NYU*
B.S., Computer Science, *Polytechnic Institute of NYU*

Client Service & Marketing



Brian Bader

Senior VP/Client Service and Marketing, *Axiom Investors*, 2016-Present
Principal & Head of Sales, *Rainier Investment Management, Inc.*, 2007-2016
Senior VP, Head of Sub-Advisory and National Accounts, *US Trust*, 2003-2007
Director, Head of Sub-Advisory, *Deutsche Asset Management*, 1999-2003
VP, Business Manager for Equity Businesses, *Bankers Trust*, 1995-1999
Operations Manager, *Bankers Trust*, 1993-1999
Senior Consultant, *Price Waterhouse Management Consulting*, 1991-1993
Vice President, *Citibank*, 1987-1991
Manager, Mutual Fund Accountants, *Bradford Trust Company*, 1983-1987
B.S., Economics, *State University of NY at Albany*

Lindsay Chamberlain

Senior VP/Client Service and Marketing, *Axiom Investors*, 2013-Present
Director, Institutional Investments, *Artio Global Investors*, 2008-2013
Investor Relations, *JPMorgan*, 2007-2008
Sales Assistant, *Bank of America*, 2006-2007
Project Manager, *General Electric*, 2004-2006
B.S., Business Information Technology, *magna cum laude*, *Virginia Tech*

Steven Hanson

VP/Client Service and Marketing, *Axiom Investors*, 2015-Present
VP, Institutional Consultant Relations, *American Century*, 2013-2015
Director, Public Fund Services, *Lord Abbett & Company*, 2004-2012
M.B.A., *Raymond A. Mason School of Business, College of William & Mary*
B.S.B.A., Economics, *University of Central Florida*

Aaron Kelley, CFA

VP/Client Service and Marketing, *Axiom Investors*, 2020-Present
Executive Director, Business Development, *AQR Capital Management*, 2015-2020
Investment Specialist, Private Bank, *JPMorgan Asset Management*, 2013-2015
Product Management, *Pacific Investment Management Company*, 2012
Associate, *Mercer Investment Consulting*, 2009-2011
Analyst, *Mercer Investment Consulting*, 2006-2009
M.B.A., *University of Chicago*
B.A., Economics, *Morehouse College*

Kristen Troy

Marketing Manager, *Axiom Investors*, 2019-Present
Senior Associate, Marketing, *Axiom Investors*, 2017-2019
Marketing Associate, *Axiom Investors*, 2013-2017
Executive Assistant, *Axiom Investors*, 2012-2013
M.A., Teaching, *summa cum laude*, *Sacred Heart University*
B.S., Business Administration, *University of Connecticut*

Kahla Cooper

Marketing Associate, *Axiom Investors*, 2018-Present
Marketing Manager, *Alexander Group*, 2011-2018
Senior Marketing Manager, *US Reading Solutions*, 2009-2011
Account Executive, *The Dallas Morning News*, 2006-2008
Media Buyer, *SpotPlus*, 2004-2006
B.S., Communications, *University of Texas at Austin*

Max Klein

Marketing Associate, *Axiom Investors*, 2020-Present
Client Service Associate, *Palisades Hudson Financial Group*, 2017-2020
B.S., Business Administration, *Ithaca College*

Administration & Human Resources



Julie Rodriguez

Executive Assistant/Human Resources Assoc., *Axiom Investors*, 2017-Present

Executive Assistant, *Axiom Investors*, 2015-2017

Research Assistant, *JAT Capital Management*, 2014-2015

Junior Assistant, *Viking Global Investors*, 2011-2014

Certification in Human Resources Management, *Cornell University*

B.S., Allied Health Science, *University of Connecticut*

Larysa Tatarenko

Executive Assistant, *Axiom Investors*, 2019-Present

Executive and Personal Assistant, *Leeds Equity Advisors*, 2019

Partner/Personal Assistant and Business Manager, *R Squared Capital Management*, 2013-2018

Assistant Vice President and Portfolio Specialist, *Artio Global Investors*, 2007-2013

International Equity Trading Desk Assistant, *Julius Baer Investment Management*, 2005-2007

B.S., Mass Communication, *cum laude*, *Iona College*

Axiom International Equity Strategy investment performance disclosure International Equity Composite (Inception 07/01/96)



	Composite return (gross of fees)	Composite return (net of fees)	MSCI All Country World Ex USA Index	No. of accounts	Composite Market value (millions)	Total firm assets (millions)	% of firm assets (%)	Internal dispersion (%)	Composite 3-year standard deviation (%)	Benchmark 3-year standard deviation (%)
YTD 2020	18.50%	17.77%	-5.44%	7	1,876.9	15,812.1	11.87	N/A	17.11	16.00
2019	33.76%	32.66%	21.51%	7	1,715.6	13,458.1	12.75	N/A	12.99	11.34
2018	-16.34%	-17.05%	-14.20%	6	989.4	9,729.2	10.17	N/A	13.02	11.38
2017	35.25%	34.15%	27.19%	6	1,123.6	12,116.0	9.27	N/A	10.91	11.87
2016	-3.56%	-4.38%	4.50%	7	1,124.2	9,671.6	11.62	0.11	11.17	12.51
2015	1.21%	0.35%	-5.66%	7	1,402.2	8,704.3	16.11	0.20	11.25	12.13
2014	-2.76%	-3.58%	-3.87%	8	2,035.0	9,482.3	21.46	0.07	13.04	12.81
2013	32.03%	30.94%	15.29%	8	2,307.9	9,949.8	23.20	0.42	16.91	16.23
2012	13.92%	12.98%	16.83%	12	3,008.3	8,611.6	34.93	0.25	19.83	19.26
2011	-19.02%	-19.71%	-13.71%	15	4,691.0	10,161.2	46.17	0.37	22.90	22.71
2010	8.88%	7.98%	11.15%	18	7,451.5	13,827.6	53.89	0.37		

Fee schedule: First \$25 million: 0.85%; Balance: 0.75%

Firm Compliance Statement: Axiom International Investors LLC (the "Firm") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Axiom has been independently verified for the period September 1, 1998 to June 30, 2020. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The Axiom International Equity composite has been examined for the periods September 1, 1998 to June 30, 2020. The verification and performance examination reports are available upon request.

Definition of the Firm: The firm is currently defined for GIPS purposes as Axiom International Investors, LLC (the "Firm") is a registered investment advisor under the Investment Act of 1940.

Policies: Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. Past performance does not predict or guarantee future results.

Composite Description: The International Equity strategy (the "Composite") is designed for investors who seek to invest in a broadly diversified portfolio of international equities. Portfolios are invested in the full range of developed markets and may also invest in selected emerging markets. Currencies may be actively managed to reduce portfolio volatility. The Composite represents the performance of all Institutional international style fee-paying, discretionary equity accounts, regardless of asset size and comingled fund(s). The Composite was initiated and created in September 1998. For the periods from July 1, 1996 to August 31, 1998 (the "Prior Composite") was managed by Andrew Jacobson and current Axiom team members at Columbus Circle Investors ("Columbus"). A complete list of composite descriptions is available upon request.

Benchmark Description: The benchmark is the MSCI All Country World ex U.S. index, which is designed to measure the equity market performance of developed and emerging markets excluding the United States. The benchmark is calculated on a total return basis with net dividends reinvested, after the deduction of withholding taxes and is free float-adjusted market cap weighted and unmanaged. Prior to January 1, 2001, the benchmark was calculated on a total return basis not including tax credits. FX is based off London 4 P.M. close.

Significant Cash Flow Policy: Accounts with a cash flow greater than 20% of the portfolio market value are excluded for the month.

Reporting Currency: Valuations are computed and performance is reported in U.S. dollars. FX is based off NY 4 P.M. close.

Fees: Gross of fees returns are presented before management and custodial fees but after all trading expenses. Net of fees returns are calculated by deducting the highest fee from the monthly gross composite return which is expressed above in the stated fee schedule. Returns include the reinvestment of income. Performance is calculated net of withholding taxes on dividends.

Internal Dispersion: Internal dispersion is calculated using the asset-weighted standard deviation of annual gross returns of those portfolios that were in the composite for the entire year.

Annualized Standard Deviation: The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The standard deviation is not required for periods prior to 2011.

Axiom Global Equity Strategy

investment performance disclosure

Global Equity Composite (Inception 07/01/04)



	Composite return (gross of fees)	Composite return (net of fees)	MSCI All Country World Index	No. of accounts	Composite Market value (millions)	Total firm assets (millions)	% of firm assets (%)	Internal dispersion (%)	Composite 3-year standard deviation (%)	Benchmark 3-year standard deviation (%)
YTD 2020	19.32%	18.59%	1.37%	≤5	3,131.7	15,812.1	19.81	N/A	18.60	16.65
2019	32.43%	31.35%	26.60%	≤5	2,575.4	13,458.1	19.14	N/A	13.80	11.22
2018	-10.76%	-11.51%	-9.42%	≤5	1,535.5	9,729.2	15.78	N/A	12.88	10.48
2017	35.03%	33.97%	23.97%	≤5	1,853.3	12,116.0	15.30	N/A	10.96	10.36
2016	-0.82%	-1.61%	7.86%	9	2,829.8	9,671.6	29.26	0.24	11.26	11.06
2015	4.78%	3.95%	-2.36%	10	3,072.8	8,704.3	35.30	0.16	11.19	10.79
2014	1.67%	0.86%	4.16%	11	3,269.7	9,482.3	34.48	0.19	12.08	10.50
2013	27.86%	26.86%	22.80%	13	4,072.2	9,949.8	40.93	0.25	16.30	13.94
2012	19.68%	18.84%	16.13%	16	3,270.0	8,611.6	37.97	0.17	19.76	17.13
2011	-10.52%	-11.17%	-7.35%	19	3,568.0	10,161.2	35.11	0.06	20.98	20.59
2010	15.32%	14.37%	12.67%	18	4,636.3	13,827.6	33.53	0.15		

Fee schedule: First \$25 million: 0.80%; next \$50 million: 0.70%; next \$150 million: 0.60%; next \$250 million: 0.50%; Balance: 0.30%

Firm Compliance Statement: Axiom International Investors LLC (the "Firm") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Axiom has been independently verified for the period September 1, 1998 to June 30, 2020. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The Axiom Global Equity composite has been examined for the periods July 1, 2004 to June 30, 2020. The verification and performance examination reports are available upon request.

Definition of the Firm: The firm is currently defined for GIPS purposes as Axiom International Investors, LLC (the "Firm") is a registered investment advisor under the Investment Act of 1940.

Policies: Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. Past performance does not predict or guarantee future results.

Composite Description: The Global Equity strategy (the "Composite") is designed for investors who seek to invest in a broadly diversified portfolio of international equities. Portfolios are invested in companies located both in the United States and throughout the world. Currencies may be actively managed to reduce portfolio volatility. The Composite represents the performance of all institutional global style fee-paying, discretionary equity accounts, regardless of asset size and comingled fund(s). The Composite was initiated and created in July 2004. A complete list of composite descriptions is available upon request.

As of 9/30/20

Benchmark Description: The benchmark is the MSCI All Country World index, which is designed to measure the equity market performance of developed and emerging markets. The benchmark is calculated on a total return basis with net dividends reinvested, after the deduction of withholdings taxes and is free float-adjusted market cap weighted and unmanaged. FX is based off London 4 P.M. close.

Significant Cash Flow Policy: Accounts with a cash flow greater than 20% of the portfolio market value are excluded for the month.

Reporting Currency: Valuations are computed and performance is reported in U.S. dollars. FX is based off NY 4 P.M. close.

Fees: Gross of fees returns are presented before management and custodial fees but after all trading expenses. Net of fees returns are calculated by deducting the highest fee from the monthly gross composite return which is expressed above in the stated fee schedule. Returns include the reinvestment of income. Performance is calculated net of withholding taxes on dividends.

Internal Dispersion: Internal dispersion is calculated using the asset-weighted standard deviation of annual gross returns of those portfolios that were in the composite for the entire year. If 5 or less accounts, N/A is shown.

Annualized Standard Deviation: The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The standard deviation is not required for periods prior to 2011.

Axiom US Small Cap Equity Strategy

investment performance disclosure

US Small Cap Equity Composite – IPO Eligible (Inception 09/01/06)



	Composite return (gross of fees)	Composite return (net of fees)	Russell 2000 Growth Index	No. of accounts	Composite Market value (millions)	Total firm assets (millions)	% of firm assets (%)	Internal dispersion (%)	Composite 3-year standard deviation (%)	Benchmark 3-year standard deviation (%)
YTD 2020	23.93%	23.17%	3.88%	≤5	205.9	15,812.1	1.30	N/A	19.77	22.79
2019	30.87%	29.80%	28.48%	≤5	204.3	13,458.1	1.52	N/A	15.67	16.37
2018	-2.70%	-3.51%	-9.31%	≤5	208.0	9,729.2	2.14	N/A	15.73	16.46
2017	21.02%	20.04%	22.17%	≤5	363.1	12,116.0	3.00	N/A	12.56	14.59
2016	5.52%	4.68%	11.32%	≤5	282.4	9,671.6	2.92	N/A	14.23	16.67
2015	-2.73%	-3.50%	-1.38%	≤5	44.2	8,704.3	0.51	N/A	14.37	14.95
2014	1.11%	0.31%	5.60%	≤5	101.7	9,482.3	1.07	N/A	13.14	13.82
2013	54.36%	53.17%	43.30%	≤5	103.7	9,949.8	1.04	N/A	14.65	17.27
2012	10.26%	9.47%	14.59%	≤5	78.0	8,611.6	0.91	N/A	17.68	20.72
2011	5.82%	4.91%	-2.91%	≤5	1.9	10,161.2	0.02	N/A	20.31	24.31
2010	30.78%	29.50%	29.09%	≤5	1.8	13,827.6	0.01	N/A		

Fee schedule: First \$10 million: 0.80%; next \$15 million: 0.75%; Balance: 0.70%

Firm Compliance Statement: Axiom International Investors LLC (the "Firm") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Axiom has been independently verified for the period September 1, 1998 to June 30, 2020. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The Axiom US Small Cap Equity - IPO Eligible composite has been examined for the periods September 1, 2006 to June 30, 2020. The verification and performance examination reports are available upon request.

Definition of the Firm: The firm is currently defined for GIPS purposes as Axiom International Investors, LLC (the "Firm") is a registered investment advisor under the Investment Act of 1940.

Policies: Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. Past performance does not predict or guarantee future results.

Composite Description: The US Small Cap Equity - IPO Eligible strategy (the "Composite") is designed for investors who seek to invest in a broadly diversified portfolio of small cap equities. Portfolios are invested in smaller capitalization equity and equity-related securities in companies located within the United States. Currencies may be actively managed to reduce portfolio volatility. The Composite represents the performance of all Institutional small cap style fee-paying, discretionary equity accounts, regardless of asset size and comingled fund(s) that are eligible to invest in Initial Public Offerings. The Composite was initiated and created in September 2006. A complete list of composite descriptions is available upon request.

As of 9/30/20

Benchmark Description: The benchmark is the Russell 2000 Growth index, which is designed to measure the performance of the small cap growth segment of the U.S. equity universe. The benchmark is calculated on a total return basis and is free float-adjusted market cap weighted and unmanaged.

Significant Cash Flow Policy: Accounts with a cash flow greater than 20% of the portfolio market value are excluded for the month.

Reporting Currency: Valuations are computed and performance is reported in U.S. dollars.

Fees: Gross of fees returns are presented before management and custodial fees but after all trading expenses. Net of fees returns are calculated by deducting the highest fee from the monthly gross composite return which is expressed above in the stated fee schedule. Returns include the reinvestment of income.

Internal Dispersion: Internal dispersion is calculated using the asset-weighted standard deviation of annual gross returns of those portfolios that were in the composite for the entire year. If 5 or less accounts, N/A is shown.

Annualized Standard Deviation: The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The standard deviation is not required for periods prior to 2011.

Axiom Emerging Markets Equity Strategy

investment performance disclosure

Emerging Markets Equity Composite (Inception 08/01/07)



	Composite return (gross of fees)	Composite return (net of fees)	MSCI Emerging Markets Index	No. of accounts	Composite Market value (millions)	Total firm assets (millions)	% of firm assets (%)	Internal dispersion (%)	Composite 3-year standard deviation (%)	Benchmark 3-year standard deviation (%)
YTD 2020	8.83%	8.05%	-1.16%	18	6,672.6	15,812.1	42.20	N/A	19.02	18.67
2019	25.98%	24.79%	18.42%	18	6,180.6	13,458.1	45.93	0.31	14.46	14.17
2018	-15.76%	-16.59%	-14.58%	18	4,541.1	9,729.2	46.67	0.50	14.76	14.60
2017	42.57%	41.21%	37.28%	21	6,210.6	12,116.0	51.26	0.71	15.07	15.35
2016	9.30%	8.21%	11.19%	16	3,170.0	9,671.6	32.78	0.17	15.55	16.07
2015	-11.29%	-12.19%	-14.92%	16	2,571.7	8,704.3	29.54	0.29	13.96	14.06
2014	-0.26%	-1.26%	-2.19%	14	2,349.1	9,482.3	24.77	0.35	15.07	15.00
2013	4.30%	3.26%	-2.60%	8	1,444.2	9,949.8	14.52	0.30	19.37	19.04
2012	22.94%	21.74%	18.22%	8	1,271.3	8,611.6	14.76	0.03	21.98	21.50
2011	-17.48%	-18.31%	-18.42%	7	833.8	10,161.2	8.21	0.07	26.38	25.76
2010	27.34%	26.10%	18.88%	≤5	843.0	13,827.6	6.10	N/A		

Fee schedule: First \$25 million: 1.00%; next \$75 million: 0.90%; next \$25 million: 0.80%; next \$50 million: 0.70%; Balance: 0.60%

Firm Compliance Statement: Axiom International Investors LLC (the "Firm") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Axiom has been independently verified for the period September 1, 1998 to June 30, 2020. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The Axiom Emerging Markets Equity composite has been examined for the periods August 1, 2007 to June 30, 2020. The verification and performance examination reports are available upon request.

Definition of the Firm: The firm is currently defined for GIPS purposes as Axiom International Investors, LLC (the "Firm") is a registered investment advisor under the Investment Act of 1940.

Policies: Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. Past performance does not predict or guarantee future results.

Composite Description: The Emerging Markets Equity strategy (the "Composite") is designed for investors who seek to invest in a broadly diversified portfolio of emerging market equities. Portfolios are invested in the full range of global emerging markets. Currencies may be actively managed to reduce portfolio volatility. The Composite represents the performance of all institutional emerging markets style fee-paying, discretionary equity accounts, regardless of asset size and comingled fund(s). The Composite was initiated and created in August 2007. A complete list of composite descriptions is available upon request.

As of 9/30/20

Benchmark Description: The benchmark is the MSCI Emerging Markets index, which is designed to measure the equity market performance in the global emerging markets. The benchmark is calculated on a total return basis with net dividends reinvested, after the deduction of withholding taxes and is free float-adjusted market cap weighted and unmanaged. FX is based off London 4 P.M. close.

Significant Cash Flow Policy: Accounts with a cash flow greater than 20% of the portfolio market value are excluded for the month.

Reporting Currency: Valuations are computed and performance is reported in U.S. dollars. FX is based off NY 4 P.M. close.

Fees: Gross of fees returns are presented before management and custodial fees but after all trading expenses. Net of fees returns are calculated by deducting the highest fee from the monthly gross composite return which is expressed above in the stated fee schedule. Returns include the reinvestment of income. Performance is calculated net of withholding taxes on dividends.

Internal Dispersion: Internal dispersion is calculated using the asset-weighted standard deviation of annual gross returns of those portfolios that were in the composite for the entire year. If 5 or less accounts, N/A is shown.

Annualized Standard Deviation: The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The standard deviation is not required for periods prior to 2011.

Axiom International Small Cap Equity Strategy

investment performance disclosure

International Small Cap Equity Composite (Inception 01/01/14)



	Composite return (gross of fees)	Composite return (net of fees)	MSCI All Country World Ex USA Small Cap Index	No. of accounts	Composite Market value (millions)	Total firm assets (millions)	% of firm assets (%)	Internal dispersion (%)	Composite 3-year standard deviation (%)	Benchmark 3-year standard deviation (%)
YTD 2020	17.23%	16.40%	-3.64%	≤5	659.2	15,812.1	4.17	N/A	19.91	19.13
2019	34.82%	33.57%	22.42%	6	672.9	13,458.1	5.00	N/A	13.60	11.61
2018	-18.59%	-19.39%	-18.20%	≤5	389.8	9,729.2	4.01	N/A	14.77	12.34
2017	41.39%	40.09%	31.65%	≤5	334.7	12,116.0	2.76	N/A	12.11	11.53
2016	-0.67%	-1.65%	3.91%	≤5	227.0	9,671.6	2.35	N/A	12.53	12.31
2015	29.59%	28.35%	2.60%	≤5	19.8	8,704.3	0.23	N/A	N/A	N/A
2014	-1.48%	-2.47%	-4.03%	≤5	7.9	9,482.3	0.08	N/A	N/A	N/A

Fee schedule: First \$25 million: 0.95%; next \$75 million: 0.85%; Balance: 0.75%

Firm Compliance Statement: Axiom International Investors LLC (the "Firm") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Axiom has been independently verified for the period September 1, 1998 to June 30, 2020. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The Axiom International Small Cap Equity composite has been examined for the periods January 1, 2014 to June 30, 2020. The verification and performance examination reports are available upon request.

Definition of the Firm: The firm is currently defined for GIPS purposes as Axiom International Investors, LLC (the "Firm") is a registered investment advisor under the Investment Act of 1940.

Policies: Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. Past performance does not predict or guarantee future results.

Composite Description: The International Small Cap Equity strategy (the "Composite") is designed for investors who seek to invest in a broadly diversified portfolio of International small cap equities. Portfolios are invested in smaller capitalization international equity and international equity-related securities. Currencies may be actively managed to reduce portfolio volatility. The Composite represents the performance of all institutional international small cap style fee-paying, discretionary equity accounts, regardless of asset size and comingled fund(s). The Composite was initiated and created in January 2014. A complete list of composite descriptions is available upon request.

Benchmark Description: The benchmark is the MSCI All Country World ex U.S. Small Cap index, which is designed to measure the small cap equity market performance of developed and emerging markets excluding the United States. The benchmark is calculated on a total return basis with net dividends reinvested, after the deduction of withholding taxes and is free float-adjusted market cap weighted and unmanaged. FX is calculated using London 4 P.M. close.

Significant Cash Flow Policy: Accounts with a cash flow greater than 20% of the portfolio market value are excluded for the month effective September 30, 2017.

Reporting Currency: Valuations are computed and performance is reported in U.S. dollars. FX is based off NY 4 P.M. close.

Fees: Gross of fees returns are presented before management and custodial fees but after all trading expenses. Net of fees returns are calculated by deducting the highest fee from the monthly gross composite return which is expressed above in the stated fee schedule. Returns include the reinvestment of income. Performance is calculated net of withholding taxes on dividends.

Internal Dispersion: Internal dispersion is calculated using the asset-weighted standard deviation of annual gross returns of those portfolios that were in the composite for the entire year. If 5 or less accounts, N/A is shown.

Annualized Standard Deviation: The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The standard deviation is not required for periods prior to 2011. If less than 36 months, N/A is shown as the data is not statistically meaningful.

Axiom Emerging Markets World Equity Strategy

investment performance disclosure

Emerging Markets World Equity Composite (Inception 07/01/14)



	Composite return (gross of fees)	Composite return (net of fees)	MSCI Emerging Markets Index	No. of accounts	Composite Market value (millions)	Total firm assets (millions)	% of firm assets (%)	Internal dispersion (%)	Composite 3-year standard deviation (%)	Benchmark 3-year standard deviation (%)
YTD 2020	11.63%	10.84%	-1.16%	6	1,383.8	15,812.1	8.75	N/A	18.90	18.67
2019	25.67%	24.49%	18.42%	6	1,268.6	13,458.1	9.43	0.09	14.33	14.17
2018	-16.00%	-16.82%	-14.58%	≤5	1,118.5	9,729.2	11.50	N/A	14.42	14.60
2017	44.13%	42.76%	37.28%	≤5	221.6	12,116.0	1.83	N/A	13.87	15.35
2016	7.09%	6.07%	11.19%	≤5	87.1	9,671.6	0.90	N/A	N/A	N/A
2015	-7.83%	-8.73%	-14.92%	≤5	2.2	8,704.3	0.02	N/A	N/A	N/A
2014*	-5.89%	-6.37%	-7.84%	≤5	2.4	9,482.3	0.02	N/A	N/A	N/A

*Non-annualized partial period performance beginning 7/01/2014

Fee schedule: First \$25 million: 1.00%; next \$75 million: 0.90%; next \$25 million: 0.80%; next \$50 million: 0.70%; Balance: 0.60%

Firm compliance statement: Axiom International Investors LLC (the "Firm") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Axiom has been independently verified for the period September 1, 1998 to June 30, 2020. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The Axiom Emerging Markets World Equity composite has been examined for the periods July 1, 2014 to June 30, 2020. The verification and performance examination reports are available upon request.

Definition of the Firm: The firm is currently defined for GIPS purposes as Axiom International Investors, LLC (the "Firm") is a registered investment advisor under the Investment Act of 1940.

Policies: Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. Past performance does not predict or guarantee future results.

Composite Description: The Emerging Markets World Equity strategy (the "Composite") is designed for investors who seek to invest in a broadly diversified portfolio of emerging market equities. Portfolios are invested in the full range of global emerging markets within all capitalization sizes. Currencies may be actively managed to reduce portfolio volatility. The Composite represents the performance of all institutional emerging markets world style fee-paying, discretionary equity accounts, regardless of asset size. The Composite was initiated and created in July 2014. A complete list of composite descriptions is available upon request. As of September 30, 2016, the Emerging Markets All Cap strategy (the "Composite") has been renamed the Emerging Markets World Equity composite.

Benchmark Description: The benchmark is the MSCI Emerging Markets index, which is designed to measure the equity market performance in the global emerging markets. The benchmark is calculated on a total return basis with net dividends reinvested, after the deduction of withholding taxes and is free float-adjusted market cap weighted and unmanaged. FX is based off London 4 P.M. close.

Significant Cash Flow Policy: Accounts with a cash flow greater than 20% of the portfolio market value are excluded for the month effective July 31, 2018.

Reporting Currency: Valuations are computed and performance is reported in U.S. dollars. FX is based off NY 4 P.M. close.

Fees: Gross of fees returns are presented before management and custodial fees but after all trading expenses. Net of fees returns are calculated by deducting the highest fee from the monthly gross composite return which is expressed above in the stated fee schedule. Returns include the reinvestment of income. Performance is calculated net of withholding taxes on dividends.

Internal Dispersion: Internal dispersion is calculated using the asset-weighted standard deviation of annual gross returns of those portfolios that were in the composite for the entire year. If 5 or less accounts, N/A is shown.

Annualized Standard Deviation: The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The standard deviation is not required for periods prior to 2011. If less than 36 months, N/A is shown as the data is not statistically meaningful.

Axiom Concentrated Global Growth Equity Strategy

investment performance disclosure

Concentrated Global Growth Equity Composite (Inception 12/03/14)



	Composite return (gross of fees)	Composite return (net of fees)	MSCI All Country World Index	No. of accounts	Composite Market value (millions)	Total firm assets (millions)	% of firm assets (%)	Internal dispersion (%)	Composite 3-year standard deviation (%)	Benchmark 3-year standard deviation (%)
YTD 2020	24.85%	24.08%	1.37%	≤5	715.8	15,812.1	4.53	N/A	18.64	16.65
2019	38.49%	37.36%	26.60%	≤5	105.1	13,458.1	0.78	N/A	14.21	11.22
2018	-9.59%	-10.34%	-9.42%	≤5	135.1	9,729.2	1.39	N/A	13.33	10.48
2017	36.29%	35.43%	23.97%	≤5	153.4	12,116.0	1.27	N/A	11.11	10.36
2016	-3.09%	-3.46%	7.86%	≤5	43.1	9,671.6	0.45	N/A	N/A	N/A
2015	6.71%	6.27%	-2.36%	≤5	64.0	8,704.3	0.74	N/A	N/A	N/A
2014*	-1.23%	-1.26%	-1.55%	≤5	74.1	9,482.3	0.78	N/A	N/A	N/A

*Non-annualized partial period performance beginning 12/03/2014

Fee schedule: First \$25 million: 0.80%; next \$50 million: 0.70%; next \$150 million: 0.60%; next \$250 million: 0.50%; Balance: 0.30%

Firm Compliance Statement: Axiom International Investors LLC (the "Firm") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Axiom has been independently verified for the period September 1, 1998 to June 30, 2020. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The Axiom Concentrated Global Growth Equity composite has been examined for the periods December 3, 2014 to June 30, 2020. The verification and performance examination reports are available upon request.

Definition of the Firm: The firm is currently defined for GIPS purposes as Axiom International Investors, LLC (the "Firm") is a registered investment advisor under the Investment Act of 1940.

Policies: Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. Past performance does not predict or guarantee future results.

Composite Description: The Concentrated Global Growth Equity strategy (the "Composite") is designed for investors who seek to invest in a broadly diversified portfolio of international equities. Portfolios are invested in companies within the United States and throughout the world. Currencies may be actively managed to reduce portfolio volatility. The Composite represents the performance of all institutional concentrated global growth style fee-paying, discretionary equity accounts, regardless of asset size. The Composite was initiated and created in December 2014. A complete list of composite descriptions is available upon request.

Benchmark Description: The benchmark is the MSCI All Country World index, which is designed to measure the equity market performance of developed and emerging markets. The benchmark is calculated on a total return basis with net dividends reinvested, after the deduction of withholdings taxes and is free float-adjusted market cap weighted and unmanaged. FX is based off London 4 P.M. close.

Reporting Currency: Valuations are computed and performance is reported in U.S. dollars. FX is based off NY 4 P.M. close.

Fees: Gross of fees returns are presented before management and custodial fees but after all trading expenses. Net of fees returns are calculated by deducting the highest fee from the monthly gross composite return which is expressed above in the stated fee schedule. Prior to May 2017, actual fees were used to calculate net of fee performance. Returns include the reinvestment of income. Performance is calculated net of withholding taxes on dividends.

Internal Dispersion: Internal dispersion is calculated using the asset-weighted standard deviation of annual gross returns of those portfolios that were in the composite for the entire year. If 5 or less accounts, N/A is shown.

Annualized Standard Deviation: The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The standard deviation is not required for periods prior to 2011. If less than 36 months, N/A is shown as the data is not statistically meaningful.

Axiom International Opportunity Strategy

investment performance disclosure

International Opportunity Long/Short Composite (Inception 01/01/99)



	Composite return (gross of fees)	Composite return (net of fees)	MSCI All Country World Ex USA Index	No. of accounts	Composite Market value (millions)	Total firm assets (millions)	% of firm assets (%)	Internal dispersion (%)	Composite 3-year standard deviation (%)	Benchmark 3-year standard deviation (%)
YTD 2020	18.43%	15.78%	-5.44%	≤5	163.0	15,812.1	1.03	N/A	20.45	16.00
2019	37.50%	35.44%	21.51%	≤5	161.0	13,458.1	1.20	N/A	16.49	11.34
2018	-20.05%	-20.97%	-14.20%	≤5	126.3	9,729.2	1.30	N/A	16.43	11.38
2017	43.90%	40.79%	27.19%	≤5	164.7	12,116.0	1.36	N/A	14.02	11.87
2016	-7.04%	-7.94%	4.50%	≤5	130.4	9,671.6	1.35	N/A	14.85	12.51
2015	4.24%	3.23%	-5.66%	≤5	156.2	8,704.3	1.79	N/A	16.65	12.13
2014	-4.03%	-5.22%	-3.87%	≤5	157.5	9,482.3	1.66	N/A	16.77	12.81
2013	47.57%	45.87%	15.29%	≤5	182.1	9,949.8	1.83	N/A	19.06	16.23
2012	12.02%	10.44%	16.83%	≤5	132.6	8,611.6	1.54	N/A	23.76	19.26
2011	-23.74%	-24.78%	-13.71%	≤5	168.7	10,161.2	1.66	N/A	30.72	22.71
2010	7.83%	6.39%	11.15%	≤5	258.5	13,827.6	1.87	N/A		

Fee schedule: 1.00% Management Fee and 10% Incentive Fee

Firm compliance statement: Axiom International Investors LLC (the "Firm") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Axiom has been independently verified for the period September 1, 1998 to June 30, 2020. The verification reports are 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.

Definition of the firm: The firm is currently defined for GIPS purposes as Axiom International Investors, LLC (the "Firm") is a registered investment advisor under the Investment Act of 1940.

Policies: Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. Past performance does not predict or guarantee future results.

Composite description: The International Opportunity strategy (the "Composite") is designed for investors who seek to invest in a broadly diversified portfolio of international equities both long and short. Portfolios are invested in the full range of developed markets and may also invest in selected emerging markets. Currencies may be actively managed to reduce portfolio volatility. Modest levels of leverage may be used when deemed appropriate in declining markets. The Composite represents the performance of all institutional global style fee-paying, discretionary equity accounts, regardless of asset size and commingled fund(s). The Composite was initiated and created in January 1999. A complete list of composite descriptions is available upon request. As of September 1, 2016, the Composite includes both the International Opportunity and International Offshore Funds. Previously, only International Opportunity was included in the Composite.

As of 9/30/20

Benchmark Description: The benchmark is the MSCI All Country World ex US Index, which is designed to measure the equity market performance of developed and emerging markets excluding the United States. The benchmark is calculated on a total return basis with Net Dividends reinvested, after the deduction of withholding taxes and is free float-adjusted market cap weighted and unmanaged. Prior to January 1, 2001, the benchmark was calculated on a total return basis not including tax credits.

Reporting currency: Valuations are computed and performance is reported in US dollars. FX is based off NY 4 P.M. Close.

Fees: Gross of fees returns are presented before management and custodial fees but after all trading expenses. Net of fees returns are calculated by deducting the highest fee from the monthly gross composite return which is expressed above in the stated fee schedule along with incentive fees. Incentive Fees are applied when the fund reaches its High Water Mark and are calculated quarterly over the period its realized. Returns include the reinvestment of income. Performance is calculated net of withholding taxes on dividends.

Internal dispersion: Internal dispersion is calculated using the asset-weighted standard deviation of annual gross returns of those portfolios that were in the composite for the entire year. If 5 or less accounts, N/A is shown.

Annualized standard deviation: The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The standard deviation is not required for periods prior to 2011.

Axiom International Small/Micro Cap Opportunity Strategy

investment performance disclosure

International Small/Micro Cap Opportunity Long/Short Composite (Inception 09/01/04)



	Composite return (gross of fees)	Composite return (net of fees)	HFRX Equity Hedge Index	No. of accounts	Composite Market value (millions)	Total firm assets (millions)	% of firm assets (%)	Internal dispersion (%)	Composite 3-year standard deviation (%)	Benchmark 3-year standard deviation (%)
YTD 2020	9.47%	6.41%	-2.95%	≤5	98.1	15,812.1	0.62	N/A	14.29	8.64
2019	22.45%	19.60%	10.71%	≤5	103.5	13,458.1	0.77	N/A	9.86	5.43
2018	-7.99%	-10.60%	-9.42%	≤5	97.2	9,729.2	1.00	N/A	10.78	5.89
2017	30.51%	23.36%	9.98%	≤5	101.2	12,116.0	0.84	N/A	9.26	5.06
2016	0.56%	-2.19%	0.10%	≤5	88.7	9,671.6	0.92	N/A	9.72	5.37
2015	23.12%	17.64%	-2.33%	≤5	94.5	8,704.3	1.09	N/A	11.27	5.02
2014	3.83%	0.75%	1.42%	≤5	83.2	9,482.3	0.88	N/A	11.80	4.54
2013	22.47%	16.90%	11.14%	≤5	111.2	9,949.8	1.12	N/A	12.72	6.67
2012	24.61%	20.34%	4.81%	≤5	94.6	8,611.6	1.10	N/A	13.27	7.38
2011	-9.76%	-11.56%	-19.08%	≤5	117.7	10,161.2	1.16	N/A	13.20	8.16
2010	4.99%	2.72%	8.92%	≤5	141.1	13,827.6	1.02	N/A		

Fee schedule: 1.75% Management Fee and 20% Incentive Fee

Firm compliance statement: Axiom International Investors LLC (the "Firm") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Axiom has been independently verified for the period September 1, 1998 to June 30, 2020. The verification reports are 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.

Definition of the firm: The firm is currently defined for GIPS purposes as Axiom International Investors, LLC (the "Firm") is a registered investment advisor under the Investment Act of 1940.

Policies: Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request. Past performance does not predict or guarantee future results.

Composite description: The International Small/Micro Cap Opportunity strategy (the "Composite") is designed for investors who seek to invest in a broadly diversified portfolio of Small/Micro Capitalization stocks, both long and short. Portfolios are invested in the full range of developed markets outside the United States and may also invest in selected emerging markets. Currencies may be actively managed to reduce portfolio volatility. Modest levels of leverage may be used when deemed appropriate in declining markets. The Composite represents the performance of all institutional global style fee-paying, discretionary equity accounts, regardless of asset size and commingled fund(s). The Composite was initiated and created in September 2004. A complete list of composite descriptions is available upon request. Prior to January 1, 2018, the composite name was the International Micro Cap Strategy.

As of 9/30/20

Benchmark Description: The benchmark is the HFRX Equity Hedge which encompasses various equity hedge strategies, also known as long/short equity, that combine core long holdings of equities with short sales of stock, stock indices, related derivatives, or other financial instruments related to the equity markets. Net exposure of equity hedge portfolios may range anywhere from net long to net short depending on market conditions. It is constructed using robust filtering, monitoring and quantitative constituent selection process using the Hedge Fund Research database (HFR Database), an industry standard for hedge fund data. FX is based off London 4 P.M. close.

Reporting currency: Valuations are computed and performance is reported in US dollars. FX is based off NY 4 P.M. Close.

Fees: Gross of fees returns are presented before management and custodial fees but after all trading expenses. Net of fees returns are calculated by deducting the highest fee from the monthly gross composite return which is expressed above in the stated fee schedule along with incentive fees. Incentive Fees are applied when the fund reaches its High Water Mark and are calculated quarterly over the period its realized. Returns include the reinvestment of income. Performance is calculated net of withholding taxes on dividends.

Internal dispersion: Internal dispersion is calculated using the asset-weighted standard deviation of annual gross returns of those portfolios that were in the composite for the entire year. If 5 or less accounts, N/A is shown.

Annualized standard deviation: The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The standard deviation is not required for periods prior to 2011.

Axiom Global Small/Micro Cap Opportunity Strategy

investment performance disclosure

Global Small/Micro Cap Opportunity Long/Short Composite (Inception 02/01/07)



	Composite return (gross of fees)	Composite return (net of fees)	HFRX Equity Hedge Index	No. of accounts	Composite Market value (millions)	Total firm assets (millions)	% of firm assets (%)	Internal dispersion (%)	Composite 3-year standard deviation (%)	Benchmark 3-year standard deviation (%)
YTD 2020	9.45%	6.40%	-2.95%	≤5	36.5	15,812.1	0.23	N/A	14.73	8.64
2019	22.81%	19.80%	10.71%	≤5	36.8	13,458.1	0.27	N/A	10.04	5.43
2018	-7.45%	-10.08%	-9.42%	≤5	32.6	9,729.2	0.33	N/A	11.13	5.89
2017	32.25%	25.63%	9.98%	≤5	35.2	12,116.0	0.29	N/A	9.64	5.06
2016	1.30%	-1.58%	0.10%	≤5	31.4	9,671.6	0.32	N/A	10.24	5.37
2015	23.01%	17.85%	-2.33%	≤5	32.7	8,704.3	0.38	N/A	11.36	5.02
2014	1.60%	-1.25%	1.42%	≤5	32.9	9,482.3	0.35	N/A	11.95	4.54
2013	24.43%	18.79%	11.14%	≤5	35.7	9,949.8	0.36	N/A	13.33	6.67
2012	26.45%	22.12%	4.81%	≤5	21.6	8,611.6	0.25	N/A	14.89	7.38
2011	-10.24%	-12.18%	-19.08%	≤5	20.0	10,161.2	0.20	N/A	15.30	8.16
2010	4.90%	2.28%	8.92%	≤5	30.8	13,827.6	0.22	N/A		

Fee schedule: 1.75% Management Fee and 20% Incentive Fee

Firm compliance statement: Axiom International Investors LLC (the "Firm") claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Axiom has been independently verified for the period September 1, 1998 to June 30, 2020. The verification reports are 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.

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Columbia Emerging Markets Equity

A presentation for: Massachusetts Water Resources Authority Retirement System

December 17, 2020

Columbia Threadneedle Investments (Columbia Threadneedle) is the global brand name of the Columbia and Threadneedle group of companies.
Columbia Management Investment Advisers, LLC ("CMIA") is an investment adviser registered with the U.S. Securities and Exchange Commission. For purposes of compliance with the Global Investment Performance Standards (GIPS®), Columbia Management Investment Advisers, LLC has defined the institutional Firm as Columbia Management Investments, an operating division of Columbia Management Investment Advisers, LLC that offers investment management and related services to institutional clients.
All values are expressed in U.S. dollars unless otherwise noted.
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Presenters

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Organizational overview

Ameriprise Financial Inc.

Overview of business lines



**Asset management
business**



Ameriprise Trust Company

**Financial advisory
business**



**Insurance & annuities
business**



Key Facts

- Group assets under management and administration of US\$999 billion¹
- A Fortune 500[®] company
- S&P rating of A; Moody's A3²
- No.32 largest global asset management group³
- No.14 largest manager of long-term U.S. mutual funds⁴
- No.4 mutual fund advisory program in assets⁵

Source: Ameriprise Financial Inc. as of September 30, 2020, unless otherwise stated.

¹ Source: Ameriprise Financial Q3 2020 Statistical Supplement. Group AUM represents total assets under management and administration for all Ameriprise companies combined.

² Credit ratings are subjective opinions of the credit agency and not statements of fact, may become stale and are subject to change.

³ Source: Pensions & Investments/ Thinking Ahead Institute World 500: Worlds Largest Money Managers. October 19, 2020 issue. Data as of year end 2019. Based on combined AUM for all Ameriprise companies.

⁴ Source: ICI Complex Assets report, data through August 31, 2020

⁵ Source: Cerulli Associates, The Cerulli Edge U.S. Managed Accounts edition, through Q2 2020

Columbia Threadneedle

Breadth and depth of global resources

- Over 450 investment professionals* based in North America, Europe and Asia, managing US\$500.5 billion* of assets across developed and emerging market equities, fixed income, asset allocation solutions and alternatives.
- Managing the assets of the world's institutional clients, including sovereigns, public plans, corporations, Taft-Hartley, endowments and foundations.
- Broad mix of capabilities and a willingness to work in strategic partnership with clients on customized investment solutions.



Information as of September 30, 2020.

* Information is for all entities in the Columbia and Threadneedle group of companies. Total investment professionals includes additional professionals integral to the investment process including multi asset/alternatives, economists, client portfolio managers, and investment risk professionals.

¹ Multi-asset, alternatives and solutions investment professionals include those professionals dedicated to the firm's property, real estate and other alternative strategies managed by the firm which do not fit into the traditional definition of equity or fixed income.

² Other investment professionals includes executive level personnel, business analysts and other job responsibilities who do not fit into the market definition of PM, trader or analyst, but still contribute to the management of an investment strategy offered.

Equity Investment Professionals	197
Portfolio managers	102
Analysts	71
Traders	24
Fixed Income Investment Professionals	147
Portfolio managers	54
Analysts	71
Traders	22
Multi-Asset Alternatives & Solutions¹	50
Portfolio managers	19
Analysts	31
Total Investment Professionals	456
Portfolio managers	175
Analysts	179
Traders	49
Other Investment Professionals ²	53

Emerging Markets Resources

Emerging Markets Equity

As of September 30, 2020



Team structure and characteristics

- Global macro and thematic perspectives, combined with bottom-up fundamental stock selection
- Total emerging markets equity AUM (all strategies): \$5.4 billion¹
- Supported by additional resources:
 - Regional and global equity teams that manage non-developed market strategies including Asia Pacific, Latin America, India and China portfolios.
 - Global sector and industry research
 - 24-hour trade execution and market intelligence
 - Proprietary international quant model

Professional - Role	Sector Focus	Regional Focus	Location	Joined Industry	Joined Firm*
Dara White, CFA <i>Global Head of Emerging Markets</i>	Health Care / Financials / Utilities	Emerging Markets	Portland	1998	2006
Robert Cameron <i>Senior Portfolio Manager</i>	Consumer / Financials	Emerging Markets	Portland	1983	2008
Young Kim <i>Senior Portfolio Manager</i>	Technology / Communication services	Emerging Markets	Portland	2005	2011
Perry Vickery, CFA <i>Senior Portfolio Manager</i>	Industrials / Materials/ Energy	Emerging Markets	Boston	2006	2010
Derek Lin, CFA <i>Portfolio Manager</i>	Generalist	China	Portland	2006	2019

¹ Reflects the combined emerging markets equity (all strategies) assets under management for Columbia Management Investments (\$5.42 billion) and all entities in the Threadneedle group of companies (\$1,174 million). Due to intercompany sub advisory relationships, certain assets are included under more than one firm but are only reflected once in the combined AUM figure.

* Firm tenure for staff that joined Columbia Threadneedle Investments as part of an acquisition includes time at legacy firms. Certain team members may be employees of affiliates.

Additional Emerging Markets Equity resources

Professional	Sector Focus	Regional Focus	Location	Joined Industry	Joined Firm*
Latin America / Emerging Markets Team Members (UK-based)					
Ilan Furman <i>Portfolio Manager</i>	Technology / Financials / Utilities / Communication services	Latin America/ Emerging Markets	London	2004	2011
Cory Unal <i>Portfolio Analyst</i>	Industrials / Materials	Latin America/ Emerging Markets	London	2015	2016
Pacific Asia					
Daisuke Nomoto, CMA	Generalist	Asia, Japan	Boston	1993	2005
George Gosden	Information Technology / Utilities	Pacific / Asia	London	1994	2010
Soo Nam Ng, CFA	Generalist	Hong Kong / China / Australia	Singapore	1995	2013
Christine Seng, CFA	Generalist	Singapore / Australia	Singapore	1999	2013
Wee Jia Low	Generalist	Taiwan & Korea	Singapore	2010	2013
Jin Xu, CFA	Generalist	China	London	2005	2014
Jun Wei Yeo	Generalist	ASEAN	Singapore	2017	2019
International Quantitative					
Fred Copper, CFA	International Quantitative Equity	Global Equity	Boston	1990	2005
Peter Schroeder, CFA	International Quantitative Equity	Global Equity	Portland	1998	1998
Stuart Morrice	International Quantitative Equity	Global Equity	Portland	2013	2013
Responsible Investment					
Malcom A. (Mac) Ryerse	Responsible Investment/ESG	Global / Thematic	Minneapolis	2010	2010
Kyle Bergacker, CFA	Responsible Investment/ESG	Global / Thematic	Minneapolis	2008	2017
Global					
Natasha Ebtihadj, CFA	Generalist	Global Equity	London	2008	2008
Darren Powell, CFA	Generalist	Global Equity	London	2000	2016

* Firm tenure for staff that joined Columbia Threadneedle Investments as part of an acquisition includes time at legacy firms. Certain team members may be employees of affiliates. As of September 30, 2020.

Emerging Markets Equity strategies

AUM as of September 30, 2020

Our emerging markets equity strategies:

- All strategies are managed by the same team, led by Dara White, CFA.
- They are variants of the same strategy, using the same investment philosophy and core process.
- Columbia Emerging Markets Equity (EME) is our broader strategy; Columbia Emerging Markets Opportunity (EMO) is a more concentrated version; and Columbia Emerging Markets ESG (EM ESG) has mandated positive ESG tilts.

Strategy name	Strategy inception	AUM	Style emphasis	Number of holdings	Expected tracking error	Annual portfolio turnover	Company weights	Sector weights	Country weights
Columbia Emerging Markets Equity	March 2008	\$2.28B	Bottom-up, diversified, core	100 - 160	2% - 6%	35% - 100%	+/-200 bps	+/-1000 bps	+/-1000 bps

Source: Columbia Management Investments

Portfolio parameters are internal guidelines used by the investment team and are subject to change without notice. Formal investment parameters are set forth in the offering documents or investment management agreement.



Columbia Emerging Markets Equity Philosophy and process

Columbia Emerging Markets Equity

Investment philosophy

Bottom-up stock selection



We believe bottom-up stock selection is as important as top-down macro analysis because the number of investable emerging markets stocks has increased dramatically over the last decade.

Stewards of capital



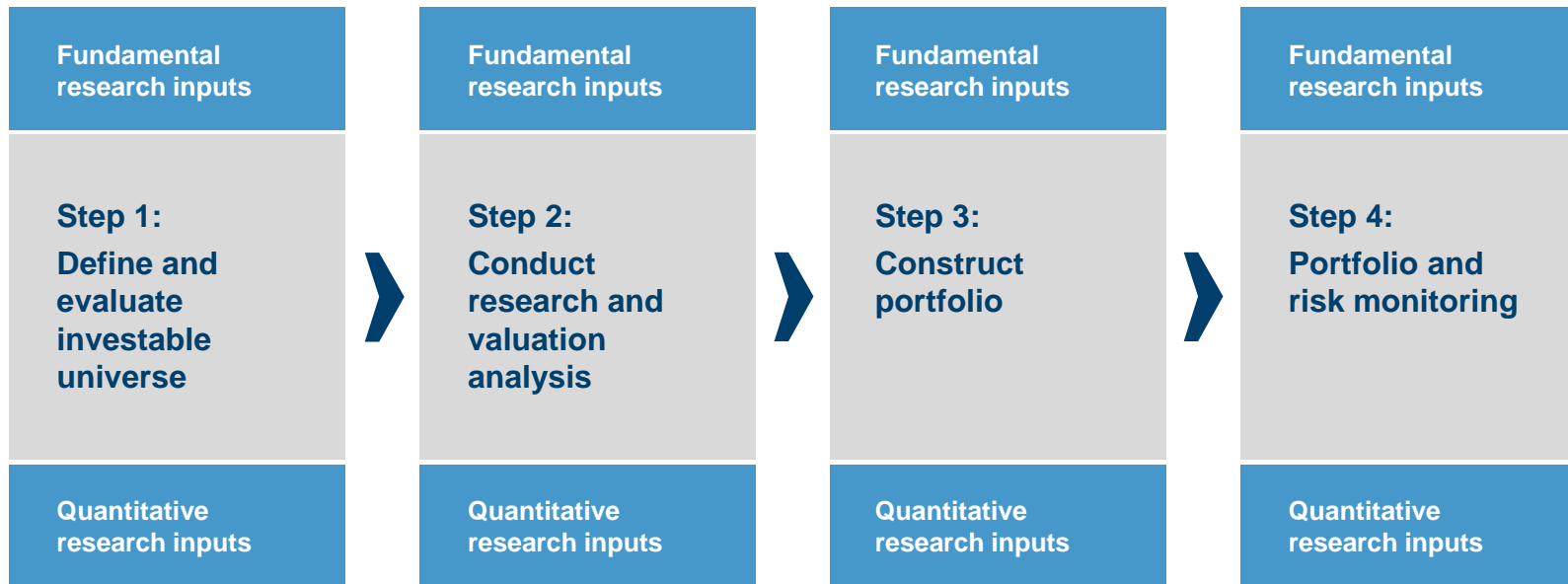
We believe “stewards of capital” – companies that know how to sustain and accelerate profitable growth – are best positioned to realize the immense growth potential created by the under-penetration of many emerging-markets industries.

Multiple sources of alpha

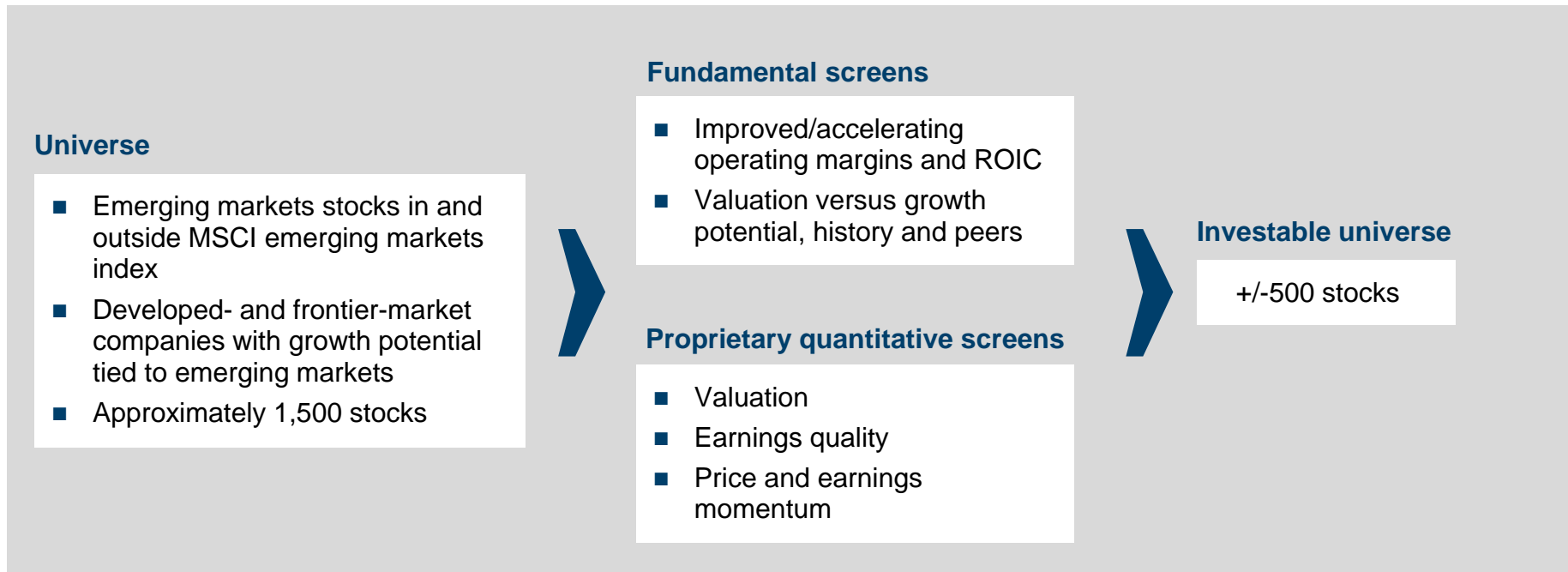


We believe evaluating stocks with a combination of fundamental and quantitative methods – analyzing multiple sources of alpha – is more effective than any single approach because it yields a more comprehensive understanding of factors that drive performance.

Columbia Emerging Markets Equity Process



Step 1: Define and evaluate investable universe

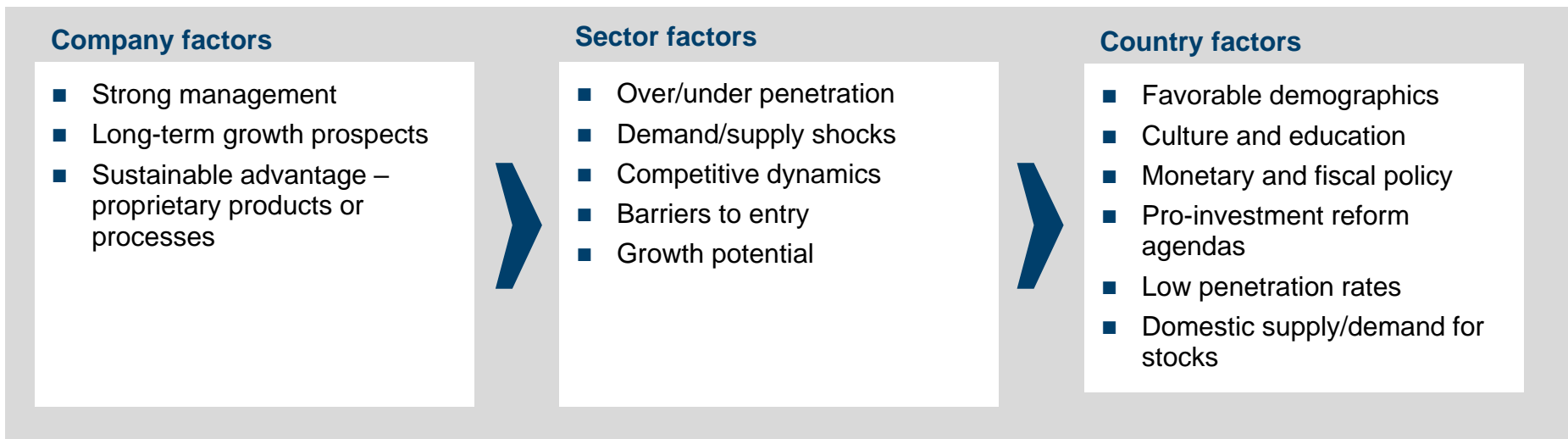


- “No unintended bets” – creating an informed view of the universe, through upside/downside price targets on:
 - All stocks in the portfolio
 - All stocks being considered for inclusion in the portfolio (includes all off-benchmark positions)
 - All benchmark positions weighted 25 basis points or greater – whether owned or not.

Step 2: Conduct research and valuation analysis



Fundamental research



- Bottom-up fundamental research drives process – top-down research provides macro backdrop to assess potential of strong bottom-up stories
- The goal is to have a “long/short” view of the universe to help calibrate favorable risk/reward balance
- The objective is to create upside/downside price targets on all stocks within the defined investment universe
- This process helps ensure high conviction level on all stocks owned

Step 2 (continued): Conduct research and valuation analysis



Proprietary quantitative research

Valuation

- Stocks trading at a discount to assessed intrinsic value

Earnings quality

- Metrics designed to measure shareholder friendly managements

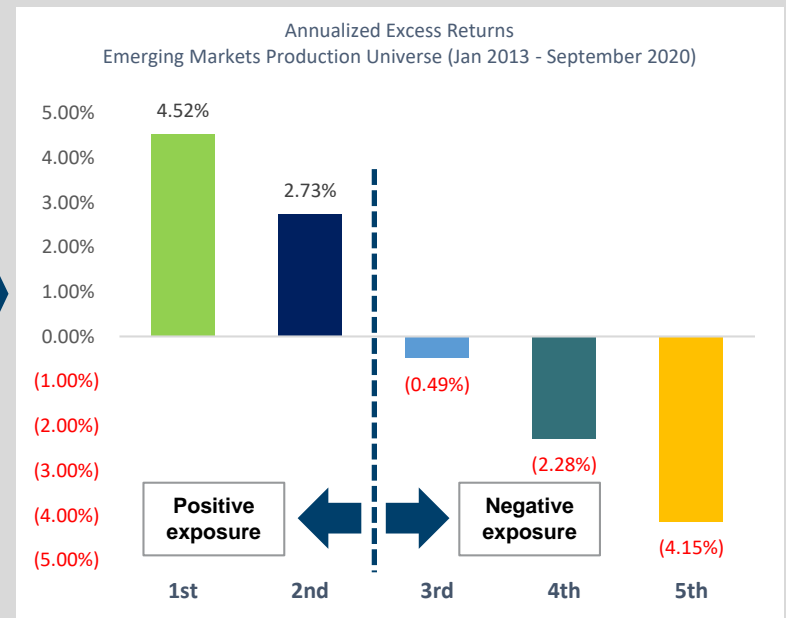
Price and earnings momentum

- Market recognition of mispricing

EM stocks ranked

- EM stocks with greatest potential to outperform ranked by quintile

Relative rankings



Source: Columbia Management Investment Advisers, LLC.

- Dedicated quantitative team using active proprietary models

Past performance is not a guarantee of future results.

Rankings of securities are based on internal attribution analysis from analyst recommendations. Stocks are ranked into quintiles monthly and USD returns are tracked for the following month. These securities may or may not be held in any managed portfolio. This chart is based on historical data for all securities ranked and is meant for illustrative purposes only. It does not represent the performance of any particular investment.

Step 2 (continued): Conduct research and valuation analysis



Proprietary ESG research

Financial Stewardship Model

- Academic models: focus on prudent, long-term financial governance
- Insight into whether governance is working in practice

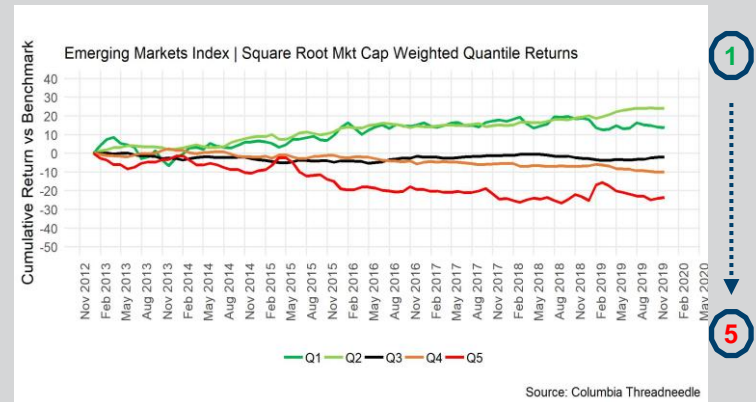
ESG Materiality Model

- SASB framework: material ESG factors (77 distinct industry models)
- Window into management focus & standards of operating practices



Columbia Threadneedle Investments Responsible Investment Rating: (1 – 5)

Columbia Threadneedle Investments ratings back-test



Back-test results: 6-month forward excess returns of stocks in the MSCI Emerging Market Index

- Dedicated Responsible Investment team using evidence based proprietary Financial Stewardship and ESG Materiality models quantitatively back tested

Source: Columbia Threadneedle Investments and Sustainability Accounting Standards Board (SASB®). Columbia Threadneedle Investments licenses and applies SASB®'s standards, classifications and framework in our research and assessment of securities. Chart coverage period January 1, 2013 to December 31, 2019 and is updated annually. Financial Stewardship Model and ESG Materiality Model data exists from a common period of January 2013. The Columbia Threadneedle Responsible Investment Rating Model ("Columbia Threadneedle RI Rating") data exists as of June 2017, data from that date forward represents live results. Data for prior periods was obtained by retroactively applying Columbia Threadneedle RI Ratings to historical data, with the benefit of hindsight. **Results for other periods may differ materially.** The Financial Stewardship and ESG Materiality models assess all securities in the MSCI Emerging Markets Index monthly and establish a quantitative rating of 1 (most aligned with sustainability factors) to 5 (least aligned with sustainability factors). The Columbia Threadneedle RI Rating represents the monthly average of the two ratings and is used to rank the securities of the universe into quintiles. Quintile excess return is measured against the median performance of all securities rated. **Past performance is not a guarantee of future results.** Research described is only one of several considerations in any investment process. This does not represent the performance of any particular investment product

Step 3: Portfolio construction



Risk budgeting

Parameters at time of purchase

Emerging Markets Equity

- Company: +/- 200 bps
- Sector: +/- 1000 bps
- Country: +/- 1000 bps



- Desktop risk-management tool – proprietary interface with Aladdin risk model
- Weekly meetings to monitor fundamental changes and risk/reward profiles
- Comprehensive picture of the risks in multiple dimensions, including exposures to countries, sectors, industry, size, momentum, valuation, etc.



Portfolio

Emerging Markets Equity

- 100-160 names
- Predicted tracking error: 2%–6%

- Company selection based on fundamental research and quantitative model scores
- Sector and country allocations based on economic/market outlook and valuation
- Foreign exchange risk managed by incorporating currency views in country weights
 - Portfolio typically unhedged
 - Team may hedge exposure versus benchmark if currency outlook varies from country allocation

Portfolio parameters are internal guidelines used by the investment team and are subject to change without notice. Formal investment parameters are set forth in the offering documents or investment management agreement.

Step 4: Portfolio and risk monitoring



Emerging Markets sell discipline

- Valuation no longer attractive
- Original thesis violated
- More attractive opportunity elsewhere
- Size position correctly after appreciation
- Price decline of 20% relative to purchase level triggers review or sale

Risk monitoring at the investment team level and by independent oversight teams

- The team's portfolio and risk monitoring process helps eliminate unintended risks, helps to promote consistently competitive returns and helps ensure portfolio alignment with portfolio manager conviction and style integrity
- The Investment Risk Management team seeks to ensure that portfolio risks taken are known, intended, and appropriate given stated investment objectives
- The "5P" Investment Consultancy and Oversight team employs a formalized process to determine that all investment teams are adhering to their stated investment philosophy and process

Columbia Emerging Markets Equity Performance and characteristics

Columbia Emerging Markets Equity portfolio characteristics

As of September 30, 2020

Fundamental Stats	Columbia Emerging Markets Equity	MSCI Emerging Markets Index Net
Price/Book(wtd avg)	3.54	1.69
P/E (wtd avg, trailing 12 months)	25.50	16.23
P/E (wtd avg, forward 12 months)	21.67	13.62
EPS Growth 3-5 Yr forward (wtd avg) (%)	19.09	14.91
Price to Sales (wtd avg)	3.17	1.29
Return on Equity (wtd avg)	17.81	15.45
Long Term Debt/Capital (wtd avg) (%)	18.33	19.24
Cash (%)	0.51	0.00
Number of Holdings	103	1,387

Top Holdings (% of net assets)	Columbia Emerging Markets Equity	MSCI Emerging Markets Index Net
Alibaba Grp Holding-Sp ADR	9.96	8.67
Tencent Holdings	8.02	5.94
Taiwan Semiconductor Manufacturing	5.90	5.78
Samsung Electronics	4.13	3.73
Reliance Industries	2.72	1.36
Yandex NV-A	2.34	0.00
JD.Com	2.05	1.04
SK Hynix	1.73	0.62
WuXi Biologics Cayman	1.58	0.39
LI Ning	1.51	0.15
Total	39.93	27.67

Market Cap Characteristics	Columbia Emerging Markets Equity	MSCI Emerging Markets Index Net
Market Cap (wtd avg. mil\$)	\$195,274	\$172,072
Market Cap (wtd median, mil\$)	\$34,019	\$29,723
Market Cap Breakdown:	%	%
\$100b+	31.02	24.84
\$50b-\$100b	10.57	8.03
\$25b-\$50b	19.91	16.15
\$10b-\$25b	9.60	21.85
\$3b-\$10b	21.37	22.93
\$0b-\$3b	7.53	6.20

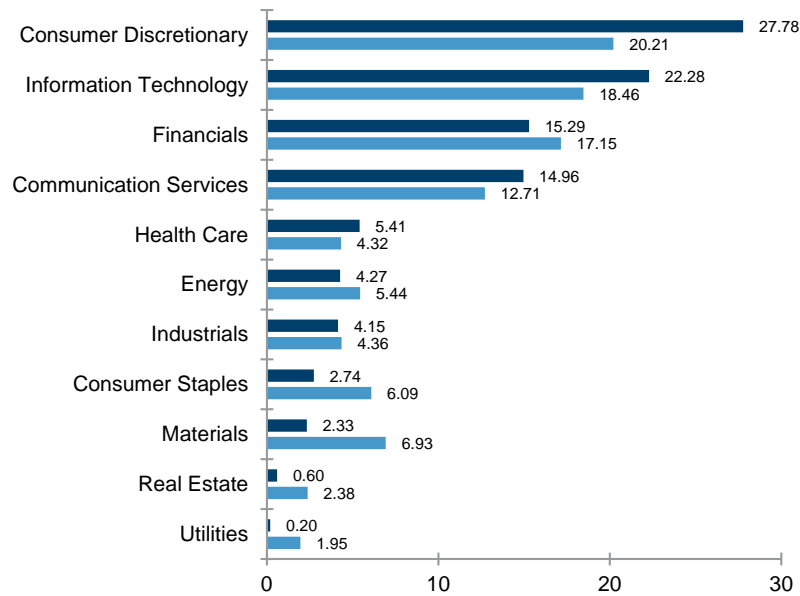
Sources: Columbia Management Investments and FactSet Research Systems.

Portfolio characteristics are as of the date given and are subject to change at any time. Characteristics are calculated by FactSet using data from Compustat. Statistics should not be used for comparative purposes against actual statistics as published by Morgan Stanley.

Columbia Emerging Markets Equity portfolio characteristics

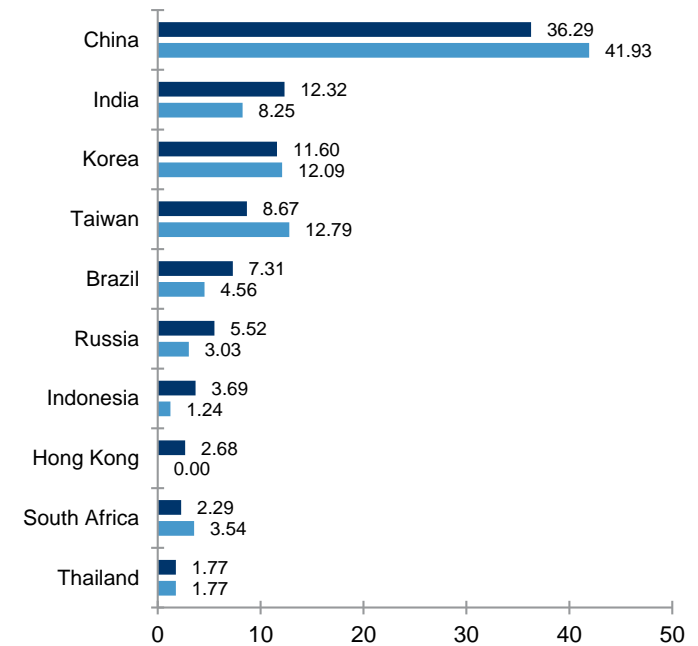
As of September 30, 2020

Sector weightings (%)



■ Columbia Emerging Markets Equity ■ MSCI Emerging Markets Index Net

Country weightings (%)



■ Columbia Emerging Markets Equity ■ MSCI Emerging Markets Index Net

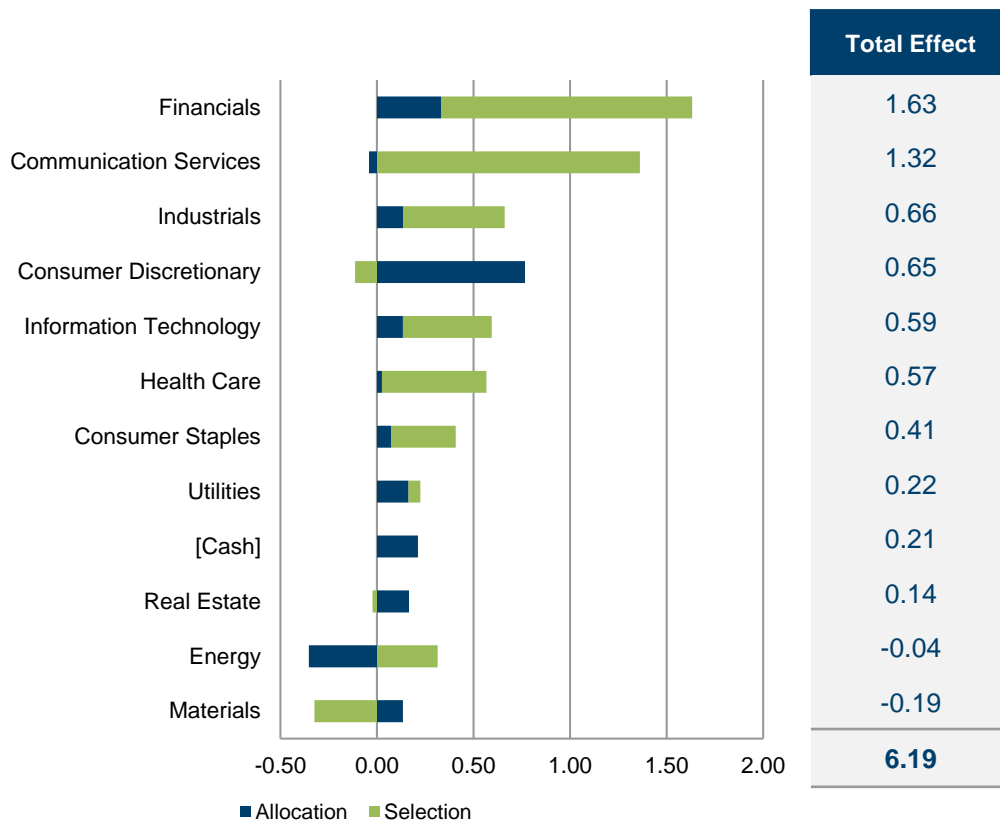
Sources: Columbia Management Investments and FactSet Research Systems.

Characteristics are calculated by FactSet Research systems. The portfolio characteristics and holdings shown here reflect a representative portfolio and are subject to change at any time.

Three-Year Attribution and One-Year Contribution* Columbia Emerging Markets Equity vs. MSCI Emerging Markets Index Net as of September 30, 2020

Top 10 Contributors	Contribution to Return (%)	Ending Weight (%)
Alibaba Group Holding-Sp Adr	5.67	10.03
Tencent Holdings Ltd	4.70	7.89
Taiwan Semiconductor Manufac	3.17	5.87
Jd.Com Inc-Adr	1.60	2.07
Reliance Industries Ltd	1.52	2.73
Yandex Nv-A	1.52	2.36
Wuxi Biologics Cayman Inc	1.44	1.58
Sea Ltd-Adr	1.07	0.83
Tal Education Group- Adr	1.06	1.30
Mediatek Inc	0.96	1.28

Top 10 Detractors	Contribution to Return (%)	Ending Weight (%)
Petroleo Brasileiro-Spon Adr	-1.17	0.00
Bk Brasil Operacao E Assesso	-1.13	0.34
Itau Unibanco H-Spon Prf Adr	-0.96	0.39
Azul Sa	-0.65	0.64
Otp Bank Plc	-0.63	1.09
Ayala Land Inc	-0.61	0.60
Irb Brasil Resseguros Sa	-0.60	0.00
Hdfc Bank Ltd-Adr	-0.59	1.24
Grupo Financiero Banorte-O	-0.58	0.00
Bank Rakyat Indonesia Perser	-0.58	1.24



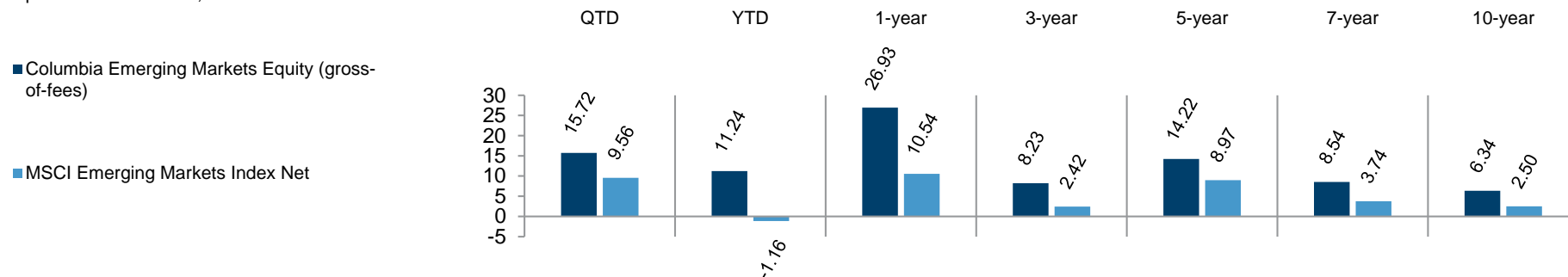
Sources: Columbia Management Investments and FactSet Research Systems. FactSet uses time-weighted returns to measure performance by calculating security weights and returns on a daily basis for periods when holdings change, then geometrically links the daily returns across the measurement period. This method for calculating a portfolio's return ensures that changes in the composition of the portfolio are captured and removes the impact that the timing of cash flows has on portfolio performance. The portfolio holdings shown here reflect a representative portfolio and are subject to change at any time. The portfolio holdings of your account may differ from those shown. Holdings identified do not represent all of securities purchased, sold, or recommended for advisory clients. Securities listed may not have been held for the entire period shown. For an explanation of calculation methodology and/or a list showing the contribution of each holding in the representative account to performance for the period, please contact your client relationship manager.

Past performance is no guarantee of future results.

Columbia Emerging Markets Equity Composite performance

Gross average annual total return (%) as of September 30, 2020 (USD)

Inception Date: March 31, 2008



eVestment eA Emerging Mkts All Cap Core Equity percentile rank*	1-year	3-year	5-year	7-year	10-year
Columbia Emerging Markets Equity Composite	3	10	10	7	5
MSCI Emerging Markets Index Net	43	55	59	71	82
No. observations in eVestment eA Emerging Mkts All Cap Core Equity peer group	162	154	142	127	82

Gross calendar year returns (%)	2019	2018	2017	2016	2015
Columbia Emerging Markets Equity (gross-of-fees)	32.68	-20.37	48.17	6.32	-7.89
MSCI Emerging Markets Index Net	18.42	-14.57	37.28	11.19	-14.92
eVestment eA Emerging Mkts All Cap Core Equity percentile rank*					
Columbia Emerging Markets Equity Composite	4	95	6	82	15
MSCI Emerging Markets Index Net	67	47	57	44	78
No. observations in eVestment eA Emerging Mkts All Cap Core Equity peer group	185	189	196	200	193

* The above table shows where the benchmark would fall if it were ranked within the peer group

Source: Columbia Management Investments, eVestment.

Past performance is not a guarantee of future results.

Returns for less than one year are not annualized. The investment results represent historical gross performance with no deduction for investment management fees and assume reinvestment of distributions. Expenses that may include management fees will reduce individual returns. As fees are deducted quarterly, the compounding effect will be to increase the impact of fees by an amount directly related to the gross account performance. **Please refer to the composite disclosure in the Appendix, which is an integral part of this presentation, for additional performance information.**

Columbia Emerging Markets Equity Composite performance

Gross calendar year returns (%) through 2019

	Columbia Emerging Markets Equity	MSCI Emerging Markets Index Net	Relative return
2019	32.68	18.42	14.26
2018	-20.37	-14.57	-5.81
2017	48.17	37.28	10.89
2016	6.32	11.19	-4.87
2015	-7.89	-14.92	7.03
2014	-0.73	-2.19	1.46
2013	-0.03	-2.60	2.57
2012	24.81	18.22	6.59
2011	-17.53	-18.42	0.89
2010	21.17	18.88	2.29
2009	81.87	78.51	3.36
2008*	-49.59	-47.57	-2.02

*For the period March 31, 2008 through December 31, 2008

Inception date: March 31, 2008

Source: Columbia Management Investments

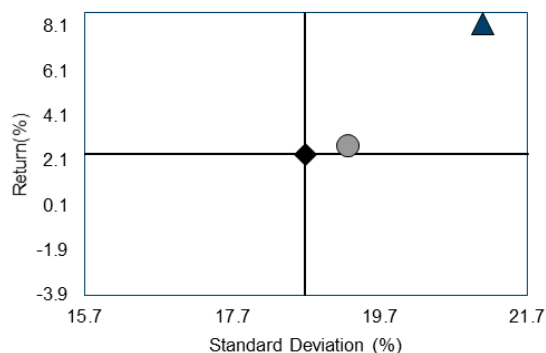
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The investment results represent historical gross performance with no deduction for investment management fees and assume reinvestment of distributions. Expenses that may include management fees will reduce individual returns. As fees are deducted quarterly, the compounding effect will be to increase the impact of fees by an amount directly related to the gross account performance. **Please refer to the composite disclosure in the Appendix, which is an integral part of this presentation, for additional performance information.**

Columbia Emerging Markets Equity Composite

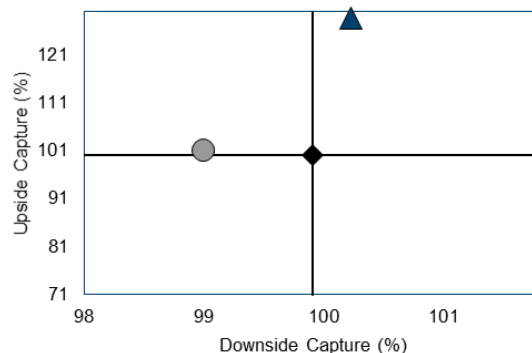
Three-year period ending September 30, 2020

Risk/Return



- ▲ Columbia Emerging Markets Equity Composite
- eA Emerging Mkts All Cap Core Equity
- ◆ MSCI Emerging Markets Index Net

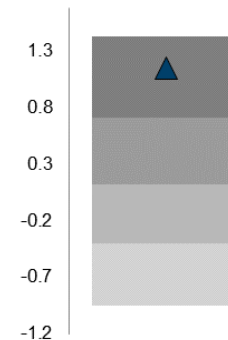
Up/Down Market Capture



- ▲ Columbia Emerging Markets Equity Composite
- eA Emerging Mkts All Cap Core Equity
- ◆ MSCI Emerging Markets Index Net

Information Ratio

eA Emerging Mkts All Cap Core Equity



5th Percentile	1.41
25th Percentile	0.69
50th Percentile	0.10
75th Percentile	-0.42
95th Percentile	-0.96

- ▲ Columbia Emerging Markets Equity Composite

Observations 154

	Annualized Return (%)	Std Dev (%)	Tracking Error (%)	Information Ratio	Alpha	Beta	R ²	Sharpe Ratio
Columbia Emerging Markets Equity Composite	8.23	21.08	5.13	1.13	5.96	1.10	0.95	0.31
eA Emerging Mkts All Cap Core Equity	2.79	19.25	4.12	0.10	0.04	1.01	0.96	0.06
MSCI Emerging Markets Index Net	2.42	18.67	-	-	-	-	-	0.04

Sources: Columbia Management Investments and eVestment.

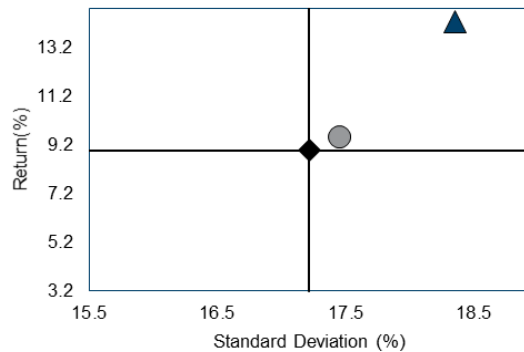
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The investment results represent historical gross performance with no deduction for investment management fees and assume reinvestment of distributions. Expenses that may include management fees will reduce individual returns. As fees are deducted quarterly, the compounding effect will be to increase the impact of fees by an amount directly related to the gross account performance. **Please refer to the composite disclosure in the Appendix, which is an integral part of this presentation, for additional performance information.**

Columbia Emerging Markets Equity Composite

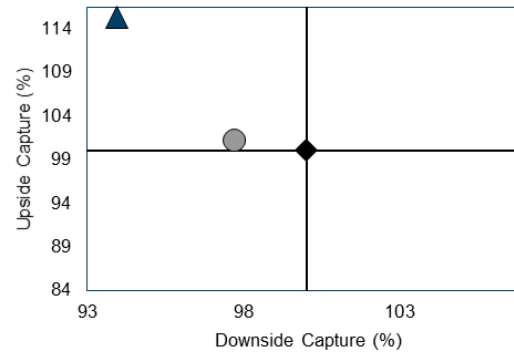
Five-year period ending September 30, 2020

Risk/Return



- ▲ Columbia Emerging Markets Equity Composite
- eA Emerging Mkts All Cap Core Equity
- ◆ MSCI Emerging Markets Index Net

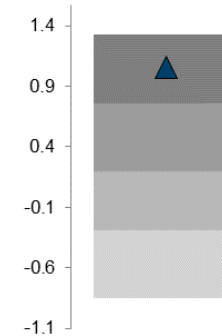
Up/Down Market Capture



- ▲ Columbia Emerging Markets Equity Composite
- eA Emerging Mkts All Cap Core Equity
- ◆ MSCI Emerging Markets Index Net

Information Ratio

eA Emerging Mkts All Cap Core Equity



- ▲ Columbia Emerging Markets Equity Composite

5th Percentile	1.29
25th Percentile	0.73
50th Percentile	0.16
75th Percentile	-0.32
95th Percentile	-0.88

Observations 142

	Annualized Return (%)	Std Dev (%)	Tracking Error (%)	Information Ratio	Alpha	Beta	R ²	Sharpe Ratio
Columbia Emerging Markets Equity Composite	14.22	18.35	5.13	1.02	4.86	1.02	0.92	0.71
eA Emerging Mkts All Cap Core Equity	9.52	17.45	4.20	0.16	0.06	0.99	0.95	0.48
MSCI Emerging Markets Index Net	8.97	17.21	-	-	-	-	-	0.45

Sources: Columbia Management Investments and eVestment.

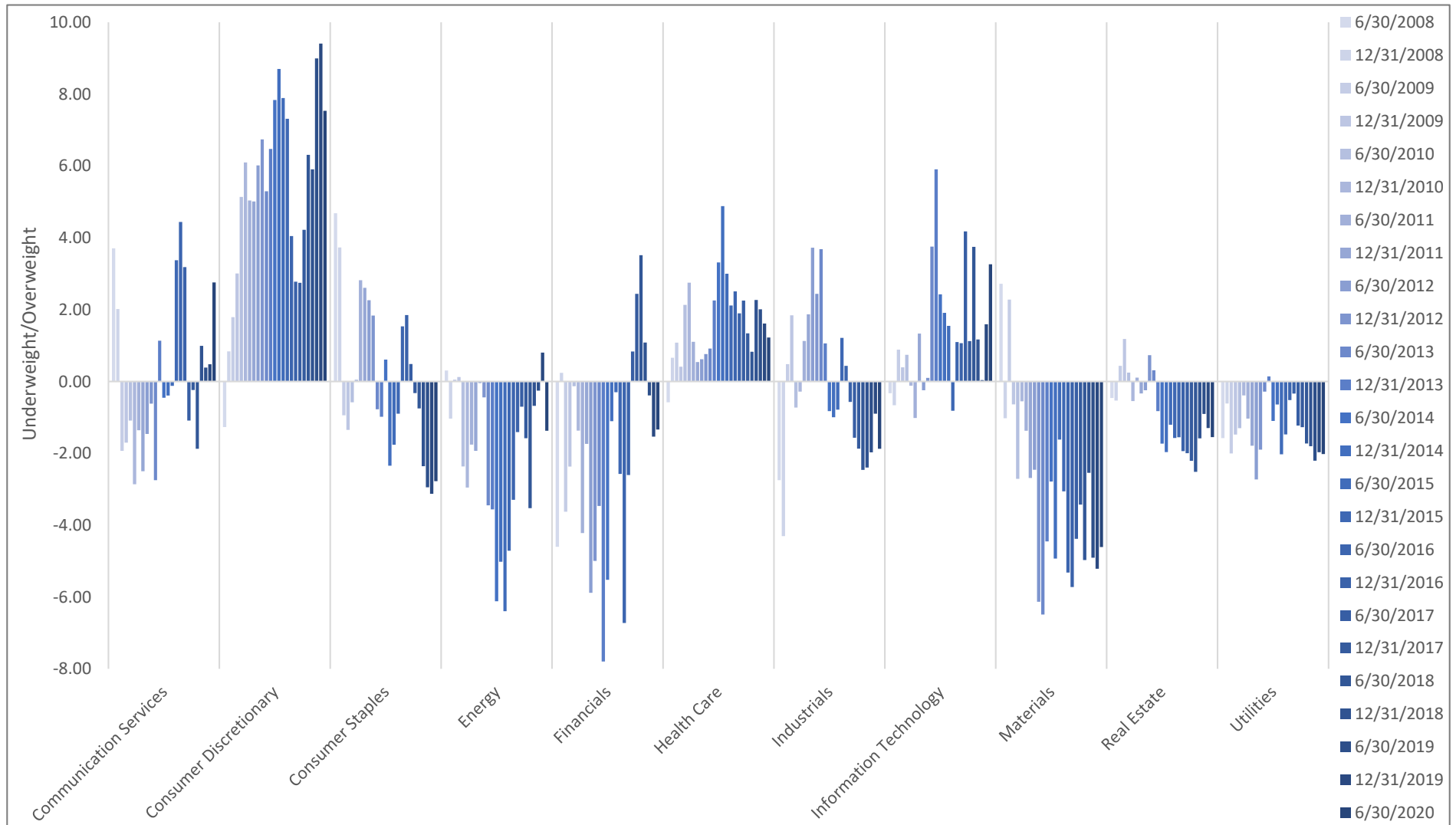
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Columbia Emerging Markets Equity

Historical sector weights relative to the benchmark

As of June 30, 2020

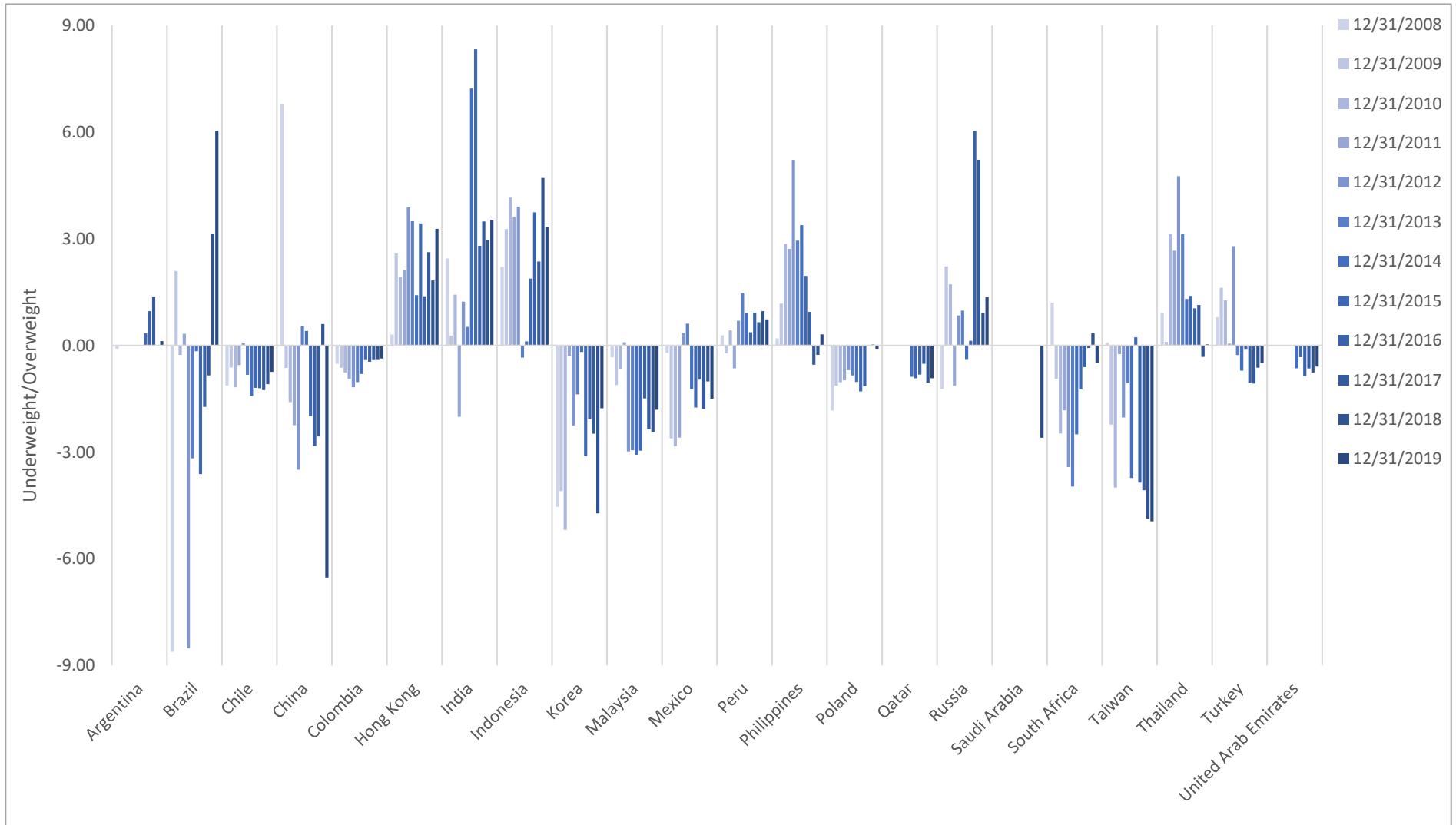


Sources: Factset and Columbia Management Investments.
This information is based on a representative account in the composite. Data updated semi-annually.

Columbia Emerging Markets Equity

Historical country weights relative to the benchmark

As of December 31, 2019



Sources: Factset and Columbia Management Investments.

This information is based on a representative account in the composite. Data updated annually.

Appendix

Proposed fee schedule

Columbia Trust Emerging Markets Equity Fund

Fees & Expenses	Minimum Investment	Trustee Fee	Other Expenses	Total Expense Ratio
Founders *	\$5 Million	0.50%	0.00%	0.50%

Account investment minimums and associated pricing applies to individual to plan sponsor assets the CIT fund.

Trustee fees relate to investment management and other trustee services provided by Ameriprise Trust Company to the fund.

Other fees are currently capped at 0.00%.

• Note that some of the strategies above are currently unfunded. We reserve the right to review the initial client funding request with the portfolio management team to ensure that it is sufficient scale to manage the strategy consistent with the Collective Investment Trust Fund's stated investment process and style.

These collective funds are Ameriprise Trust Company Collective Funds, which are maintained by Ameriprise Trust Company, a Minnesota-chartered trust company. The funds are subadvised by Columbia Management Investment Advisers, LLC.

Biographies

Dara J. White, CFA

Global Head of Emerging Markets Equity

Dara White is a senior portfolio manager and global head of Emerging Market Equities at Columbia Threadneedle Investments. He has acted as lead portfolio manager of Emerging Market equities since 2008. Mr. White joined one of the Columbia Threadneedle Investments legacy firms in 2006 as co-manager of the Strategic Investor team. Previously, Mr. White was a portfolio manager and analyst with RCM Global Investors. He has been a member of the investment community since 1998. Mr. White received a B.S. in Finance and Marketing from Boston College. He is a member of the CFA institute and the Security Analysts of San Francisco. In addition, he holds the Chartered Financial Analyst® designation.

Robert B. Cameron

Senior Portfolio Manager

Robert Cameron is a senior portfolio manager on the Emerging Markets Equity team at Columbia Threadneedle Investments and has held this position since joining one of the Columbia Threadneedle Investments legacy firms in 2008. Previously, Mr. Cameron was a senior portfolio manager with Cameron Global Investments LLC from 2000 to 2008, with RCM Global Investors from 2004 to 2005 and with Newport Pacific Management from 1996 to 2000. Prior to 1996, he was a director at UBS (formerly Swiss Bank) and Baring Securities Inc. He has been a member of the investment community since 1983. Mr. Cameron received a B.A. in Economics and Political Science from the University of Toronto.

Young Kim

Senior Portfolio Manager

Young Kim is a senior portfolio manager on the Emerging Markets Equity team at Columbia Threadneedle Investments. He joined one of the Columbia Threadneedle Investments firms in 2011. Previously, Mr. Kim served as a senior equity analyst at Marathon Asset Management and Galleon Asia Management and worked in various operating and engineering roles in the technology industry. He has been a member of the investment community since 2005. Mr. Kim received both a B.S. and M.S. in Engineering from Massachusetts Institute of Technology (M.I.T.) and an MBA from Harvard Business School.

Perry Vickery, CFA

Senior Portfolio Manager

Perry Vickery is a senior portfolio manager on the Emerging Markets Equity team at Columbia Threadneedle Investments. He joined one of the Columbia Threadneedle Investments firms in 2010. Previously, Mr. Vickery was an associate analyst with Artisan Partners and Morgan Keegan. He has been a member of the investment community since 2006. Mr. Vickery received a B.B.A. in Finance from the University of Georgia and an MBA in Finance and Marketing from the Kellogg School of Management. In addition, he holds the Chartered Financial Analyst® designation.

Biographies

Derek Lin, CFA

Portfolio Manager, Global Emerging Markets

Derek Lin is a portfolio manager and China specialist on the Global Emerging Market Equity team for Columbia Threadneedle Investments. He joined the firm in 2019. Mr. Lin most recently worked as a senior analyst at Yulan Capital, LLC Group and previously worked as an analyst at Surveyor Capital (Citadel, LLC.), Merchants' Gate Capital, LP and J.P. Morgan Securities. Mr. Lin brings over thirteen years of industry experience, including prior experience covering Chinese equities to the position. Mr. Lin has a Bachelor of Commerce degree from Queen's University and an MBA from the Wharton School, University of Pennsylvania. He is fluent in Mandarin and also holds the Chartered Financial Analyst® designation.

Ilan Furman

Portfolio Manager, Global Emerging Markets

Ilan Furman is a portfolio manager on the Global Emerging Markets Equity team at Columbia Threadneedle Investments. He joined the one of the Columbia Threadneedle Investments firms in 2011 as an analyst and is responsible for analyzing stocks and generating investment ideas in the financial, real estate, utilities and technology sectors. Previously, Mr. Furman worked as an investment manager at Pictet. He has also been employed at Deloitte as a consultant and at Oscar Gruss as a junior analyst. Mr. Furman received an economics degree from Ben Gurion University in Israel and an MBA from Imperial College in London.

Cory Unal

Portfolio Analyst

Cory Unal is a portfolio analyst on the Global Emerging Markets Equities team with responsibility for researching the industrials sector. He joined the company in 2015 as a graduate on the Investment 2020 programme before joining his current team in July 2016. Cory has a MS in Finance & Investment and a BS (Hons) in Physics from University College, Durham. He is also a CFA Level 2 candidate.

George Gosden

Senior Portfolio Manager, Pacific Asia

George Gosden is a senior portfolio manager at Columbia Threadneedle Investments. Mr. Gosden joined one of the Columbia Threadneedle Investments firms in 2010. He is currently the deputy head of Asia ex Japan and has research responsibility for the technology sector and the markets of Taiwan and Korea. He also manages a number of institutional portfolios. Previously, Mr. Gosden was a director at Insight Investment, where he managed retail and institutional funds for the Asia and international equity teams. He also managed Asia equities at Clerical Medical and Equitable Life. George received a B.A. in Economics and an M.A. in Economic Development and International Trade from the University of Nottingham.

Biographies

Soo Nam Ng, CFA

Head of Asia Equities (Asia)

Soo Nam Ng is head of Asian equities at Columbia Threadneedle Investments, based in Singapore. Mr. Ng is responsible for building the investment process in Singapore and expanding our offering for Asian investors. Currently he supports the team on research for stocks listed in Hong Kong and China. Mr. Ng joining one of the Columbia Threadneedle Investments firms in 2013. Mr. Ng has extensive experience in the industry. Previously, he was chief investment officer at Nikko Asset Management. Prior to that, he was chief investment officer at Mirae Asset Global Investment Management and a fund manager at Schroder Investment Management. He has been a member of the investment community since 1995. Mr. Ng received a degree in economics from the University of Adelaide in Australia. In addition, he holds the Chartered Financial Analyst® designation.

Christine Seng, CFA

Senior Portfolio Manager

Christine Seng is a senior portfolio manager for Columbia Threadneedle Investments responsible for portfolio construction for developed Asia mandates. Ms. Seng is also a specialist in total return equity products and supports the team on research for Singapore and Australia stocks. Ms. Seng joined one of the Columbia Threadneedle Investments firms in 2013. Previously, Ms. Seng was a portfolio manager at Nikko Asset Management. Prior to that she was a portfolio manager at Mirae Asset Global Investment Management and Phillip Securities. She has been a member of the investment community since 1999. Ms. Seng has a Business degree from Nanyang Technological University in Singapore and holds the Chartered Financial Analyst® designation.

Wee Jia Low

Portfolio Manager

Wee Jia Low is a portfolio manager at Columbia Threadneedle Investments. In this role Mr. Low is responsible for research coverage of Korea and Taiwan stocks, specifically those within the global sectors. Mr. Low joined one of the Columbia Threadneedle Investments firms in 2013. Previously, he was an equity analyst at Nikko Asset Management. He has been a member of the investment community since 2010. Mr. Low received a degree in economics from Nanyang Technological University in Singapore, graduating with first class honors.

Daisuke Nomoto, CMA (SAAJ)

Senior Portfolio Manager

Daisuke Nomoto is head of Japanese equities at Columbia Threadneedle Investments. Prior to his current role, he was a director and senior portfolio manager on the International Equity Team. Mr. Nomoto joined one of the Columbia Threadneedle Investments legacy firms in 2005. Previously, Mr. Nomoto worked as an equity analyst at Putnam Investments. Prior to that, he held a variety of positions for Nippon Life Insurance, including four years as a senior portfolio manager and equity analyst at Nissay Asset Management, Tokyo, and five years as an equity analyst with NLI International. Mr. Nomoto received a B.A. from Shiga University, Japan. He is a chartered member of the Security Analysts Association of Japan.

Biographies

Jin Xu, CFA

Portfolio Manager

Jin Xu joined Columbia Threadneedle Investments as a portfolio analyst in the Asian Equities Team. In this role Mr. Xu is responsible for researching Chinese companies across all sectors and market capitalizations. Mr. Xu joined one of the Columbia Threadneedle Investments firms in 2014. Previously, he spent three years at Universities Superannuation Scheme Investment Management where he worked closely with the portfolio management team as an equity analyst covering a range of sectors including consumers, autos, utilities and industrials. Prior to that he was a research analyst at Czarnikow Group with responsibility for analyzing global sugar trading companies, and a senior associate at PwC Beijing auditing listed Chinese companies. He has been a member of the industry since 2005. Mr. Xu received an M.A. in finance from London Business School. In addition, he holds the Chartered Financial Analyst® designation.

Fred Copper, CFA

Senior Portfolio Manager

Fred Copper is a senior portfolio manager on the International Equity Team for Columbia Threadneedle Investments. Mr. Copper joined one of the Columbia Threadneedle Investments legacy firms in 2005 as head of international equities. Previously, Mr. Copper was a senior vice president with Putnam Investments where he co-managed \$1.5 billion in international and global value portfolios, as well as serving as a lead manager for a small-cap value portfolio and as a member of the global value portfolio management team. Prior to that, Mr. Copper was an assistant vice president with Wellington Management Company. He has been a member of the investment community since 1990. Mr. Copper received a B.S. from Boston College and an MBA from the University of Chicago. In addition, he holds the Chartered Financial Analyst® designation.

Peter D. Schroeder, CFA

Senior Quantitative Analyst

Peter Schroeder is a senior quantitative analyst on the International Equity Team for Columbia Threadneedle Investments. Prior to his current role, Mr. Schroeder worked as a research analyst for both domestic and international portfolio managers. He joined one of the Columbia Threadneedle Investments legacy firms in 1998 and has been a member of the investment community since then. Mr. Schroeder received a B.S. in economics from Oregon State University. He holds the Chartered Financial Analyst® designation.

Stuart Morrice, CFA

Intermediate Quantitative Analyst, International Equity

Stuart Morrice is an intermediate quantitative analyst on the International Equity team for Columbia Threadneedle Investments. Prior to his current role, Mr. Morrice held positions in the software industry and in medical informatics research. He joined one of the Columbia Threadneedle Investments firms in 2013 and has been a member of the investment community since then. Mr. Morrice received a B.S. in mathematics from the University of Oregon Clark Honors College. In addition, he holds the Chartered Financial Analyst® designation.

Biographies

Krishan Selva, CFA

Client Portfolio Manager

Krishan Selva is a Client Portfolio Manager within the Global Emerging Markets Equities and Asia-Pacific ex-Japan Equities teams. In this role he is responsible for providing detailed information on the company's capabilities and investment views to existing and prospective clients as well as to consultants and other intermediaries. Krishan has been with the firm since 2011, originally joining the Performance department before spending the majority of his time within the Investment Analytics team. During this time he developed analytics reporting within the firm and rolled-out a new model portfolio system across the business. Prior to this, he has worked for State Street supporting investment teams at AXA Investment Management as well a period in private equity working at Pantheon Ventures. Krishan has a degree in Economics from SOAS, University of London. In addition, he holds the Chartered Financial Analyst® designation as well as the Investment Management Certificate.

Rich McCloskey, CFA

Vice President, Client Portfolio Manager

Rich McCloskey is vice president and client portfolio manager at Columbia Threadneedle Investments. In this role, Mr. McCloskey is responsible for providing detailed information on the capabilities and investment views to existing and prospective clients as well as to consultants and other intermediaries. Prior to joining the firm, Mr. McCloskey was a client portfolio manager at New Amsterdam Partners, a director of consultant relations at WestLB Asset Management and a consultant at Russell Investments. He has been a member of the industry since 1992. Mr. McCloskey received a B.A. in Economics from the University of Pennsylvania. In addition, he holds the Chartered Financial Analyst® designation.

William (Bill) Manthorne

U.S. Institutional Business Development

Bill Manthorne is a member of the Institutional Business Development team at Columbia Threadneedle Investments, with a focus on the Northeast region of the United States. Prior to joining Columbia Threadneedle Investments in 2017, he was a Strategic Relationship Manager at PanAgora Asset Management responsible for covering the U.S. and European institutional markets. Mr. Manthorne was previously SVP, Institutional Sales at GE Asset Management covering the U.S. institutional and intermediary channels. Bill also spent five years as SVP Institutional Sales at BNY Mellon Asset Management and before that at NATIXIS Asset Management responsible for intermediary sales. Bill began his career in the investment industry in 1993 with Fidelity Investments where he was responsible for Client Relations and Business Development. Mr. Manthorne received his B.A. in Political Science and Business Administration from the University of New Hampshire. In addition, he holds the FINRA Series 3, 6, 7 and 63 registrations.

Important information

Information as of September 30, 2020 unless otherwise noted. This information does not constitute investment advice and is issued without regard to specific investment objectives or the financial situation of any particular recipient.

Individual performance returns may differ from those of the composite due to the size and timing of cash flows as well as your individual investment objectives.

Any portfolio holdings information provided by Columbia Management Investment Advisers, LLC and/or its agents or affiliates is proprietary and confidential. References to specific securities are included as an illustration of the investment management strategy and are not a recommendation to buy or sell. Holdings may represent only a small percentage of the portfolio and are subject to change based on market and other conditions. It should not be assumed that any particular security was or will prove to be profitable or that decisions in the future will be profitable or provide similar results to the securities discussed.

The statistical data and related information presented in this material is designed to assist the reader in making an informed investment decision. Use of different statistical data and related information might portray different historical results. The information presented does not portray a comprehensive picture of the investment objectives, strategies and methodologies employed by the products or managers identified, and the reader is encouraged to conduct its own due diligence regarding any differences between the products and managers identified.

Information provided by third parties is deemed to be reliable but may be derived using methodologies or techniques that are proprietary or unique to the third party source.

These materials may only be used in one-on-one presentations with institutional investors. Notice to Consultants: Performance data contained in these materials may only be used with this limited audience and should be accompanied by the standard disclosures.

Columbia Emerging Markets Equity Composite

Presentation and Disclosures

Columbia Management Investments

Reporting Currency: USD

Statement of Performance Results

Calendar Year	Gross-of-fees Return (%)	Net-of-fees Return (%)	Index Return (%)	Composite 3-Yr St Dev (%)	Index 3-Yr St Dev (%)	Internal Dispersion (%)	Number of Portfolios	Total Composite Assets (mil.)	Total Firm Assets (bil.)
2019	32.68	31.21	18.42	14.79	14.17	N.A.	≤ 5	2,470.2	353.2
2018	-20.37	-21.30	-14.57	14.45	14.60	N.A.	≤ 5	2,196.8	320.4
2017	48.17	46.55	37.28	13.72	15.35	N.A.	≤ 5	3,055.2	364.5
2016	6.32	5.12	11.19	13.80	16.07	N.A.	≤ 5	2,598.8	333.4
2015	-7.89	-8.94	-14.92	12.83	14.06	N.A.	≤ 5	2,773.6	328.0
2014	-0.73	-1.77	-2.19	13.92	15.00	N.A.	≤ 5	3,176.2	333.3
2013	-0.03	-1.07	-2.60	18.34	19.04	N.A.	≤ 5	2,737.5	321.5
2012	24.81	23.71	18.22	20.98	21.50	N.A.	≤ 5	1,760.9	303.8
2011	-17.53	-18.28	-18.42	24.89	25.76	N.A.	≤ 5	501.5	298.1
2010	21.17	20.10	18.88	N.A.	N.A.	N.A.	≤ 5	546.7	266.4

Inception Date: 3/31/2008

1. Columbia Management Investments claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Columbia Management Investments has been independently verified for the periods of January 1, 1993 to December 31, 2018. 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.

2. Columbia Management Investment Advisers, LLC, is an SEC-registered investment adviser (formerly known as RiverSource Investments, LLC prior to May 1, 2010). For purposes of compliance with the GIPS standards, Columbia Management Investment Advisers, LLC has defined the Firm as Columbia Management Investments (prior to May 1, 2010 the Firm was known as RiverSource Institutional Advisors; prior to August 1, 2005 the Firm was known as American Express Asset Management), an operating division of Columbia Management Investment Advisers, LLC that offers investment management and related services to institutional clients. As of May 1, 2010, certain long-term assets of Columbia Management Advisers, LLC ("CMA") were merged into Columbia Management Investments and included in firm assets as of that date. The Firm was redefined in January 2011 to include stable value assets that were previously excluded from the firm. Beginning March 30, 2015, the Columbia and Threadneedle group of companies, which includes multiple separate and distinct GIPS-compliant firms, began using the global offering brand Columbia Threadneedle Investments. As of January 1, 2017, the Firm was redefined to include Columbia Wanger Asset Management, LLC, a wholly-owned subsidiary of Columbia Management Investment Advisers, LLC.

Columbia Emerging Markets Equity Composite

Presentation and Disclosures

Columbia Management Investments

Columbia Emerging Markets Equity Composite

3. The strategy aims to provide long-term capital appreciation by investing in equity securities located in emerging market countries. Emerging market countries are those that major international financial institutions, such as the World Bank, generally consider to be less economically mature than developed nations, such as the United States or most nations in Western Europe. The strategy's investment process emphasizes bottom-up stock selection with portfolios typically holding 100 to 160 emerging markets stocks. The benchmark is the MSCI Emerging Markets Index Net. The composite was created April 1, 2008.
4. The gross-of-fees returns are time-weighted rates of return net of commissions and other transaction costs. Net-of-fees returns are calculated by deducting from the monthly gross-of-fees composite return one-twelfth of the highest client fee (model fee) in effect for the respective period. Composite returns reflect the reinvestment of dividends and other earnings.
5. Internal dispersion is calculated using the equal-weighted standard deviation of the annual gross returns of those portfolios that were included in the Composite for the entire year. If the composite contains five or fewer accounts for the full year, a measure of dispersion is not statistically representative and is therefore not shown.
6. The three-year annualized standard deviation measures the variability of the gross-of-fees composite and benchmark returns over the preceding 36-month period. It is not required to be presented when a full three years of performance is not yet available.
7. Portfolios are valued and composite returns are calculated and stated in U.S. dollars. Returns are calculated net of non-reclaimable withholding taxes on dividends, interest, and capital gains. Policies for valuing portfolios, calculating performance, and preparing compliant presentations, and the list of composite descriptions, are available upon request.
8. The following fee schedule represents the current representative fee schedule used as the starting point for fee negotiations for institutional clients seeking investment management services in the designated strategy: 0.90% on the first \$25 million; 0.70% on the next \$50 million; 0.60% on the next \$75 million; Negotiable over \$150 million. Gross of fee performance information does not reflect the deduction of management fees. The following statement demonstrates, with a hypothetical example, the compound effect fees have on investment return: If a portfolio's annual rate of return is 10% for 5 years and the annual management fee is 90 basis points, the gross total 5-year return would be 61.1% and the 5-year return net of fees would be 54.0%.
9. The benchmark, the MSCI Emerging Markets Index Net, is an unmanaged index based on shares prices of a select group of emerging market stocks that are available to global investors, assuming gross dividends are reinvested. 26 countries are included in this index. Index returns reflect the reinvestment of dividends and other earnings and are not covered by the report of the independent verifiers.
10. Past performance is no guarantee of future results and there is the possibility of loss of value. There can be no assurance that an investment objective will be met or that return expectations will be achieved. Care should be used when comparing these results to those published by other investment advisers, other investment vehicles and unmanaged indices due to possible differences in calculation methods. Registration with the SEC as an investment advisor does not imply a certain level of skill or training.
11. Prior to May 1, 2010, the performance presented occurred while the investment management team was affiliated with a prior firm. The investment management team and process for the composite remained intact through the merger; therefore the performance results from the prior are linked to the performance record of the current firm. As the composite was not part of Columbia Management Investment Advisers prior to May 2010, firm assets are shown as "n/a" in the performance table.
12. Prior to 7/1/2020 there was a \$5 million minimum for composite inclusion. Currently there is no minimum.

MWRA Employees' Retirement System
Emerging Markets Growth

December 17, 2020

Todd M. McClone, CFA, Partner
TMcClone@williamblair.com
+ 1 312 364 5422

Kevin Fetzer, CFA, Partner
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Cliff Kalish, CFA
CKalish@williamblair.com
+ 1 312 364 8239

William Blair Investment Management at a Glance

Sophisticated Global Investor Base

Investment Management

100% active-employee owned

Entrepreneurial investment-led, client focused culture

Long-term expertise across asset classes globally

Holistic, investment-led ESG integration

321 employees (52 partners)

108 investment professionals

\$61.7 billion under management



Core Investment Tenets

Active Management

Alpha-Seeking

Long-Term Focus

Fundamental Orientation

Disciplined Process

Research Intensive

Tenured and Experienced Teams

	Average years in the industry	Average years at William Blair
Portfolio Managers	24	11
Analysts	16	9

¹Wo Bai Business Consulting (Shanghai) Co., Ltd. is an affiliated company solely providing research to other William Blair affiliates on a consultative basis.

²In Singapore, this material is provided for your use only by William Blair International (Singapore) Pte. Ltd. (Registration Number 201943312R). William Blair International (Singapore) Pte. Ltd. is regulated by the Monetary Authority of Singapore under a Capital Markets Services License to conduct fund management activities. By accepting this material you represent that you are a non-retail investor and that you will not copy, distribute or otherwise make this material available to any person.

William Blair Investment Management is based in Chicago with affiliates and resources in New York, London, Zurich, Sydney, Stockholm, The Hague, Singapore, and dedicated coverage for Canada.

As of September 30, 2020. As used on this page, "William Blair" refers to William Blair Investment Management, LLC and affiliates unless otherwise noted. For more information about William Blair, please see <http://www.williamblair.com/About-William-Blair.aspx>. This material has been distributed for informational purposes only and should not be considered as investment advice or a recommendation of any particular security, strategy, or investment product. Strategy availability may be limited to certain investment vehicles; not all investment vehicles may be available to all investors. Unless otherwise noted, all data shown is as of the date of this material.

Global Portfolio Strategies

Our single, integrated investment platform is directed toward achieving portfolio objectives across all of our strategies

		Global	International	Emerging Markets
Leaders	High quality portfolios of leading companies across the corporate life cycle	Global Leaders \$3.4 billion	International Leaders \$8.0 billion	Emerging Markets Leaders \$5.1 billion
		Global Leaders Concentrated \$6 million	International Leaders Concentrated \$2 million	Emerging Markets Leaders Concentrated \$2 million
		Global Leaders Sustainability \$73 million	International Leaders ADR \$184 million / \$468 million AUA ¹	
All Cap	Broad exposure across all market caps		International Growth \$14.4 billion (closed) ²	Emerging Markets Growth \$5.0 billion
Small Cap	Broad exposure to small cap companies		International Small Cap Growth \$2.7 billion (closed) ²	Emerging Markets Small Cap Growth \$1.2 billion (closed) ²
China A	Locally-traded companies in China			China A-Shares Growth \$205 million

Assets as of September 30, 2020.

¹Assets Under Advisement (AUA) consists of assets managed by third parties in accordance with model portfolios provided by William Blair. William Blair does not have investment discretion or trading authority over these assets.

²Capacity management is an integral component of our investment process.

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Global Investment Team

One team, one philosophy, one process

Portfolio Management¹

Global Leaders

Andy Flynn, CFA, Partner (15/30)
Ken McAtamney, Partner (15/30)

International Leaders / International Growth

Simon Fennell, Partner (9/28)
Ken McAtamney, Partner (15/30)

International Leaders ADR

Alaina Anderson, CFA, Partner (14/19)

International Small Cap

Simon Fennell, Partner (9/28)
Andy Flynn, CFA, Partner (15/30)

Emerging Markets Leaders

Todd McClone, CFA, Partner (20/28)
Jack Murphy, CFA, Partner (15/24)

Emerging Markets Growth/ Emerging Small Cap Growth

Todd McClone, CFA, Partner (20/28)
Casey Preyss, CFA, Partner (20/21)

China A-Shares Growth

Casey Preyss, CFA, Partner (20/21)
Vivian Lin Thurston, CFA, Partner (5/24)

Portfolio Specialists

Ryan Dimas, CFA, CAIA, Partner (21/25)
Romina Graiver (8/21)
Blake Pontius, CFA (15/23)
Emily George (9/10)

Global Fundamental Research Analysts²

Consumer

Kwesi Smith, CFA (5/16)
William Benton, CFA, CPA, Partner (23/23)
Bryan Shea (11/11)
Adam Dettmer, CFA (3/6)
Michael Patchen, CFA (1/8)
Emily Stent, CFA (2/5)

Financials

D.J. Neiman, CFA, Partner³ (18/22)
Daniel Hill, CFA (15/15)
Kristin Rowland, CFA (9/23)
Paul O'Toole (<1, 3)

Healthcare

Thomas Sternberg, CFA, Partner (16/18)
Camilla Oxhamre Cruse, Ph.D. (6/14)
Richard Reznick, Ph.D. (10/10)

Industrials, Energy & Materials

Andrew Siepker, CFA, Partner (14/16)
Anil Daka, CFA (9/12)
Ben Loss, CFA (9/10)
Monika Budyn (7/11)
Esteban Gonzalez-Rosell (1/10)

Information Technology

Greg Scolaro, CFA, CPA (6/6)
Drew Buckley, CFA, CPA (12/14)
Jayesh Kannan, CFA (2/7)
Grant Parsons, CPA (1/4)
Kalpita Shah, CFA (1/5)

Real Assets

Alaina Anderson, CFA, Partner³ (14/19)

China Generalists

Vivian Lin Thurston, CFA, Partner (5/24)
Richard Reznick, Ph.D. (10/10)

Strategy Research²

Hugo Scott-Gall, Partner(2/27)³
Olga Bitel, Partner (11/18)
Rita Spitz, CFA, Partner (34/42)
Alexa Davis (2/5)
Gurvira Grewal (1/6)

Systematic Research²

Spiro Voulgaris, Partner (13/30)
Andrew Kominik, CFA (17/20)
Anand Krishnakumar, CFA (5/16)
Andy Tang, CFA ((4/9)
Andrew Wickman, CFA (5/10)
Scott Akeson (5/5)
Kathy Matos (13/13)

Technologist

Darragh Grogan (12/14)

Trading⁵

Asia/Pacific

Nathan Fisher, CFA (5/16)
Daniel Iannessa (15/17)
Malik Nicholson (6/14)

Europe

Nicola Hynds (12/25)
Simon Johnstone (8/20)
Akos Reitz (1/5)

Americas and FX

Terry O'Bryan, Partner⁴ (13/22)

Portfolio & Trade Order Management

Joe Emanuele (3/5)
Tim Randick (13/13)

International Trade Data Specialists

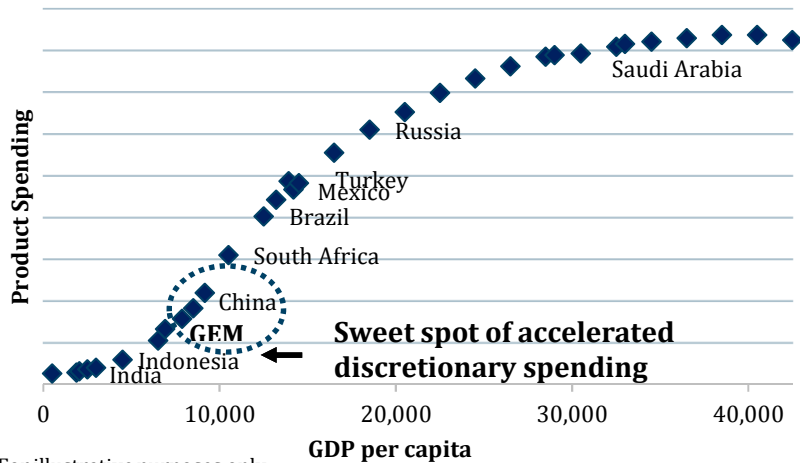
Michael LaDuke (10/13)

(Years at William Blair/Years in Industry)

1. Portfolio Management team average 14 years at William Blair and 26 years in the industry. 2. Global Fundamental Research Team average 11 years at William Blair and 15 years in the industry. 3. D.J. Neiman and Hugo Scott-Gall also serve as Co-Directors of Research. 4. Terry O'Bryan also serves as the Head of Global Equity Trading. 5. Traders, excluding Portfolio and Trade Order Management and International Trade Specialists, average 8 years at William Blair and 17 years in the industry. *Italics indicate Associate role.* As of December 2020.

Secular Growth Potential in Emerging Markets

Global Emerging Markets Consumption Spending per Capita



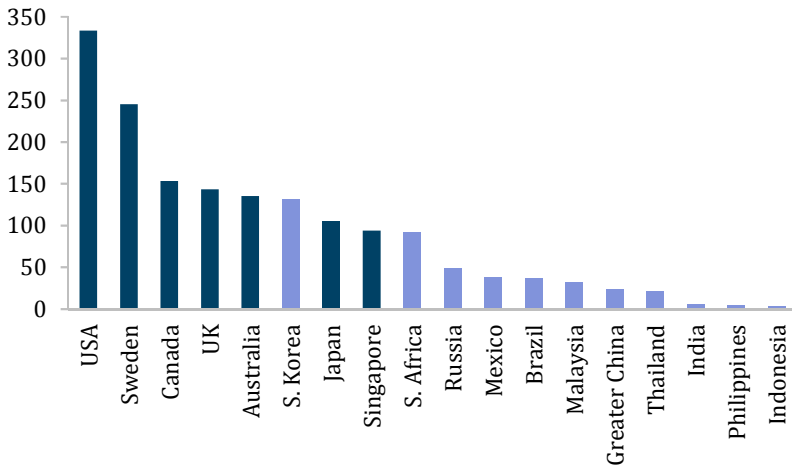
For illustrative purposes only.

Per Capita Spending on Staple Products (as % of G7 Capital Spending 2025)

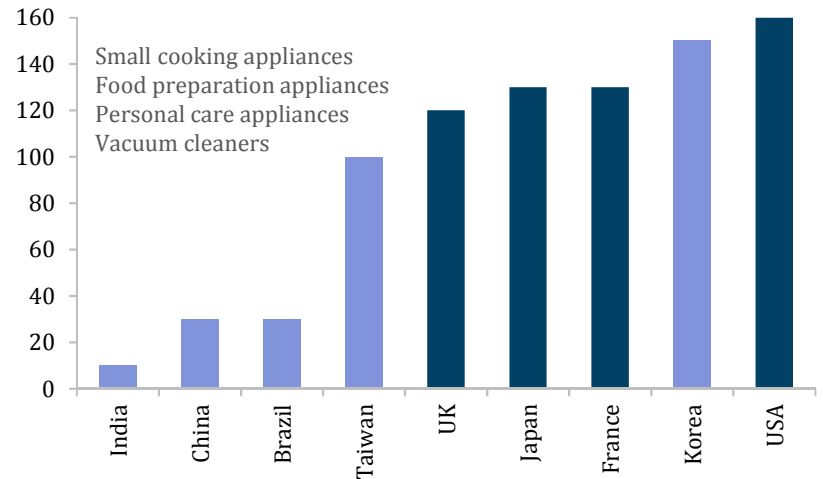
	Brazil	China	Indonesia	India	EM
Instant Coffee	15%	5%	30%	2%	19%
Beer	46%	16%	1%	1%	12%
Carbonated Drinks	40%	6%	3%	1%	12%
Baked Goods	42%	8%	4%	1%	10%
Spirits	14%	3%	0%	3%	9%
Yogurt	29%	14%	1%	1%	9%
Savory Snacks	12%	8%	3%	2%	6%
Chocolate	17%	2%	3%	1%	5%
Consumer Health	12%	10%	5%	1%	5%
Pet Food	21%	1%	0%	0%	3%
Ready Meals	4%	1%	0%	0%	1%

↑ More Mature

Per Capita Spending on Sportswear (\$USD)



Per Capita Spending on Household Appliances (\$USD)

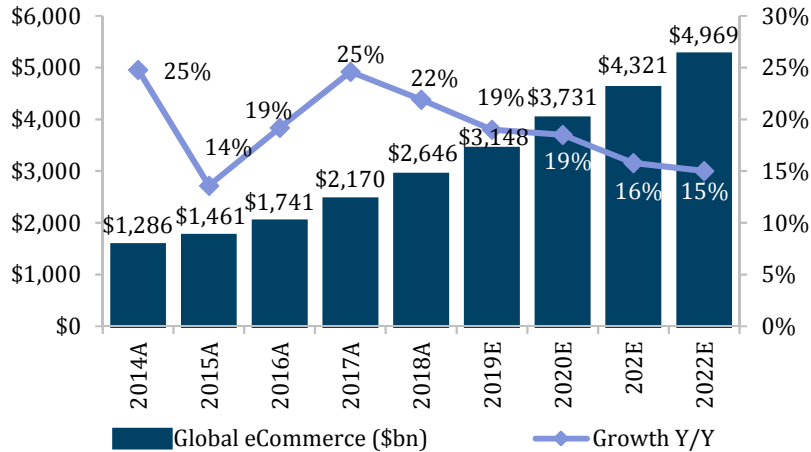


Data as of October 2019.

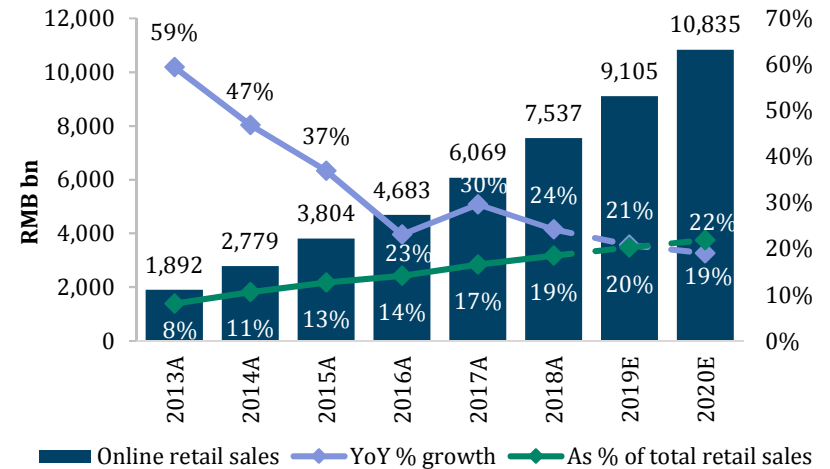
Source: Credit Suisse, Goldman Sachs, Deutsche Bank, CSLA.

E-Commerce: Long Term Growth Opportunity in Emerging Markets

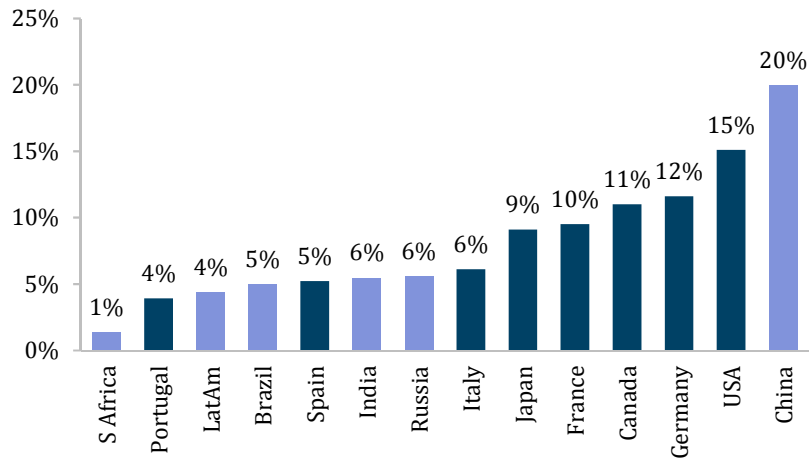
Global E-Commerce Growth



China: E-Commerce Growth



E-Commerce Penetration Across Markets (Online Sales as % of Total Retail Gross Revenue 2019E)



Emerging Markets E-Commerce Champions

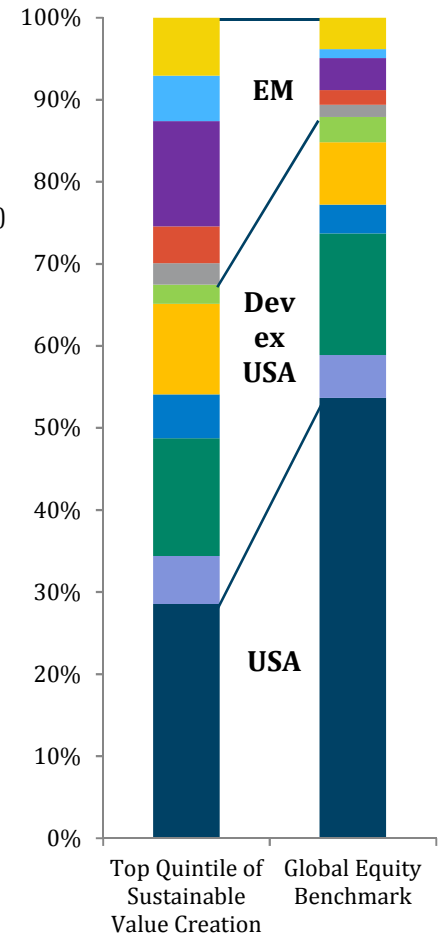
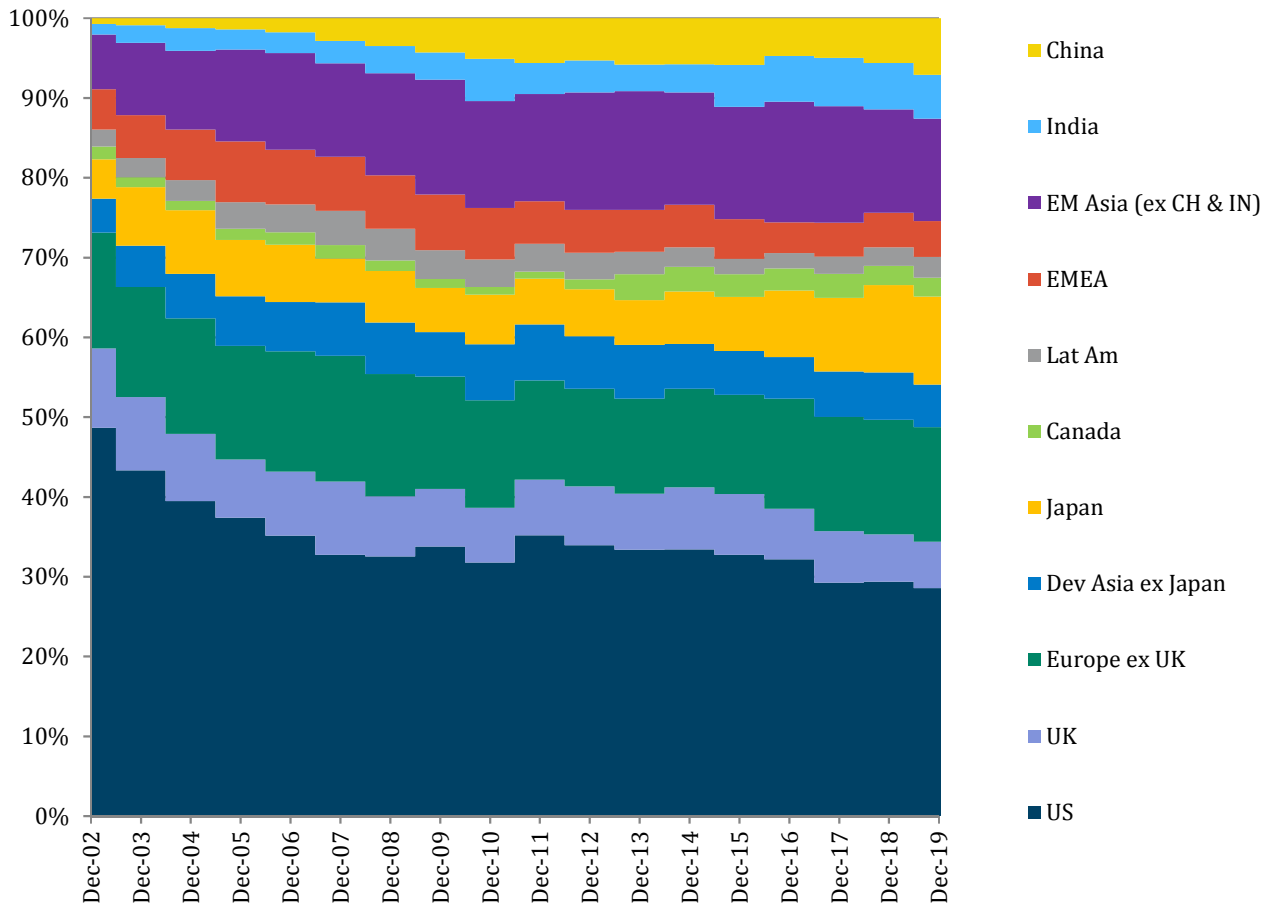


Data as of September 2019.

Source: BofA Merrill Lynch Global Investment Strategy, Morgan Stanley Research. References to specific companies are provided for illustrative purposes only and should not be interpreted as a recommendation to buy or sell any security.

Expanding High Quality Growth Opportunity Set

Top Quintile of Sustainable Value Creation

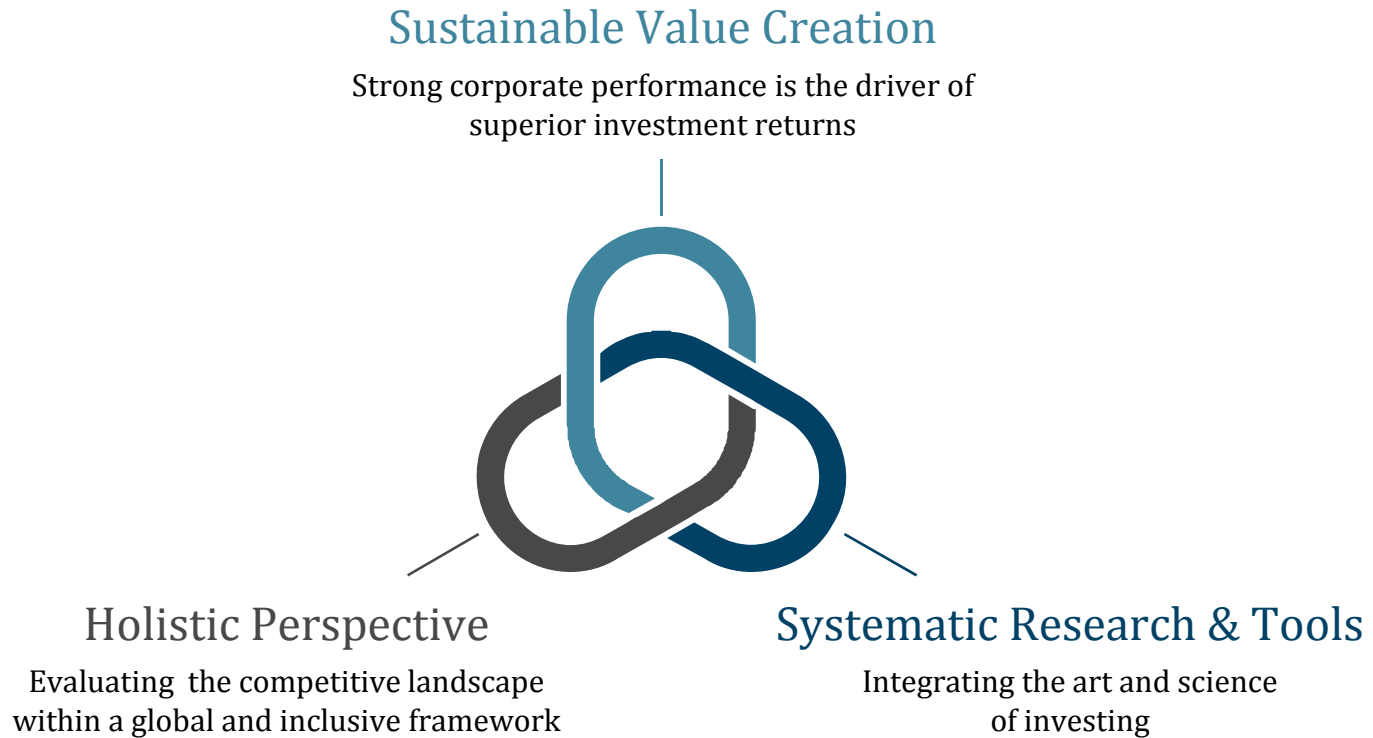


Data as of December 2019.

Source: MSCI ACWI IMI. Top quintile of sustainable value creation is equal weighted. Sustainable value creation is an aggregate measure of corporate returns on capital. Several quantitative financial statement factors are used to measure total corporate profit/cash flow relative to total invested capital, corporate equity profit/cash flow relative to invested equity capital, as well as operating efficiency.

Investment Philosophy

We believe an integrated investment platform directed towards identifying companies with strong corporate performance will drive superior long-term investment returns





Sustainable Value Creation

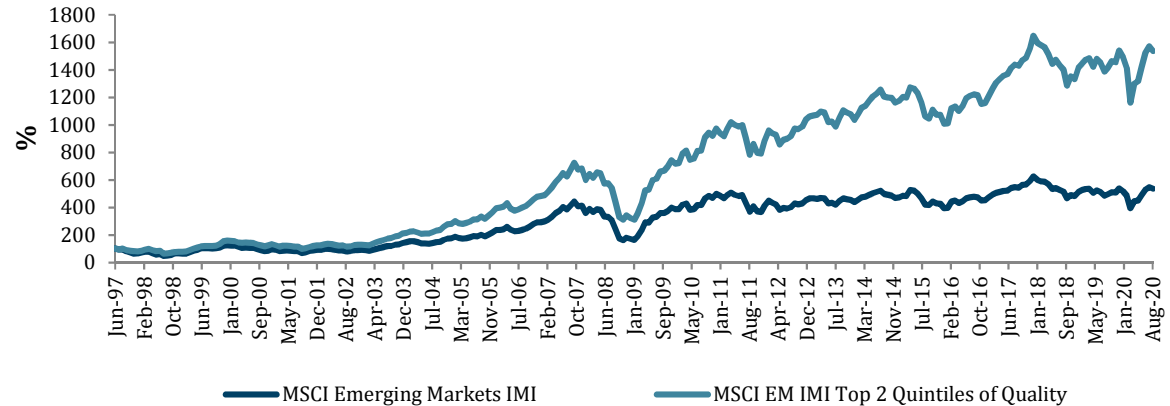
Strong corporate performance is the driver of superior investment returns

Benefits of Quality Investing

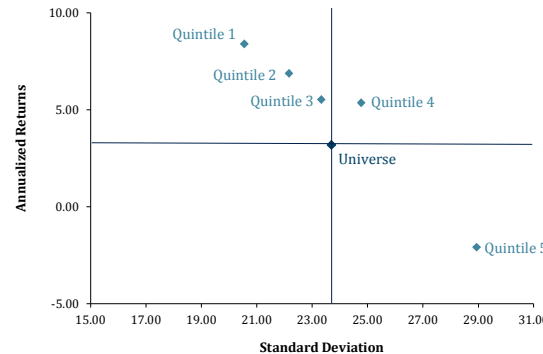
Companies with industry leading returns on capital and sustainable competitive advantages have:

- Produced strong relative returns
- Generated attractive risk/adjusted returns
- Helped protect capital in down markets

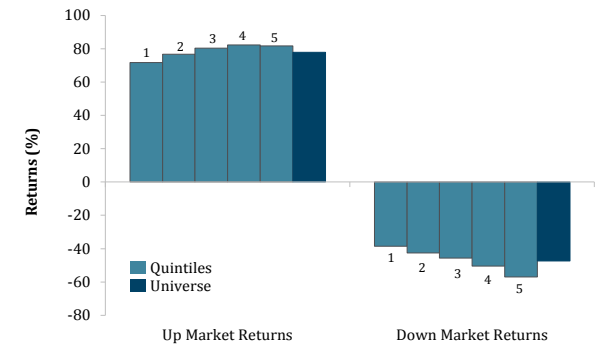
Cumulative Returns of High Quality



Emerging Markets Universe by Quality Quintiles



Emerging Markets Quality Universe Up/Down Market Performance



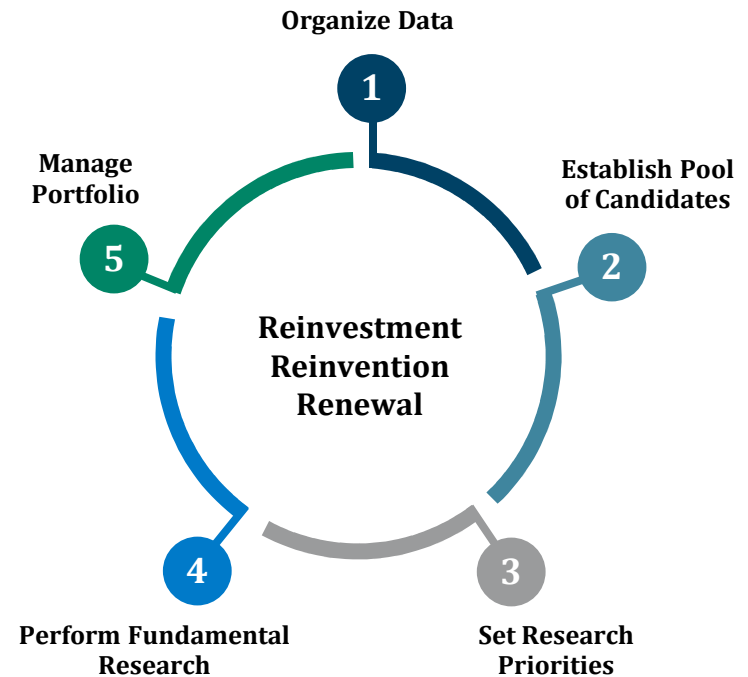
Source: William Blair Emerging Markets Universe. Data shown for period between July 31, 1997 – September 30, 2020. Securities are equally weighted to create hypothetical portfolios based on the criteria shown. The hypothetical portfolios are rebalanced monthly.

Past performance is not indicative of future returns. Hypothetical performance is provided for illustrative purposes only. The above performance information is based on quality scores from William Blair's proprietary model and does not in any way relate to actual results of any account or strategy. The strategy may or may not hold the companies included in the Quality quintiles shown. Hypothetical performance has inherent limitations. Specifically, hypothetical results do not reflect actual trading or the effect of material economic and market factors on the decision-making process. There is no assurance that the models will remain the same in the future. Quality is defined as those companies with good balance sheet metrics, efficiency, and higher returns. Up/down market returns based on MSCI Emerging Markets IMI Index, monthly annualized returns.

Investment Process

Integrated Fundamental, Systematic and Strategy Research Throughout the Investment Process

- 1 Organize Data**
Rank order global universe of equities by fundamental and technical attributes and utilize systematic research to analyze information
- 2 Establish Pool of Candidates**
Create Eligibility List of 2,800- 3,000 companies through quantitative screens and fundamental analysis
- 3 Set Research Priorities**
Establish Research Agenda of 50-75 companies by identifying opportunities and risks through bottom up research, top down strategy, and portfolio objectives
- 4 Perform Fundamental Research**
Analyze sustainable value creation and determine if fundamentals appear poised to change
- 5 Manage Portfolio**
Weigh risk/reward of buy/sell decision to seek desired outcomes

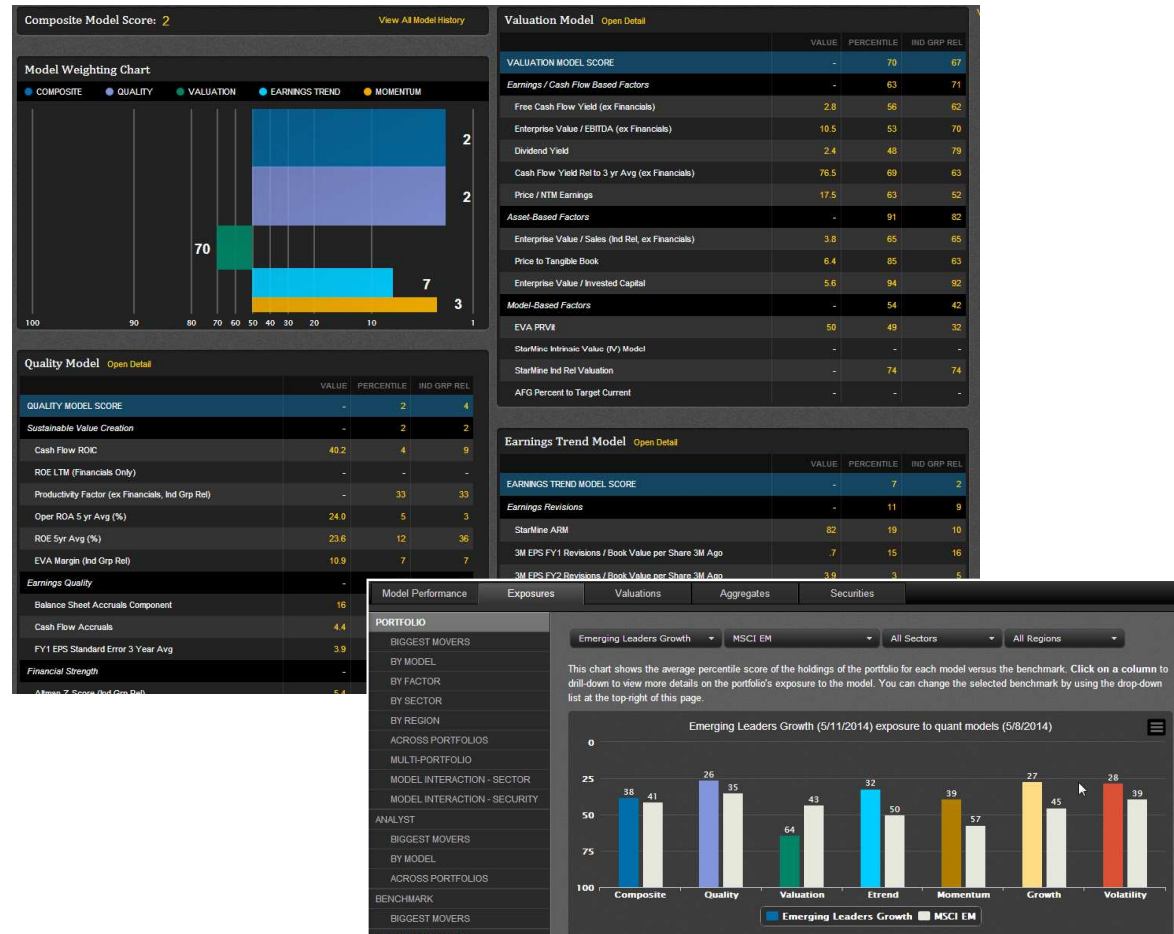


Systematic Research & Tools

We believe that integrating the art and science of investing is the best way to achieve desired outcomes



Quantitative models, portfolio analytics, and fundamental research are integrated within Summit, dynamically connecting all elements of our investment process.



For illustrative purposes only. Not intended as investment advice.

Portfolio Design: Emerging Markets Growth

September 30, 2020

Benchmark:

MSCI Emerging Markets IMI Index

Position Size:

Dependent on market cap, float, trading volume, price volatility, and fundamental risk/reward

Range:

0.5-7.5%

Number Of Holdings:

120-175

Sector Exposure

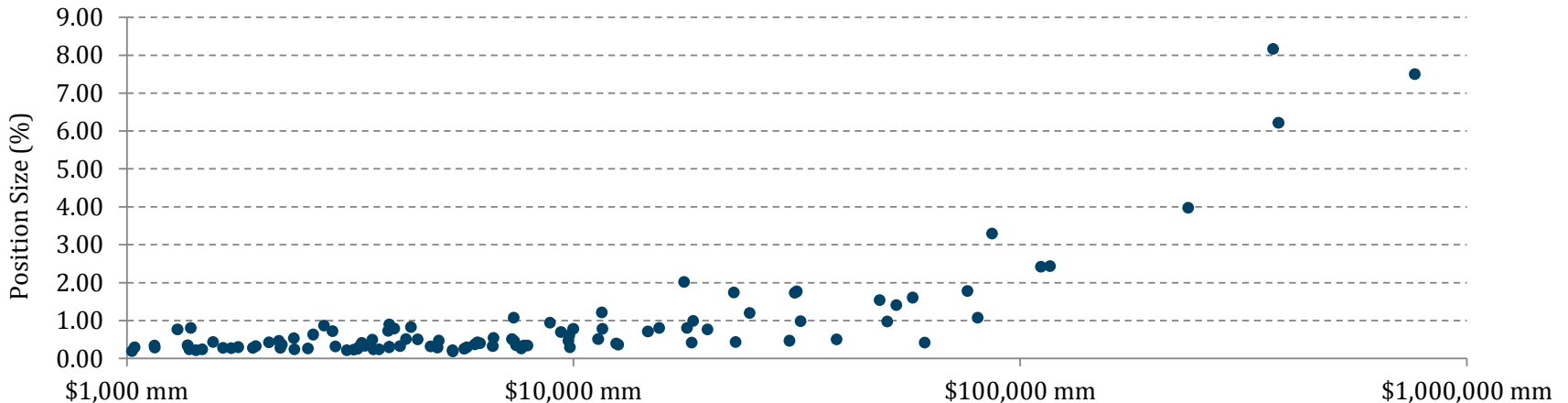
Sector	Range
Communication Svcs.	5-40%
Discretionary	5-40%
Staples	0-30%
Energy	0-30%
Financials	5-40%
Healthcare	0-20%
Industrials	0-30%
IT	5-40%
Materials	0-30%
Real Estate	0-20%
Utilities	0-20%

Geographic Exposure

Region	Range
Emerging Asia	35-90%
EMEA	5-40%
Latin America	5-40%

Capitalization

Market Cap	Range
Large Cap	10-50%
Mid Cap	20-70%
Small Cap	10-40%



Policy ranges subject to change at any time.

Emerging Markets Growth Portfolio Attributes

As of October 31, 2020

	Emerging Markets Growth	MSCI Emerging Markets IMI Index	Difference
Quality			
WB Quality Model (Percentile)	32	35	
Return on Equity (%)	19.6	14.2	38%
Cash Flow ROIC (%)	21.9	18.9	16%
Debt/Equity (%)	37.9	73.4	-48%
Growth			
WB Growth Model (Percentile)	25	39	
Long-Term Growth (%)	23.7	17.3	37%
5-Year Historic EPS Growth (%)	18.3	11.1	65%
Reinvestment Rate (%)	12.9	9.5	36%
Earnings Trend			
WB Earnings Trend Model (Percentile)	34	45	
EPS Est Rev Breadth (%) ¹	16.5	9.1	7.4
Valuation			
WB Valuation Model (Percentile)	82	60	
P/E (next 12 months)	28.9	13.9	108%
Dividend Yield (%)	0.8	2.4	-67%

¹The 1-month EPS Revision Breadth factor represents the trend in the direction of estimate changes. Ranging from -100% to +100%, it is calculated as the number of positive revisions minus the number of negative revisions divided by the total number of estimates.

The data shown above is based on the strategy's representative portfolio. The index is comparable to the strategy in terms of investment approach but contains significantly more securities. Calculated by William Blair. Aggregate scores shown above based on William Blair's quantitative model. For individual and composite ranks, 1 is best and 100 is worst. The MSCI Emerging Markets IMI Index is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. Not intended as investment advice.

Emerging Markets Growth Performance Summary

As of October 31, 2020

Composite Performance (%)	Annualized								Strategy Inception	
	QTD	YTD	1 Yr	3 Yr	5 Yr	10 Yr	20 Yr	(Oct 1 96)		
Emerging Markets Growth (Gross of fees)	4.21	24.76	32.49	10.10	13.66	6.98	12.69	11.55		
MSCI Emerging Markets IMI Index	1.80	0.49	7.64	1.47	7.36	2.21	8.29	4.81		
Relative Performance (Gross of fees)	2.40	24.27	24.85	8.63	6.30	4.77	4.40	6.74		

Annual Composite Performance (%)	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Emerging Markets Growth (Gross of fees)	29.61	-21.05	51.19	2.93	-14.17	5.73	3.83	22.17	-15.89	24.73
MSCI Emerging Markets IMI Index	17.64	-15.04	36.83	9.90	-13.86	-1.79	-2.20	18.68	-19.49	19.90
Relative Performance (Gross of fees)	11.97	-6.01	14.36	-6.97	-0.31	7.52	6.03	3.49	3.60	4.83

Past performance is not indicative of future returns. Performance is shown in U.S. dollar unless otherwise noted. Returns for periods greater than one year are annualized. Gross performance results shown do not reflect the deduction of investment management fees, assume the reinvestment of dividends and capital gains, and are net of transaction costs. Performance results will be reduced by the fees incurred in the management of the account. For example, assuming an annual gross return of 8% and an annual management/advisory fee of .40%, the net annualized total return of the portfolio would be 7.58% over a 5-year period. Net investment performance represents the deduction of the highest possible fee. Investment management fees are described in William Blair's Form ADV Part 2A. The benchmark that best reflects the composite's investment strategy is the MSCI Emerging Markets Investable Market Index (IMI) Net, which is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic, and political risk. Please see GIPS Composite Report in appendix for a complete description of the composite. The Emerging Markets Growth Composite included carve-out portfolios from inception through 2006.

Emerging Markets Growth Performance Summary

Performance for periods ending September 30, 2020

Composite Performance (%)	Qtr	YTD	1 Yr	Annualized				Strategy Inception (Oct 1 96)
				3 Yr	5 Yr	10 Yr	20 Yr	
Emerging Markets Growth (Gross of fees)	16.12	19.72	33.46	9.55	14.10	6.98	12.06	11.40
Emerging Markets Growth (Net of fees)	15.82	18.83	32.13	8.46	12.96	5.91	10.89	10.23
MSCI Emerging Markets IMI Index	9.79	-1.29	10.14	2.03	8.43	2.34	7.74	4.75
Relative Performance (Gross of fees)	6.33	21.02	23.32	7.52	5.67	4.64	4.31	6.65

Annual Composite Performance (%)	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Emerging Markets Growth (Gross of fees)	29.61	-21.05	51.19	2.93	-14.17	5.73	3.83	22.17	-15.89	24.73	79.09	-60.54
Emerging Markets Growth (Net of fees)	28.32	-21.84	49.69	1.90	-15.02	4.68	2.80	20.95	-16.73	23.40	77.13	-61.01
MSCI Emerging Markets IMI Index	17.64	-15.04	36.83	9.90	-13.86	-1.79	-2.20	18.68	-19.49	19.90	82.36	-53.78

Annual Composite Performance (%)	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996 ¹
Emerging Markets Growth (Gross of fees)	40.26	39.27	49.10	37.93	58.66	-2.70	13.75	-29.81	90.73	-18.90	5.91	1.07
Emerging Markets Growth (Net of fees)	38.77	37.79	47.53	36.46	57.00	-3.77	12.52	-30.60	88.76	-19.80	4.76	0.79
MSCI Emerging Markets IMI Index	39.83	31.70	33.47	26.62	53.97	-6.49	-2.02	-35.31	62.63	-29.67	-19.74	-1.45

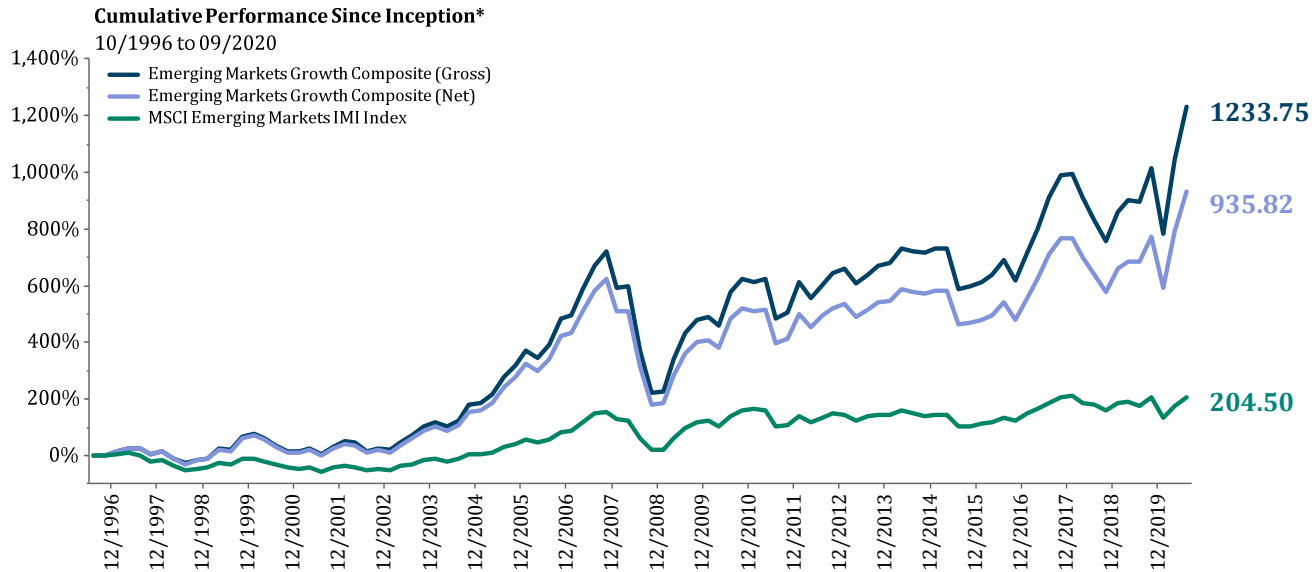
¹Partial year performance from October 1 to December 31, 1996.

Past performance is not indicative of future returns. Performance is shown in U.S. dollar unless otherwise noted. Net investment performance represents the deduction of the highest possible fee. Actual client net returns may be higher or lower depending on fees charged to your account and the amount invested.

Returns for periods greater than one year are annualized. Gross performance results shown do not reflect the deduction of investment management fees, assume the reinvestment of dividends and capital gains, and are net of transaction costs. Performance results will be reduced by the fees incurred in the management of the account. For example, assuming an annual gross return of 8% and an annual management/advisory fee of .40%, the net annualized total return of the portfolio would be 7.58% over a 5-year period. Net investment performance represents the deduction of the highest possible fee. Investment management fees are described in William Blair's Form ADV Part 2A. The benchmark that best reflects the composite's investment strategy is the MSCI Emerging Markets Investable Market Index (IMI) Net, which is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic, and political risk. Please see GIPS Composite Report in appendix for a complete description of the composite. The Emerging Markets Growth Composite included carve-out portfolios from inception through 2006.

Long-Term Return Profile

Periods ending September 30, 2020



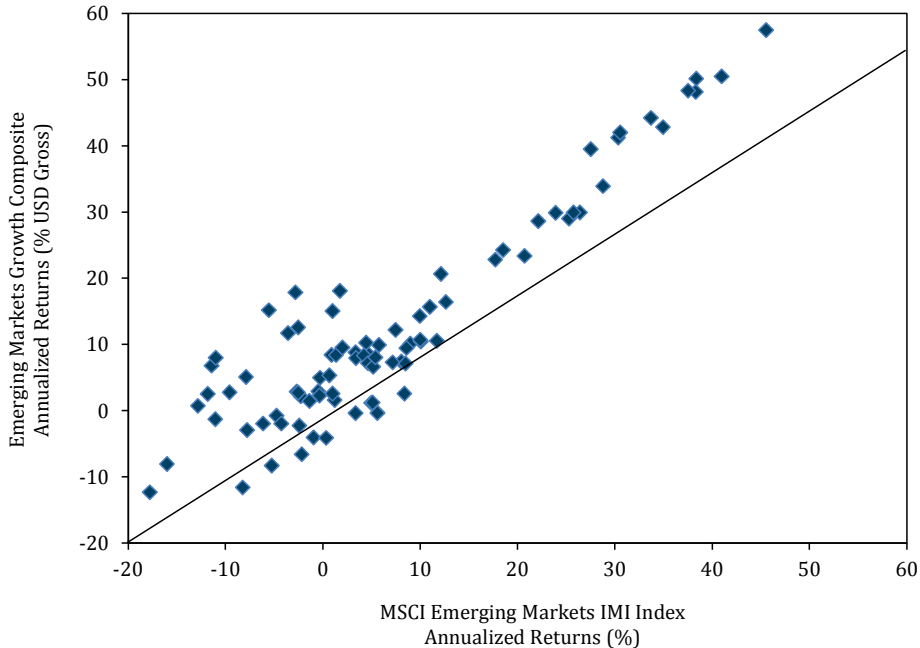
	Annualized Return Since Inception (%)¹
Emerging Markets Growth Composite (Gross)	11.40
Emerging Markets Growth Composite (Net)	10.23
MSCI Emerging Markets IMI Index	4.75

¹Composite inception October 1, 1996.

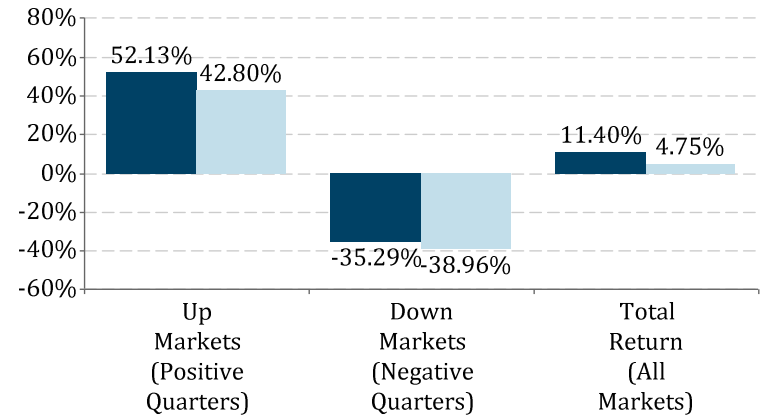
Past performance is not indicative of future returns. Performance is shown in U.S. dollar unless otherwise noted. Composite performance is calculated using monthly data from October 1999 to present. Prior to October 1999, Emerging markets growth composite returns were calculated quarterly using the emerging markets carve out of the International Growth Composite. Past performance is not indicative of future returns. Gross investment performance assumes reinvestment of dividends and capital gains, is gross of investment management fees and net of transaction costs. Performance results will be reduced by the fees incurred in the management of the account. For example, assuming an annual gross return of 8% and an annual management/advisory fee of .40%, the net annualized total return of the portfolio would be 7.58% over a 5-year period. Net investment performance represents the deduction of the account's actual fee. Investment management fees are described in William Blair's Form ADV Part 2A. Returns for periods greater than one year are annualized. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic and political risk. The benchmark is the Morgan Stanley Capital International (MSCI) Emerging Markets IMI Index which is an unmanaged index that includes only emerging markets. Please see GIPS Composite Report in appendix for a complete description of the composite. The Emerging Markets Growth Composite included carve-out portfolios from inception through 2006.

Emerging Markets Growth Strategy Performance

Rolling 3-Year Annualized Periods Since Inception (Quarterly Data)
Emerging Markets Growth Composite (USD Gross) vs.
MSCI Emerging Markets IMI Index
October 1, 1996 – September 30, 2020



Annualized Up/Down Market Returns (% USD Gross)
10/1996 to 09/2020



■ Emerging Markets Growth Composite
■ MSCI Emerging Markets IMI Index

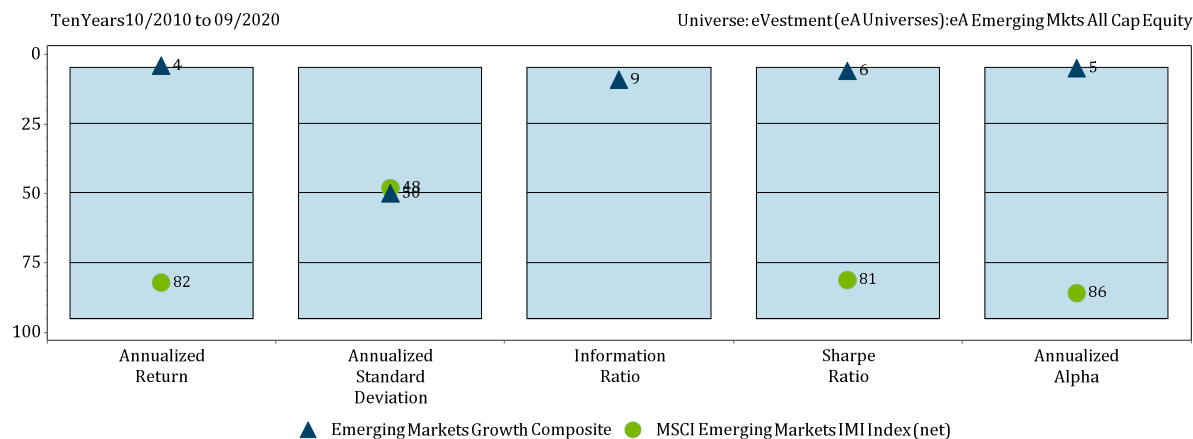
Up Markets Capture Ratio	1.17
Down Markets Capture Ratio	0.88
Up Markets Quarters	61
Down Markets Quarters	35

Composite Inception October 1, 1996.

Up/down market returns calculated using quarterly, annualized data.

Past performance is not indicative of future returns. Performance is shown in U.S. dollar unless otherwise noted. Returns for periods greater than one year are annualized. Gross performance results shown do not reflect the deduction of investment management fees, assume the reinvestment of dividends and capital gains, and are net of transaction costs. Performance results will be reduced by the fees incurred in the management of the account. For example, assuming an annual gross return of 8% and an annual management/advisory fee of .40%, the net annualized total return of the portfolio would be 7.58% over a 5-year period. Net investment performance represents the deduction of the highest possible fee. Investment management fees are described in William Blair's Form ADV Part 2A. The benchmark that best reflects the composite's investment strategy is the MSCI Emerging Markets Investable Market Index (IMI) Net, which is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic, and political risk. Please see GIPS Composite Report in appendix for a complete description of the composite.

Emerging Markets Growth Performance



	Annualized Return	Annualized Standard Deviation	Information Ratio	Sharpe Ratio	Annualized Alpha
5th Percentile	6.98	19.48	1.05	0.40	4.82
25th Percentile	5.13	18.01	0.64	0.25	2.86
50th Percentile	3.90	17.42	0.45	0.20	1.61
75th Percentile	2.87	16.88	0.08	0.13	0.59
95th Percentile	0.90	15.03	-0.26	0.02	-1.22
Emerging Markets Growth Composite (Gross of fees)	6.98	17.41	0.89	0.37	4.72
MSCI Emerging Markets IMI Index (net)	2.34	17.46	--	0.10	0.00

Number of Managers 118

September 2020 performance is preliminary.

eVestment Alliance universe data generated on October 18, 2020.

Composite inception 10/1/96. Performance shown is calculated in U.S. dollar, gross of fees, unless otherwise noted.

eA Universe Construction Methodology Emerging Markets All Cap Equity – Equity products that invest primarily in small, middle, and/or large capitalization stocks in emerging markets countries. The expected benchmarks for this universe would include the MSCI Emerging Market Free, or IFC Investable. Managers in this category will typically indicate a “Primary Capitalization Emphasis” equal to Small, Mid, or Large Cap and a “Primary Style Emphasis” equal to Growth, Value, or Core. eVestment Alliance standard deviation reflects annualized calculation of monthly returns.

Past performance is not indicative of future returns. Composite performance is calculated using monthly data from October 1999 to present. Prior to October 1999, Emerging markets growth composite returns were calculated quarterly using the emerging markets carve out of the International Growth Composite. Past performance is not indicative of future returns. Gross investment performance assumes reinvestment of dividends and capital gains, is gross of investment management fees and net of transaction costs. Performance results will be reduced by the fees incurred in the management of the account. For example, assuming an annual gross return of 8% and an annual management/advisory fee of .40%, the net annualized total return of the portfolio would be 7.58% over a 5-year period. Net investment performance represents the deduction of the account’s actual fee. Investment management fees are described in William Blair’s Form ADV Part 2A. Returns for periods greater than one year are annualized. International investing involves special risk considerations, including currency fluctuations, lower liquidity, economic and political risk. The benchmark is the Morgan Stanley Capital International (MSCI) Emerging Markets IMI Index which is an unmanaged index that includes only emerging markets. Please see GIPS Composite Report in appendix for a complete description of the composite. The Emerging Markets Growth Composite included carve-out portfolios from inception through 2006.

Appendix

MWRA Employees' Retirement System

Emerging Markets Growth Fee Schedule

Collective Investment Trust (GAV Class 1)¹

Account Size	Annual Investment Management Fee
First \$20 million	1.00%
Next \$30 million	0.80%
Next \$50 million	0.70%
Next \$50 million	0.65%
Next \$50 million	0.60%
Next \$200 million	0.40%
Over \$400 million	0.35%

Based on a \$30 million mandate the annual investment management fee for the CIT would be approximately 0.93%.

¹Investors in the Collective Investment Trust (CIT) are also responsible for customary expenses associated with pooled investment vehicles (including custody, trustee, fund accounting, audit, etc.) which are paid to unaffiliated third party service providers. These expenses are contractually capped at 0.15% and currently running at 0.08%. The CIT does not participate in securities lending. There is no revenue sharing within the CIT.

Fee schedule effective June 2019.

Holdings: Emerging Markets Growth

October 31, 2020

	Portfolio Weight		Portfolio Weight		Portfolio Weight
EM Asia	83.51	EM Asia (continued)		EM Asia (continued)	
China	43.81	China (continued)		India (continued)	
Alibaba Group Holding Ltd	7.69	Yifeng Pharmacy Chain Co L-A	0.39	Tata Consultancy Svcs Ltd	0.48
Tencent Holdings Ltd	6.93	A-Living Services Co Ltd-H	0.37	Hindustan Unilever Ltd	0.41
Meituan-Class B	2.78	Kingdee International Sftwr	0.36	Pi Industries Ltd	0.31
Jd.Com Inc - Cl A	2.52	Alibaba Health Information T	0.36	Tata Consumer Products Ltd	0.30
Netease Inc	1.51	Topchoice Medical Corporat-A	0.35	Srf Ltd	0.26
Wuxi Biologics Cayman Inc	1.33	Skshu Paint Co Ltd-A	0.34	Pidilite Industries Ltd	0.25
Wuliangye Yibin Co Ltd-A	1.06	Chacha Food Co Ltd-A	0.33	Dabur India Ltd	0.23
Jiangsu Hengli Hydraulic C-A	0.99	Chongqing Zhifei Biologica-A	0.33	Hdfc Life Insurance Co Ltd	0.22
Luxshare Precision Industr-A	0.93	Shanghai M&G Stationery In-A	0.32	Varun Beverages Ltd	0.16
Shenzhen Mindray Bio-Medic-A	0.88	Beijing Oriental Yuhong-A	0.31	Reliance Industries-Partly P	0.11
Wuxi Apptec Co Ltd-H	0.84	Ping An Healthcare And Techn	0.31	Indonesia	0.85
Silergy Corp	0.83	Sg Micro Corp-A	0.30	Bank Central Asia Tbk Pt	0.85
Country Garden Services Hold	0.78	Changzhou Xingyu Automotiv-A	0.29	Malaysia	1.05
Kweichow Moutai Co Ltd-A	0.77	Sichuan Teway Food Group-A	0.29	Top Glove Corp Bhd	0.69
Yihai International Holding	0.76	Shandong Weigao Gp Medical-H	0.26	Hartalega Holdings Bhd	0.35
Foshan Haitian Flavouring -A	0.74	Topsports International Hold	0.26	South Korea	10.00
Offcn Education Technology-A	0.63	Guangdong Haid Group Co-A	0.25	Samsung Electronics Co Ltd	3.84
Centre Testing Intl Group-A	0.55	Weimob Inc	0.25	Kakao Corp	1.82
Zhongsheng Group Holdings	0.55	Zhejiang Dingli Machinery -A	0.23	Naver Corp	1.68
Hangzhou Tigermed Consulti-A	0.53	Hualan Biological Engineer-A	0.23	Lg Household & Health Care	0.80
China Tourism Group Duty F-A	0.51	China Education Group Holdin	0.21	Ncsoft Corp	0.49
Li Ning Co Ltd	0.50	Double Medical Technology-A	0.10	Seegene Inc	0.33
Zhangzhou Pientzehuangu Pha-A	0.50	India	8.36	Nhn Kcp Corp	0.32
Jiangsu Hengrui Medicine C-A	0.50	Reliance Industries Ltd	2.91	Leeno Industrial Inc	0.29
Aier Eye Hospital Group Co-A	0.47	Hdfc Bank Limited	1.20	Hansol Chemical Co Ltd	0.27
China Merchants Bank-H	0.44	Housing Development Finance	0.53	Nice Information Service Co	0.17
China Meidong Auto Holdings	0.44	Asian Paints Ltd	0.51	Taiwan	17.78
Hundsun Technologies Inc-A	0.41	Nestle India Ltd	0.48	Taiwan Semiconductor-Sp Adr	5.62

The data shown above is based on the strategy's representative portfolio. Individual securities listed in this report are for informational purposes only. Holdings are subject to change at any time. This information does not constitute, and should not be construed as, investment advice or recommendations with respect to the securities listed. Cash incorporates cash equivalents and accruals.

Holdings: Emerging Markets Growth

October 31, 2020

	Portfolio Weight		Portfolio Weight
EM Asia (continued)		EMEA (continued)	
Taiwan (continued)		Poland (continued)	
Taiwan Semiconductor Manufac	2.47	Dino Polska SA	0.64
Mediatek Inc	1.92	Cd Projekt SA	0.35
Airtac International Group	1.05	Russia	1.48
Asmedia Technology Inc	0.78	Yandex Nv-A	1.48
E.Sun Financial Holding Co	0.72	South Africa	2.22
Aspeed Technology Inc	0.67	Naspers Ltd-N Shs	1.88
Parade Technologies Ltd	0.64	Clicks Group Ltd	0.33
Realtek Semiconductor Corp	0.47	Latin America	6.69
Win Semiconductors Corp	0.43	Argentina	2.20
Voltronic Power Technology	0.41	Mercadolibre Inc	1.67
Sinbon Electronics Co Ltd	0.37	Globant SA	0.53
Momo.Com Inc	0.36	Brazil	4.13
Elite Material Co Ltd	0.34	Magazine Luiza SA	1.26
Wiwynn Corp	0.33	Stoneco Ltd-A	0.68
Lotes Co Ltd	0.32	B3 Sa-Brasil Bolsa Balcao	0.67
Advantech Co Ltd	0.29	Weg SA	0.66
Accton Technology Corp	0.26	Locaweb Servicos De Internet	0.34
Poya International Co Ltd	0.21	Totvs SA	0.34
Powertech Technology Inc	0.12	B2w Cia Digital	0.18
Thailand	1.39	Mexico	0.36
Sea Ltd-Adr	1.39	Walmart De Mexico Sab De Cv	0.36
Vietnam	0.27	Cash	3.77
Hoa Phat Group Jsc	0.27	Total	100.00
EMEA	6.03		
Kenya	0.25		
Safaricom PLC	0.25		
Poland	2.08		
Allegro.Eu SA	1.09		

The data shown above is based on the strategy's representative portfolio. Individual securities listed in this report are for informational purposes only. Holdings are subject to change at any time. This information does not constitute, and should not be construed as, investment advice or recommendations with respect to the securities listed. Cash incorporates cash equivalents and accruals.

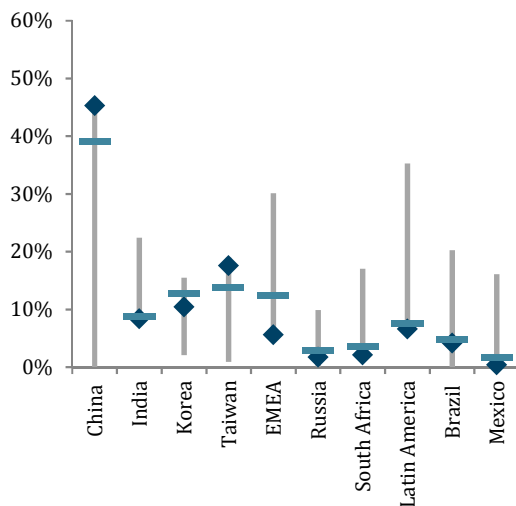
Emerging Markets Growth Composition Snapshot

As of October 31, 2020

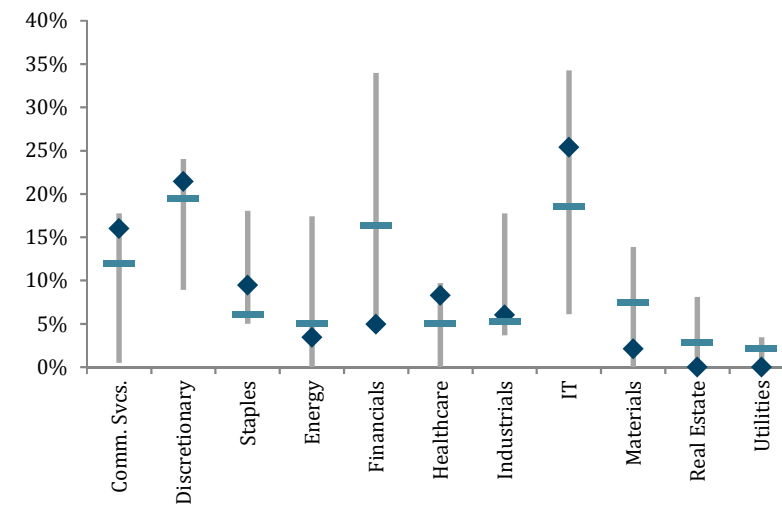
Top 10 Holdings	Sector	Country	Position Size (%)
Taiwan Semiconductor Manufactu	Information Technology	Taiwan	8.1
Alibaba Group Holding Ltd	Consumer Discretionary	China	7.7
Tencent Holdings Ltd	Communication Services	China	6.9
Samsung Electronics Co Ltd	Information Technology	South Korea	3.8
Reliance Industries Ltd	Energy	India	3.0
Meituan	Consumer Discretionary	China	2.8
Jd.Com Inc	Consumer Discretionary	China	2.5
Mediatek Inc	Information Technology	Taiwan	1.9
Naspers Ltd	Consumer Discretionary	South Africa	1.9
Kakao Corp	Communication Services	South Korea	1.8

Benchmark	
MSCI Emerging Markets IMI	
Active Share	63.1%
Number of Holdings	119
Weighted Avg. Mkt Cap (\$b)	\$126.4

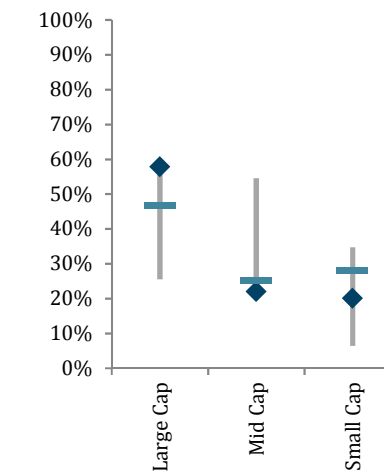
Regions



Sectors



Market Cap



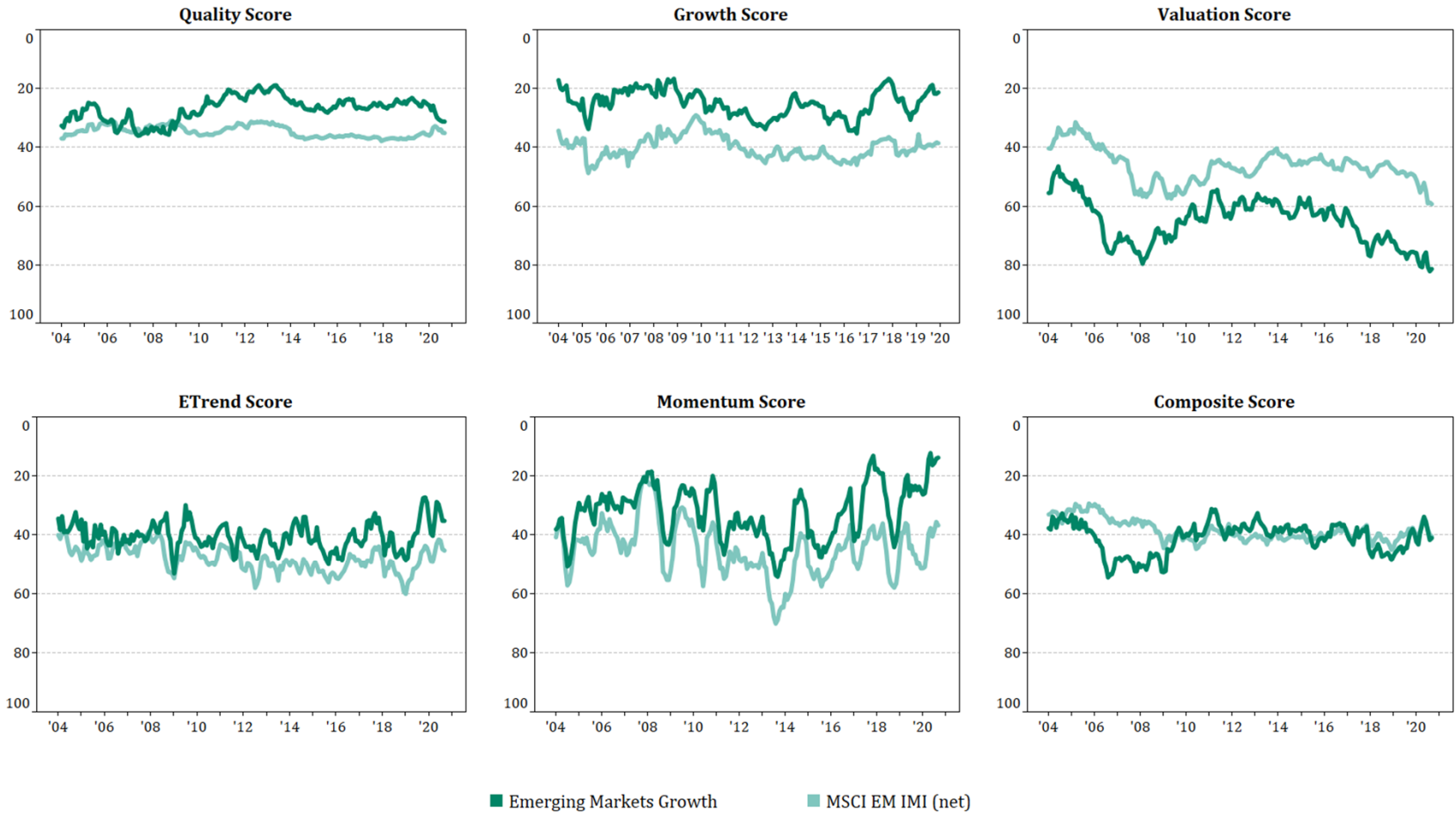
◆ Current Portfolio Weight ■ Current Benchmark Weight ■ Historic Range¹

¹Historic range dates back to 7/1/2005. Region, Sector and Market Cap are based on quarterly data as of September 30, 2020.

Source: William Blair. Individual securities listed in this report are for informational purposes only. Holdings are subject to change at any time. The data shown above is based on the strategy's representative portfolio excluding cash. Small cap is defined as \$0-\$4 billion, mid cap \$4 billion to \$15 billion, and large cap over \$15 billion. The MSCI Emerging Markets Investable Market Index (IMI) Net is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. This information does not constitute, and should not be construed as, investment advice or recommendations with respect to the securities listed.

Emerging Markets Growth Portfolio Characteristics

September 30, 2020



Aggregate scores shown above based on William Blair proprietary quantitative model. For individual and composite ranks, 1 is best and 100 is worst.

Emerging Markets Growth

Broad emerging markets portfolio of 120-175 stocks diversified across market cap, region, industry and corporate lifecycle with a structural weight to small cap companies.

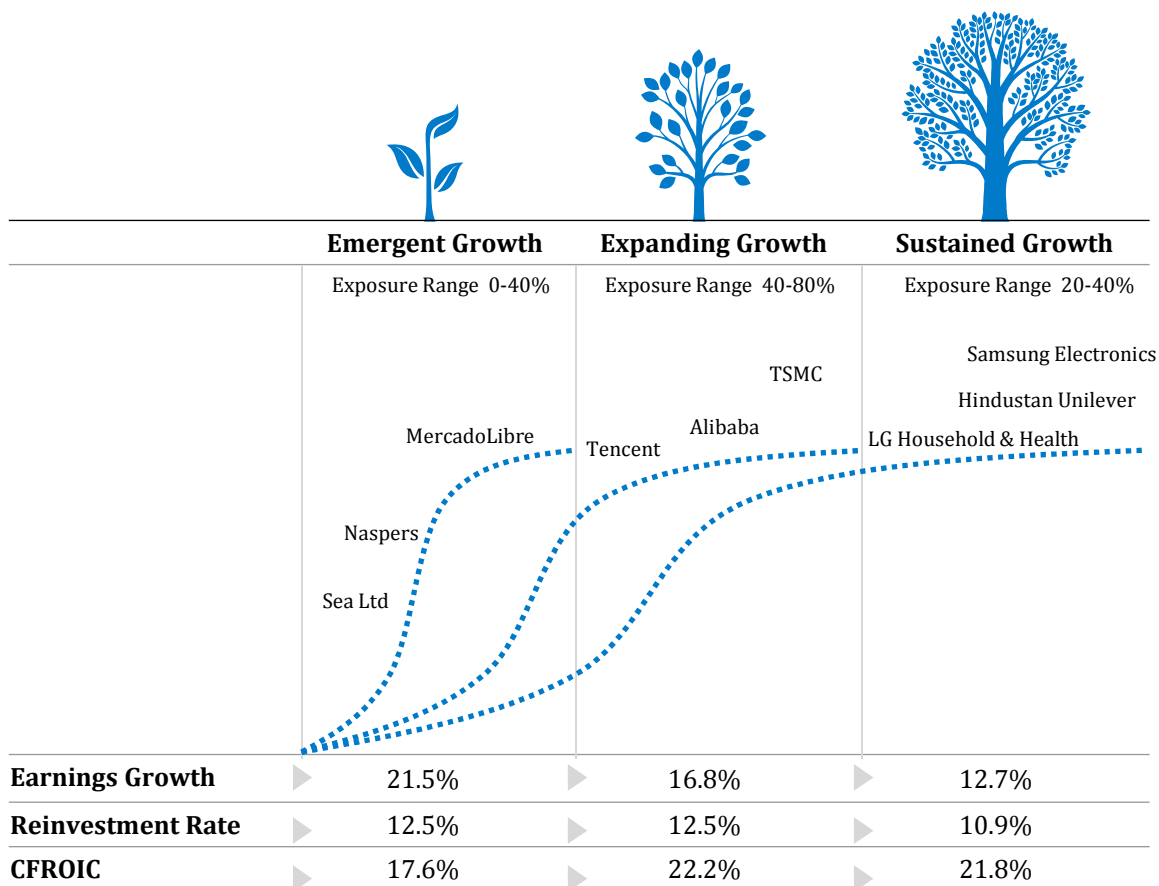
Portfolio Managers



Todd M. McClone, CFA, Partner
Portfolio Manager
 28 years industry experience
 20 years with William Blair
 B.B.A. and B.A., University of Wisconsin–Madison



Casey Preyss, CFA, Partner
Portfolio Manager
 21 years industry experience
 20 years with William Blair
 M.B.A., University of Chicago
 B.S.B.A., The Ohio State University



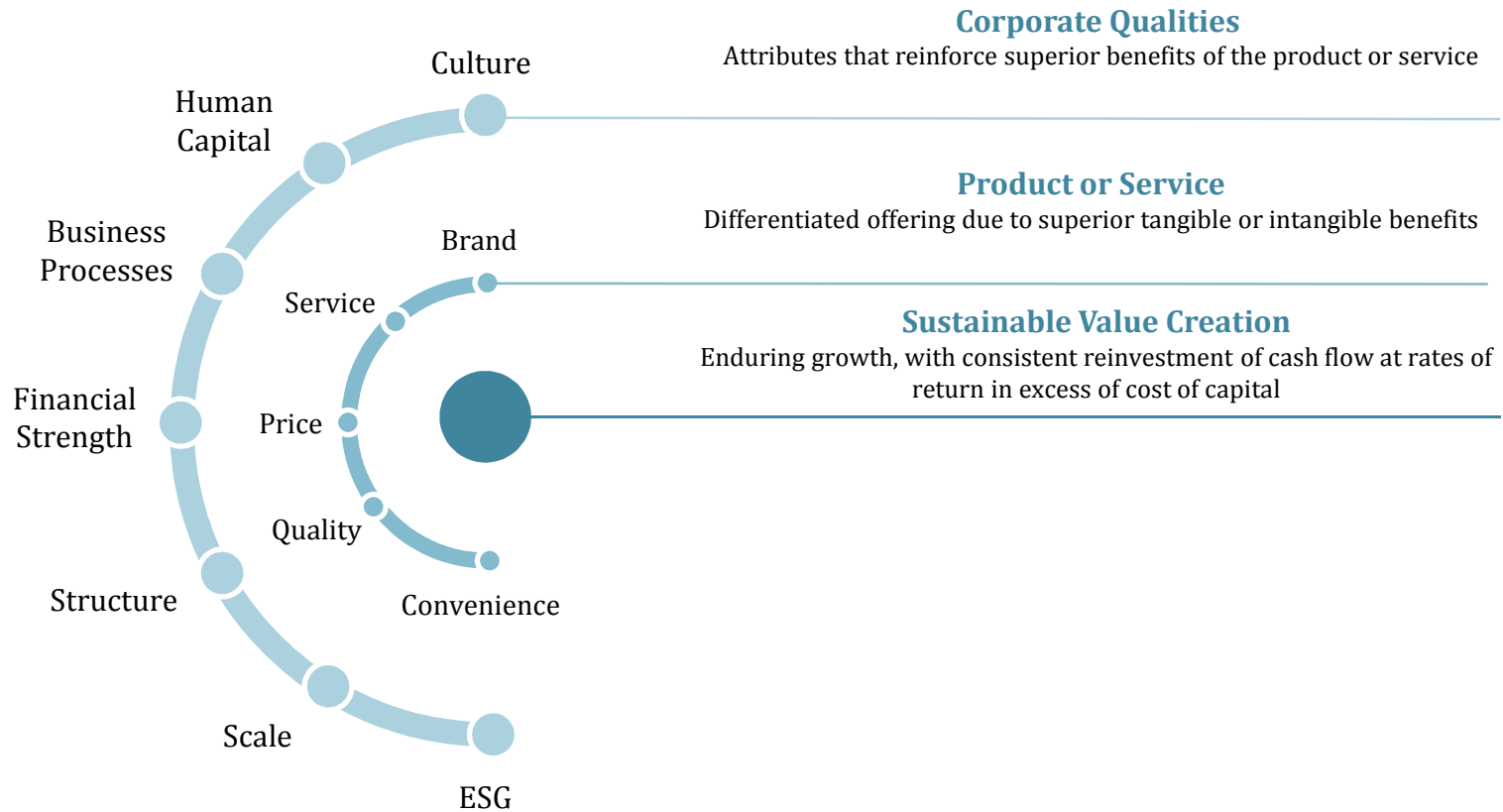
As of September 30, 2020.

The data shown above is based on the strategy's representative portfolio. Characteristics reflect medians. Holdings include cash. Individual securities listed in this report are for informational purposes only. Holdings are subject to change at any time. This information does not constitute, and should not be construed as, investment advice or recommendations with respect to the securities listed. The above securities do not represent all of the securities purchased, sold or recommended for all William Blair clients. Lifecycle category assignments are based on analysts' opinions of companies using both qualitative and quantitative characteristics. Lifecycle categories are provided for illustrative purposes only and are not intended as investment advice or as projections of future returns. Top three holdings by weight are listed for each lifecycle category. Characteristics calculated by William Blair.



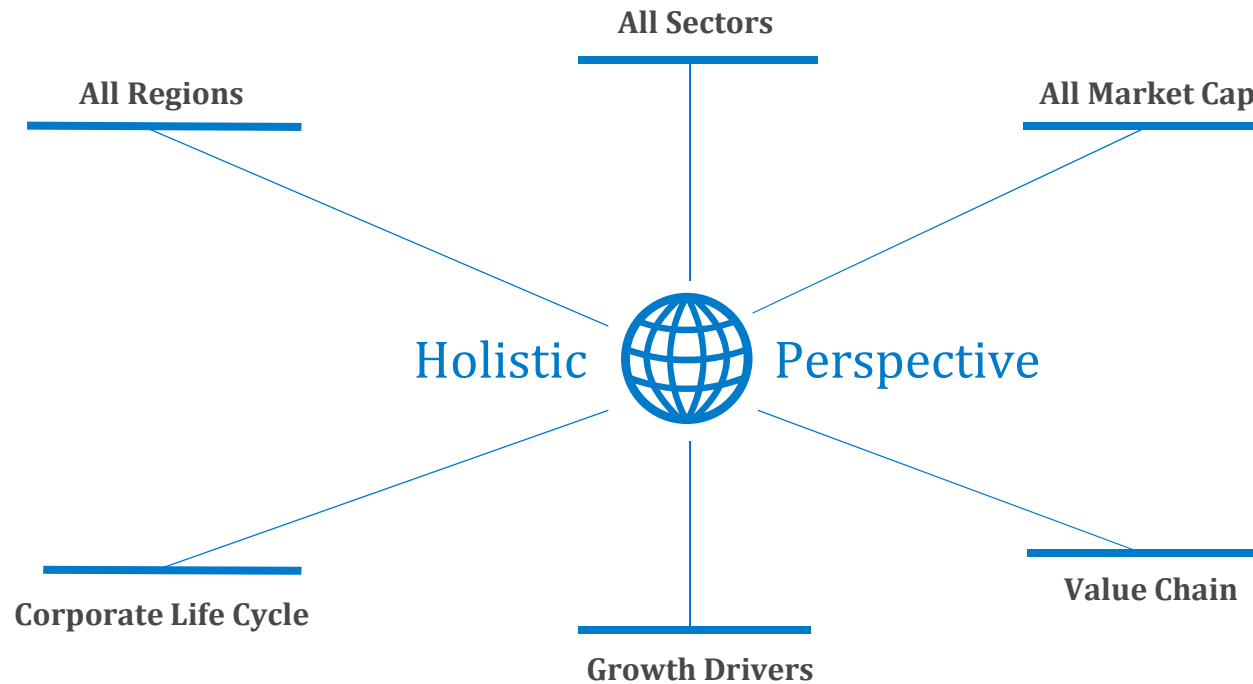
Sustainable Value Creation

Strong corporate performance is the driver of superior investment returns



Holistic Perspective

We believe that applying a global and inclusive framework is the proper way to evaluate the competitive landscape



Integrated Investment Platform

Revolution in the Auto Industry



Growth Driver



Proprietary Tools and Systematic Inputs



Value Chain



Company Examples and Portfolio Implementation

	GL	IL/ADR	IG	ISCG	EML	EMG	EMSCG	China A
Expanding growth Leader in automotive semiconductors based in Germany covered by Bill Benton in Technology	✓	✓	✓					
Sustained growth Leader in automotive tires based in France within the industrials sector covered by Andy Siepker		✓	✓					
Expanding growth towards mid cap manufacturer of light commercial vehicles based in India covered by Anil Daka in Industrials			✓		✓	✓	✓	
Emergent growth Japanese small cap lithium-ion battery producer within the Materials sector covered by Ben Loss			✓	✓				
Expanding growth small cap Chinese producer of automotive glass for the domestic market covered by Anil Daka				✓			✓	✓

For illustrative purposes only. Not intended as investment advice. Lifecycle stages are not projections of future returns. References to specific securities and their issuers are for illustrative purposes only and are not intended and should not be interpreted as recommendations to purchase or sell such securities. William Blair may or may not own the securities referenced and, if such securities are owned, no representation is being made that they will continue to be held. It should not be assumed that any investment in the securities referenced was or will be profitable.

Sustainable Value Creation Across the Corporate Lifecycle



Lifecycle Stage	Emergent Growth	Expanding Growth	Sustained Growth
Description	<p>Narrow product or service offering, often novel and disruptive</p> <p>Focus on making customers aware of the competitive advantage of the offering</p>	<p>Expanding market share and extended market leadership</p> <p>Clear points of differentiation in offering vs. competitors</p> <p>Integration of innovation into core offering to extend market leadership</p>	<p>Dominant market position which it seeks to maintain</p> <p>Defends market share and profitability through integration of innovation</p> <p>Relentless focus on improving efficiencies</p>
Growth	<p>Rapidly growing market or large market with rapidly growing market share</p> <p>Focus on top-line growth</p>	<p>Pursues new growth opportunities while divest older, exhausted ones</p> <p>Top-line growth slows but becomes more certain</p>	<p>Top-line growth plateaus at stable levels</p> <p>Focus on bottom-line growth</p>
Profitability	<p>Willingness to delay profitability to maximize long-term value</p> <p>High levels of investment as a percentage of revenue</p>	<p>Cash flow improves due to increasing operating margins</p> <p>Stronger cash flow generation supports high reinvestment levels</p>	<p>High and stable margins</p> <p>Reinvestment rates have decreased to modest levels</p> <p>Excess profit returned through dividends/buybacks</p>

For illustrative purposes only. Not intended as investment advice. Lifecycle stages are not projections of future returns.

The William Blair Mission: Empower. Deliver. Engage.

Empower Colleagues

- Entrepreneurial investment-led culture encourages diverse viewpoints
- Cross-sectional teams answer key questions and drive strategic imperatives
- Mentorship, professional development, generous educational assistance program reinforce intellectual curiosity

Engage in Our Communities

- Our colleagues are actively engaged in the industry through leadership and volunteer roles
 - We actively engage with diverse professional organizations to broaden the net in investment management
 - Firm has a culture of global giving & volunteerism
- In 2019:
- Giving ranked in top quartile of financial institutions¹
 - 40% of employees used matching gift v. 24% in industry
 - We volunteered for 2400 hours, up 40% YOY

¹Measured by % of net income.

Deliver Client Success

- Private partnership structure aligns interests with clients over the long term
- Demonstrated track record of value added performance
- Clients engage directly with decision makers



Organizations Supported by Charity Location: 2019



Diverse Thought Drives Strong Outcomes

Recruiting Strategy

- Diverse candidate and interviewer slates are the norm
- Gender-neutral job descriptions
- Always Be Recruiting networking casts a wide net

Industry Outreach

- Purposefully partner with Diverse Professional Organizations for networking, recruiting and to raise awareness
- Collaborate with other industry participants to promote D&I
- CFAI Experimental Partners Program

Internal Initiatives

- Global Inclusion Council sets the firm's strategy
- Business Resource Groups lead initiatives and support colleagues
- Courageous Conversations engage teams in new ways
- Unconscious bias training addresses blind spots
- Mentoring program provides 1x1 networking and feedback

Results

- Diverse leadership teams: IM led by a woman for the last 20 years

Since 2017:

- 37.3% of new hires are racially/ethnically diverse (R/ED) and 36.0% are women
- Women represent 37% of IM
- R/ED talent increased from 15.7% to 18.1%
- Of 8 mutual fund board members, 3 are women and 1 is R/ED



2017 data is as of December 31, 2017. 2019 data is as of December 31, 2019. Excludes international employees. 75 hires.

Holistic, Investment-led Integration of ESG

Commitment

- PRI signatory since 2011; A+ rated for Equity Incorporation; A rated for Active Ownership¹
- Member of the U.S. Investor Stewardship Group and International Corporate Governance Network; signatory of stewardship codes in the UK, Japan and Korea
- ESG Leadership Team consists solely of investment professionals
- Natural alignment with our quality-focused investment philosophies
- \$10.6 billion in mandates with client-specific ESG objectives²

Integration

- Investment opportunities and risks holistically incorporate material ESG considerations
- Proprietary framework focuses analysis on most relevant industry- or country-specific factors
- Proprietary Summit research platform facilitates seamless integration and analysis

¹Per 2020 PRI Assessment Report. The median Equity Incorporation rating for all PRI signatories was A. The median Active Ownership rating for all PRI signatories was B.

²As of September 30, 2020. Includes separate accounts with client-specific screening criteria.

William Blair ESG Materiality Framework Topic Structure

Environmental

Climate Change
Natural Resources Stewardship
Pollution and Waste

Social

Human Capital
Customer Well-Being
Supply Chain Management
Community Relations

Governance

Corporate Governance
Corporate Culture

Country ESG Factors

Political stability and institutional strength
Regulatory effectiveness, level of corruption, and rule of law
Demographic changes, living standards, and income inequality
Natural resource availability and climate change resilience

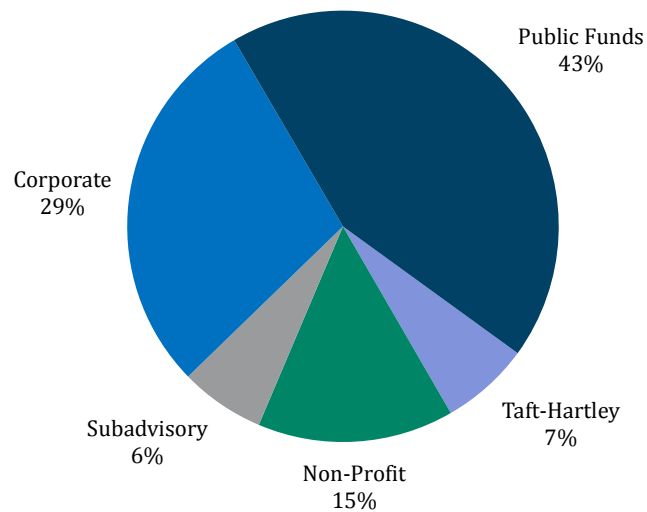


Signatory of:



Sophisticated Investor Base

Balanced mix of institutional clients representing \$61.7 billion in assets



Corporate

- Air Products & Chemical, Inc.
- AT&T
- Bank of America
- Boeing Company
- Caterpillar Inc.
- Liberty Mutual Insurance
- PGA TOUR, Inc.

Endowment/Foundation

- The College of William and Mary Foundation
- Indiana University Foundation
- Landmarks Financial Corporation
- McGill University
- Toledo Museum of Art
- Truth Initiative
- University of California, Irvine Foundation

Healthcare & Not-For-Profit

- Advocate/Aurora Healthcare
- The Carle Foundation
- Catholic Health Initiatives
- Children’s Hospital of New Orleans
- Clerics of St. Viator
- NorthShore University HealthSystem
- OhioHealth
- Rush University Medical Center
- SKL Investment Group, LLC

Sub Advisory

- Charles Schwab
- Fidelity
- Lombard Odier Darier Hentsch
- Northern Trust
- Prudential
- SEB Group
- UBS

Public Plans and Taft-Hartley

- City of Lansing ERS & PFRS
- City of Orlando Pension Plans
- Contra Costa County Employees’ Retirement Association
- County Employees’ Annuity and Benefit Fund of Cook County
- El Paso Firemen and Policemen’s Pension Fund
- Employees’ Retirement System of the City of Milwaukee
- Firemen’s Annuity & Benefit Fund of Chicago
- Florida State Board of Administration
- Illinois State Board of Investment
- Illinois Municipal Retirement Fund
- Iowa Judiciary
- Laborers’ Annuity and Benefit Fund of Chicago
- Municipal Employees’ Annuity & Benefit Fund of Chicago
- Municipal Police Employees’ Retirement System of Louisiana
- Orange County ERS
- Oregon State Treasury
- Pensionskasse SBB (Swiss Federal Railway)
- Policemen’s Annuity and Benefit Fund of Chicago
- Sacramento County ERS
- Teachers’ Retirement System of Louisiana
- Tulare County Employees’ Retirement Association
- Washington State Investment Board

As of September 30, 2020.

This list is comprised of representative clients that have either given William Blair express permission to use their names or for whose services we provide have been made part of the public domain. Inclusion indicates the scope of clients served, but is not to be construed as an approval or disapproval of William Blair or its advisory services.

William Blair Emerging Markets

Deep-Rooted Experience

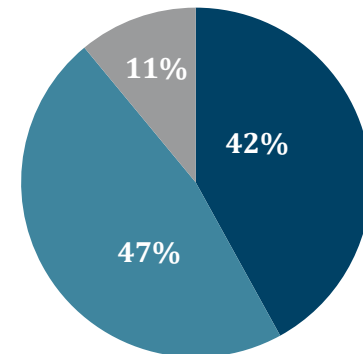
- Managing Emerging Markets strategies since 1996 with the same philosophy and process
- Involved in China A shares since 2012 with research presence in Shanghai
- Currently manage \$11.4 billion in dedicated Emerging Markets strategies and \$16.7 billion in Emerging Markets securities across Global Equity Team's strategies

Emerging Markets Strategies Suite

Strategy	Scope	Benchmark
Emerging Markets Leaders	Concentrated portfolio of leading companies in terms of products, services, and execution	MSCI Emerging Markets
Emerging Markets Growth	Diversified, all-cap portfolio of high quality companies, with constant exposure to small cap	MSCI Emerging Markets IMI
Emerging Markets Small Cap Growth	Diversified portfolio of high quality small cap companies	MSCI Emerging Markets Small Cap
China A-Shares Growth	High quality growth portfolio of China A share companies across market cap spectrum	MSCI China A Onshore

Emerging Markets' Significant Role in Eligibility List¹

Emerging Markets make up a disproportionate percentage of our quality growth universe



■ Developed ex-US ■ Emerging Markets ■ United States

As of September 30, 2020.

¹Based on number of companies in the Global Eligibility List. Eligibility List data source: William Blair and MSCI ACWI IMI Index. Calculated in FactSet. Strategy availability may be limited to certain investment vehicles; not all investment vehicles may be available to all investors. Assets shown in U.S. dollar.

Biographies – Global Investment Team

Portfolio Management



Alaina Anderson, CFA
Partner

Alaina Anderson, CFA, partner, is a portfolio manager for the International Leaders ADR strategy and a global research analyst covering real-estate, utilities, and engineering companies.

Before joining William Blair in 2006, she was a senior analyst in the investments department of the MacArthur Foundation, where she provided research support for internally managed portfolios and was involved in investment manager due diligence, selection, and monitoring for the foundation's U.S., non-U.S., and hedge-fund portfolios. Before joining the MacArthur Foundation, Alaina was an investor relations consultant with Ashton Partners and a financial advisor with UBS Painewebber. She is a fellow of Leadership Greater Chicago, a board member of the North Lawndale Employment Network, and a member of the CFA Institute and the CFA Society Chicago.

Education: B.S., Wharton School at the University of Pennsylvania; M.B.A., University of Chicago's Booth School of Business



Simon Fennell
Partner

Simon Fennell, partner, is a portfolio manager for William Blair's International Growth, International Small Cap Growth, and International Leaders strategies.

He joined William Blair in 2011 as a technology, media, and telecommunications research analyst focusing on idea generation and strategy more broadly. Before joining William Blair, Simon was a managing director in the equities division at Goldman Sachs in London and Boston, responsible for institutional equity research coverage for European and international stocks. Previously, Simon was in the corporate finance group at Lehman Brothers in London and Hong Kong, working in the M&A and debt capital markets groups.

M.A., University of Edinburgh; M.B.A., Cornell University's Samuel Curtis Johnson Graduate School of Management



Andrew G. Flynn, CFA
Partner

Andy Flynn, CFA, partner, is a portfolio manager for William Blair's International Small Cap Growth and Global Leaders strategies.

Since joining William Blair in 2005, Andy has served as a U.S. industrials and consumer analyst and a non-U.S. consumer, healthcare, and IT analyst. He was also a portfolio manager for the firm's Global Small Cap Growth strategy. Before joining the firm, Andy was a senior equity analyst and portfolio manager at Northern Trust, where he specialized in mid- and small-capitalization growth companies. Before that, he was a senior equity analyst at Scudder Kemper Investments and a research assistant at Fidelity Investments. Andy is a member of the CFA Institute and the CFA Society Chicago.

B.A., economics, University of Kansas; M.B.A. finance emphasis, University of North Carolina at Chapel Hill



Kenneth J. McAtamney
Partner

Ken McAtamney, partner, is the head of the global equity team and a portfolio manager for William Blair's International Growth, Global Leaders, and International Leaders strategies. He is also a member of the Investment Management leadership team.

He was previously co-director of research and a mid-large-cap industrials and healthcare analyst. Before joining William Blair in 2005, Ken was a vice president at Goldman Sachs and Co., where he was responsible for institutional equity research coverage for both international and domestic equity. Before that, he was a corporate banking officer with NBD Bank.

B.A., Michigan State University; M.B.A., Indiana University

Biographies – Global Investment Team

Portfolio Management



Todd M. McClone, CFA
Partner

Todd McClone, CFA, partner, is a portfolio manager for William Blair's emerging markets strategies.

Before joining the firm in 2000, he was a senior research analyst specializing in international equity for Strong Capital Management. Previously, he was a corporate finance research analyst with Piper Jaffray, where he worked with the corporate banking financials team on a variety of transactions, including initial public offerings, mergers and acquisitions, and subordinated debt offerings. He also issued fairness opinions and conducted private company valuations.

Education: B.B.A. and B.A., University of Wisconsin–Madison



Jack Murphy, CFA
Partner

Jack Murphy, CFA, partner, is a portfolio manager for William Blair's Emerging Markets Leaders strategies.

Previously, he was director of research for the Global Equity team and a research analyst covering mid-large-cap non-U.S. consumer stocks. He joined William Blair in 2005 as a sell-side research analyst focusing on e-commerce and hardline retailers. Previously, he was an equity research analyst covering a broad range of retail companies for Credit Suisse First Boston for nearly six years. Before that, he was an equity research analyst at Lehman Brothers and an equity research associate at Salomon Brothers. Before that, he was a financial analyst for General Electric Capital, having graduated from GE's financial management program.

B.A., economics, magna cum laude, Villanova University.



Casey K. Preyss, CFA
Partner

Casey Preyss, CFA, partner, is a portfolio manager for William Blair's Emerging Markets Growth, Emerging Markets Small Cap Growth, and China A-Shares Growth strategies.

Since joining William Blair in 2000, he has been a research analyst covering industrials, IT, and resources stocks. Before taking on fundamental research responsibilities for William Blair's global equity team, Casey was a quantitative analyst. Before joining the firm, he was an international equity research sales associate with Thomas White International.

B.S.B.A., The Ohio State University; M.B.A., University of Chicago's Booth School of Business



Vivian Lin Thurston, CFA
Partner

Vivian Lin Thurston, CFA, partner, is a portfolio manager for William Blair's China A-Shares Growth strategy and a global research analyst covering Chinese equities.

Previously, she was a global research analyst covering large-cap consumer companies. Before joining William Blair, Vivian was vice president and consumer sector head at Calamos Investments. Before that, she was an executive director and senior investment analyst at UBS Global Asset Management/Brinson Partners, where she was responsible for stock selection and research for consumer sectors in the United States and emerging markets. Vivian also held roles at Mesirow Financial, China Agribusiness Development Trust and Investment Corporation, and Vanke. She is a member of the CFA Institute and the CFA Society Chicago. She is also the founder and chairman of the board of the Chinese Finance Association of America, a 501(c) nonprofit organization.

B.A., sociology, Peking University; M.A., sociology and M.S., finance, University of Illinois Urbana-Champaign

Biographies – Global Investment Team

Portfolio Specialists



Ryan Dimas, CFA, CAIA
Partner

Ryan Dimas, CFA, CAIA, partner, is a portfolio specialist for William Blair's global equity strategies.

In this role, Ryan participates in the team's decision-making meetings, conducts portfolio analysis, and is responsible for communicating portfolio structure and outlook to clients, consultants, and prospects. Previously, for 17 years, Ryan led the investment manager research effort for William Blair Select, a team that was responsible for the selection and ongoing evaluation of third-party investment managers. In 2016, Ryan was named chief investment strategist and chair of the asset allocation investment committee for investment counseling, where he worked closely with investment counseling teams on strategic and tactical recommendations that were implemented within portfolios. He is a member of the CFA Society Chicago and a CAIA charterholder.

Education: B.A., finance, Arizona State University



Romina Graiver

Romina Graiver is a portfolio specialist for William Blair's global equity strategies.

In this role, she participates in the team's decision-making meetings, conducts portfolio analysis, and is responsible for communicating portfolio structure and outlook to clients, consultants, and prospects. She is a member of William Blair's ESG leadership team and Global Inclusion Council. Previously at William Blair, she was a senior client relationship manager. Before joining William Blair in 2012, Romina was deputy head of the international equity investment team at BNP Paribas Investment Partners, where she was responsible for product development and investor communication. Before taking on that role, she was a product specialist for model-driven equity investments and a marketing manager. She holds the CFA UK Certificate in ESG Investing.

B.Sc., international business and an M.Sc., economics, University of Pantheon-Sorbonne, Paris, France



Blake Pontius, CFA

Blake Pontius, CFA, is director of sustainable investing and a global portfolio specialist.

In this role, he coordinates the firm's integration of environmental, social and governance (ESG) factors in its investment processes and provides analytical support to portfolio managers on the global equity team. He is also responsible for communicating investment strategy and portfolio positioning to clients, consultants, and prospects. Previously at William Blair, Blake was a relationship manager responsible for institutional clients invested in the firm's global/international and emerging market equity strategies. Before joining William Blair in 2005, Blake worked at UBS Asset Management and Mercer. He is a member of the CFA Institute and the CFA Society Chicago. In addition, he holds the SASB Fundamentals of Sustainability Accounting (FSA) credential.

B.A., economics, with honors, Michigan State University; M.B.A. in finance, with distinction, from DePaul University

Biographies – Global Investment Team

Research



William Benton, CFA, CPA
Partner

William Benton, CFA, CPA, partner, is a global equity research analyst. He covers small-cap consumer companies.

Previously, he covered mid- and large-cap technology, media, and communication services companies. Before joining William Blair Investment Management in 2007, William was a technology research analyst with the firm's sell-side research group for 10 years. In this position, he was twice named "Best on the Street" in *The Wall Street Journal's* annual analyst survey. Before joining William Blair in 1997, he worked at SBC Warburg, U.S. Cellular, May Company, and Monsanto. He is a member of the CFA Society Chicago and holds the CMA designation.



Drew Buckley, CFA

Drew Buckley, CFA, CPA, is a global equity research analyst. He covers small-cap technology, media, and communication services companies.

Before joining William Blair in 2008 as a global research associate focused on technology, media, and telecommunications stocks, he spent two years as a senior associate in Ernst & Young LLP's investment management assurance practice. Drew is a member of the CFA Society Chicago.



Anil Daka, CFA

Anil Daka, CFA, is a global equity research analyst. He covers midcap industrial companies.

Before joining the firm in 2011, Anil was an equity analyst at Morningstar, where he was responsible for equity research coverage in the global industrials sector. He is a member of the CFA Institute and the CFA Society Chicago.



Daniel Hill, CFA

Daniel Hill, CFA, is a global equity research analyst at William Blair Investment Management. He covers small-cap financial companies.

He was previously a global generalist research analyst and an international and global research associate supporting the global financial team under the guidance of research analysts. Daniel joined William Blair in 2005 as an investment accountant. He is a member of the CFA Institute and the CFA Society Chicago.

Education: B.S., finance, University of Illinois Urbana-Champaign; M.B.A., Dartmouth College's Amos Tuck School of Business Administration, where he was a Tuck Scholar

B.S., business, University of Colorado-Boulder

B.Tech., metallurgical engineering, Indian Institute of Technology; M.B.A. from the University of North Carolina

B.S., finance, University of Nebraska; M.B.A. from Northwestern University's Kellogg Graduate School of Management

Biographies – Global Investment Team

Research



Jayesh Kannan, CFA

Jayesh Kannan, CFA, is a global equity research analyst. He covers small-cap technology, media, and communication services companies.

Before joining William Blair in 2018 as a research associate focused on technology, media, and communication services, Jayesh was an associate in the institutional equities division at Morgan Stanley in New York City and Singapore. In this role, he focused on emerging market and Asian equities. Jayesh is a member of the CFA Institute and the CFA Society Chicago.



Benjamin Loss, CFA

Benjamin Loss, CFA, is a global equity research analyst. He covers energy and materials companies.

Before joining William Blair in 2011 as a global research associate focused on energy and materials, Benjamin was a sell-side research associate at Morgan Keegan. He is a member of the CFA Institute and the CFA Society Chicago.



**D.J. Neiman, CFA
Partner**

D.J. Neiman, CFA, partner, is co-director of research for the global equity team. He is also a global equity research analyst covering large- and mid-cap financial companies.

Before joining Investment Management in 2009, D.J. was an analyst in the firm's sell-side research group, covering the financials sector with a focus on the asset-management and advisory investment-banking industries. Previously, D.J. was a senior accountant with William Blair Funds and a fund analyst at Scudder Kemper Investments. He is a member of the CFA Institute and the CFA Society Chicago.



**Camilla Oxhamre Cruse,
Ph.D**

Camilla Oxhamre Cruse, Ph.D., is a global equity research analyst covering small- and mid-cap healthcare companies.

Before joining William Blair in 2014, Camilla spent six years at Carnegie Investment Bank, where she was a sell-side research analyst focusing on the Nordic pharma and biotech industry. She has a scientific background. Specifically, Camilla has a PhD in medicine (immunology and infectious diseases) from the Karolinska Institutet in Stockholm, Sweden (known as the "home of the Nobel Prize in Medicine") and an M.Sc. in biochemistry from Lund University (in Lund, Sweden) and École Nationale Supérieure de Chimie de Montpellier (in Montpellier, France).

Education: B.E., computer engineering, Nanyang Technological University, Singapore, graduated as a Singapore Airlines-Neptune Orient Lines scholar with first-class honors. M.B.A., Sloan School of Management at the Massachusetts Institute of Technology (MIT), was a Martin Trust Community Fellow.

B.S., accounting, summa cum laude, University of Maine; M.S., finance, Vanderbilt University

B.S., Miami University; M.B.A., with high distinction, University of Michigan's Ross School of Business

M.B.A., finance, Hawaii Pacific University; Ph.D., medicine, Karolinska Institute; M.Sc., biochemistry, Lund University

Biographies – Global Investment Team

Research



Richard Reznick, Ph.D.

Richard Reznick, Ph.D., is a global equity research analyst. In this role, he covers Chinese equities with a focus on small-cap healthcare companies.

Before joining William Blair in 2010 as an equity research associate focused primarily on the biotechnology sector, Richard was a product specialist in Abbott Laboratories' diagnostics division.



Greg Scolaro, CFA, CPA

Greg Scolaro, CFA, CPA, is a global equity research analyst. He covers large cap technology, media, and communication services companies.

Previously, he covered small-cap emerging markets companies. Before that, he was a research associate covering global technology, media, and telecommunications stocks. Before joining the firm in 2014, Greg was an auditor in the technology sector at KPMG Chicago. He is a member of the CFA Institute and the CFA Society Chicago.



Bryan Shea

Bryan Shea is a global equity research analyst. He covers small-cap consumer companies in emerging markets.

He joined the firm in 2009 as an emerging markets generalist. Previously, he was an associate focusing on global consumer stocks and a sell-side research associate focusing on several subsectors within the consumer sectors. Before joining William Blair, Bryan was an associate at Madison Capital Funding, where he provided a variety of cash-flow-based, leveraged-capital products to private-equity sponsors. Before that, he was an analyst at Lincoln International, where he worked on mergers and acquisitions, issued fairness opinions, and conducted private company valuations.



**Andrew J. Siepker, CFA
Partner**

Andrew Siepker, CFA, partner, is a global equity research analyst. He covers large-cap industrial companies.

Previously, he was a research analyst conducting non-U.S. consumer research and worked on William Blair's sell-side as a research associate focused on e-commerce and hardline retailers. Before joining William Blair in 2006, Andy was a financial analyst in a finance training program at First Data Corporation. He is a member of the CFA Institute and the CFA Society Chicago.

Education: B.S., biology, University of Illinois at Urbana-Champaign; Ph.D., biology, Yale University

B.S. and M.S., accountancy, University of Illinois Urbana-Champaign

B.S., finance, with honors, Indiana University; M.B.A., Northwestern University's Kellogg School of Management

B.S., finance, with highest distinction, University of Nebraska

Biographies – Global Investment Team

Research



Kwesi Smith, CFA

Kwesi Smith, CFA, is a global equity research analyst. He covers large-cap consumer companies.

Before joining the firm in 2015, Kwesi was an equity research analyst for TimesSquare Capital Management for 10 years. In this role, he supported the firm’s research efforts across a variety of sectors, including healthcare, technology, media/cable, defense, and consumer, before focusing on healthcare. Before that, Kwesi worked at MetLife Investments as a technology, media/cable, and telecom fixed-income research analyst and provided credit analysis across a variety of fixed-income asset classes, including high yield, private placement, leveraged finance, and investment-grade public corporates. He is on the governing board of 3Arts and Breakthrough. He is also a member of the CFA Institute and the CFA Society Chicago.



**Thomas A. Sternberg, CFA
Partner**

Tommy Sternberg, CFA, partner, is a global equity research analyst. He covers large-cap healthcare companies.

Previously, he was a research associate focused on the healthcare industry. Before joining William Blair in 2004, Tommy spent two years as an equity analyst in Oak Brook Bank’s investment management and trust department. He is a member of the CFA Institute and the CFA Society Chicago.

Education: B.S., University of Virginia’s McIntire School of Commerce

B.S., economics, Duke University;
M.B.A., University of Chicago’s Booth School of Business

Biographies – Global Investment Team

Systematic Research



Spiro Voulgaris
Partner

Spiro Voulgaris, partner, is a senior quantitative analyst and systematic equity portfolio manager.

He joined William Blair in 2007. Before joining the firm, Spiro was a senior quantitative analyst with Neuberger Berman for five years and subsequently worked alongside the same investment professionals for an additional three years while with Northern Trust. He was also with Lehman Brothers for six years, where he was a strategist and quantitative analyst for its global and U.S. investment strategy teams in London and New York. Before that, Spiro spent three years as a research analyst with the Center for Research in Securities Prices (CRSP).



Andrew Kominik, CFA

Andrew Kominik, CFA, is the liquidity and investment risk manager.

In this role, Andrew identifies, aggregates, and monitors investment-related risks across William Blair Investment Management. He also is a senior quantitative analyst on the systematic research team, where he spearheaded the development of William Blair's proprietary equity risk models and continues to maintain and enhance them. Previously, Andrew was a quantitative portfolio analyst, portfolio construction analyst, and marketing analyst. Before joining William Blair in 2003, he worked in institutional marketing at Columbia Management Group. Andrew is a member of the CFA Institute and the CFA Society Chicago.



Anand Krishnakumar, CFA

Anand Krishnakumar, CFA, is a quantitative developer on the systematic research team.

In this role, he develops applications and tools for quantitative analysis, attribution, and portfolio management. He joined William Blair in 2015 as a director of technology in William Blair's IT group, where he managed research and marketing platforms. Before joining the firm, Anand worked at Morningstar, JPMorgan, and Morgan Stanley as a vice president and IT manager in asset management; in these roles, he was responsible for a number of proprietary applications and platforms. He is a member of the CFA Institute and the CFA Society Chicago.



Andy Tang, CFA

Andy Tang, CFA, is a quantitative analyst on the systematic research team.

In this role, he conducts research on quantitative finance and builds tools for portfolio optimization and risk management. Before joining William Blair in 2016, Andy spent five years as a quantitative analyst at Morningstar, where he worked on designing and building the Morningstar global equity risk model and global portfolio optimizer. He also worked on fixed-income pricing and risk analytics and big-data analytics on financial text modeling. He is a member of the CFA Institute and the CFA Society Chicago.

Education: B.A., economics, University of Chicago; M.B.A., statistics and international finance, University of Chicago's Booth School of Business

B.A., history, Brandeis University; M.B.A., finance and econometrics/statistics, University of Chicago's Booth School of Business

B.E., electronics and instrumentation, Birla Institute of Technology and Science in Pilani, India; M.S., computer science, University of Illinois at Urbana-Champaign; M.S., financial mathematics, University of Chicago

B.A., economics, Donghua University; M.S., finance, Illinois Institute of Technology; M.S., statistics, University of Chicago

Biographies – Global Investment Team

Systematic Research



Andrew Wickman, CFA

Andrew Wickman, CFA, is a quantitative research analyst on the systematic research team.

In this role, he develops and programs multifactor quantitative models that are used by fundamental equity analysts and portfolio managers. He also produces research for the team's portfolio strategy thought leaders. Before joining William Blair in 2015, Andrew was a consultant at FactSet Research Systems for four years; in this role, he supported investment management research analysts and portfolio managers. He is a member of the CFA Institute and the CFA Society Chicago.

Education: B.S., economics, University of Kentucky

Biographies – Global Investment Team

Strategy Research and Technology



Olga Bitel
Partner

Olga Bitel, partner, is a global strategist.

She is responsible for economic research and analysis across all regions and sectors. She distills macroeconomic and geopolitical developments into actionable insights for global equity portfolios within a multifaceted strategic framework. In addition, she provides insights about cyclical turning points and structural trends as inputs into portfolio construction in predominantly bottom-up investment approaches. Before joining William Blair in 2009, Olga was a senior economist at the National Institute of Economic and Social Research in London, United Kingdom, where she produced macroeconomic forecasts for most Asian economies and led thematic research projects for some of the world's best-known international organizations, including the Organization of the Petroleum Exporting Countries and the International Monetary Fund.

Education: B.A., University of Chicago; M.Sc., economics, London School of Economics and Political Science



Hugo Scott-Gall
Partner

Hugo Scott-Gall, partner, is co-director of research for the global equity team. He is also a thematic strategist.

He is responsible for researching longer-term trends affecting corporate performance and developing systematic solutions for broad investment challenges. Before joining William Blair in 2018, Hugo was a managing director and head of the thematic research team at Goldman Sachs that investigated thematic changes, analyzed their effects across industries, and sought to identify long-term structurally advantaged companies. He produced *Fortnightly Thoughts*, a publication offering thematic insights, and *GS Sustain*, a long-term-focused publication that sought to identify best-in-breed companies. He also oversaw *GS Dataworks*, a team that used alternative data to augment fundamental research. Before his move into thematic research, Hugo was an equity research analyst covering European transportation companies. Before Goldman Sachs, he was an equity research analyst at Fidelity Investments.



Rita Spitz, CFA
Partner

Rita Spitz, CFA, partner, is a global equity research analyst focusing on ESG integration.

Previously, she was a research analyst covering global and U.S. large- and midcap consumer stocks, and she served as director of research from 2001 to 2008. Rita joined William Blair in 1986 as a sell-side research analyst covering advertising and marketing firms, a role she held for 13 years. She is a member of the CFA Society Chicago, the CFA Institute, and The Economic Club of Chicago. She has also served on the advisory groups of several financial accounting standards boards since 2002, and is currently a board member of the Transition Resource Group for Revenue Recognition and a trustee of The Joffrey Ballet.

B.B.A., finance and Spanish, University of Wisconsin–Madison; M.B.A., University of Chicago's Booth School of Business



Darragh Grogan

Darragh Grogan is a technologist on the global equity team.

In this role, he works with William Blair's IT development team to implement technological improvements into the investment process. Before joining William Blair in 2008 as a software engineer supporting trading and reconciliation, Darragh was a senior software engineer at Accenture and Fidelity.

B.Com. and a higher diploma in applied science (software development and design), National University of Ireland in Galway; M.S., advanced software engineering, University College Dublin

Biographies – Eastern Region Business Development Team



Kevin Fetzer, CFA
Partner

Kevin Fetzer, CFA, partner, is responsible for consultant relations and institutional business development at William Blair Investment Management.

He covers the Eastern region of the United States. Before joining the firm in 2010, Kevin was a client relationship manager and consultant relations associate at UBS Global Asset Management. He began his career as a commercial credit analyst for Regions Financial. Kevin serves as an advisory group member for the CFA Society Chicago, and is a member of the CFA Institute and CFA Society Chicago. He is also an active volunteer for Imerman's Angels, a cancer support network.



Madelyn Schiller, CFA

Madelyn Schiller, CFA, is responsible for consultant relations and business development for William Blair Investment Management.

She covers the Eastern region of the United States. Madelyn joined William Blair in 2010, and spent three years as a database analyst supporting William Blair's institutional marketing efforts before joining William Blair's business development team in 2013. Previously, she was a research associate for Kennedy Capital Management. Madelyn serves on the CFA Society Chicago Women's Network, and is a member of the CFA institute and CFA Society Chicago. She is also an active volunteer, associate board member, and mentor chair for the Daniel Murphy Scholarship Fund.

Education: B.S., finance, Florida State University; M.B.A., investment management, DePaul University's Kellstadt Graduate School of Business

B.S., finance, Saint Louis University's John Cook School of Business

Glossary – Terms

Active Share: A measure of the percentage of stock holdings in a manager's portfolio that differ from the benchmark index.

Alpha: A measure of a portfolio's return in excess of the market return, after both have been adjusted for risk. It is a mathematical estimate of the amount of return expected from a portfolio above and beyond the market return at any point in time. For example, an alpha of 1.25 indicates that a stock is projected to rise 1.25% in price in a year over the return of the market, or the return when the market return is zero. When an investment price is low relative to its alpha, it is undervalued, and considered a good selection.

Beta: A quantitative measure of the volatility of the portfolio relative to the overall market, represented by a comparable benchmark. A beta above 1 is more volatile than the overall market, while a beta below 1 is less volatile, and could be expected to rise and fall more slowly than the market.

CFROI (Cash Flow Return on Invested Capital): A measure of how effectively a company generates cash flow based on legacy capital investment.

Developed Markets: Using the Morgan Stanley Capital International (MSCI) geographic definition, this region includes: United Kingdom, Europe (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Spain, Sweden and Switzerland), Japan, Pacific Asia (Australia, Hong Kong, New Zealand, and Singapore) and the Western Hemisphere (Canada and other Americas).

Debt to Total Capital Ratio: This figure is the percentage of each company's invested capital that consists of debt. Companies with a high Debt to Total Capital level may be considered more risky. From a portfolio perspective, the portfolio Debt to Total Capital Ratio is a weighted average of the individual holdings' Debt to Total Capital Ratio.

Emerging Markets: Using MSCI's geographic definition, this region includes: Emerging Markets Asia (China, India, Indonesia, Malaysia, S Korea, Taiwan, and Thailand), Emerging Markets Europe, Mid-East and Africa (Czech Republic, Hungary, Poland, Russia, Turkey, Egypt, Morocco, and S Africa), and Latin America (Argentina, Brazil, Chile, Columbia, Mexico, Peru and Venezuela).

EPS Estimate Revision Breadth: A 1-month factor representing the trend in the direction of estimate changes. Range from -100% to +100%, it is calculated as the number of positive revisions minus the number of negative revisions divided by the total number of estimates.

EPS (Earnings Per Share) Growth Rate (Projected): This measure represents the weighted average of forecasted growth in earnings expected to be experienced by the stocks within the portfolio over the next year. From a portfolio perspective, the portfolio EPS Growth Rate is a weighted average of the individual holdings' EPS Growth Rate.

EPS Growth Rate (5-Year Historic): The weighted average earnings per share growth for stocks within the portfolio over the past 5 years.

EV/EBITDA (Enterprise Value/Earnings Before Interest, Taxes and Depreciation-Amortization): The EV/EBITDA ratio is useful for global comparisons because it ignores the distorting effects of individual countries' taxation policies. It's used to find attractive takeover candidates. Enterprise value is a better measure than market cap for takeovers because it takes into account the debt which the acquirer will have to assume. Therefore, a company with a low EV/EBITDA ratio can be viewed as a good takeover candidate.

EV/IC: (Enterprise Value/Invested Capital) Ratio: Enterprise Value (EV), which is market capitalization minus cash plus debt divided by Invested Capital (IC), which is the sum of common stock, preferred stock and long-term debt. This number will get you a simple multiple. If it is below 1.0, then it means that the company is selling below book value and theoretically below its liquidation value.

Information Ratio: A measure of risk-adjusted return. The annualized excess return of the portfolio relative to a respective benchmark, divided by the annualized tracking error relative to that same benchmark. The higher the measure, the higher the risk-adjusted return.

Integrated: Constructs a portfolio of the top 20% of stocks based on William Blair's multi-factor composite model, which uses Earnings Trend, Momentum, Quality, and Valuation factors. The portfolio is rebalanced on a monthly basis and weights stocks based on relative market capitalization.

PBVn (Price/Book Value) Ratio: The PBV Ratio measures the value of a company's common stock relative to its shareholder's equity. A price-to-book multiple above one means that the price of the company's common stock is higher than its common shareholder's equity. A price-to-book multiple below one means that the price of the company's common stock are less than its break-up value, and the shares may be undervalued.

PCF (Price/CashFlow): Some analysts favor the price/cash flow over the price-earnings (PE) ratio as a measure of a company's value. Cash flow is a measure of a company's financial health. It equals cash receipts minus cash payments over a given period of time.

P/E (Price/Earnings) Ratio: This is the most common measure of how expensive a stock is. Simply, it is the cost an investor in a given stock must pay per dollar of current annual earnings. A high P/E generally indicates that the market is paying more to obtain the stock because it has confidence in the company's ability to increase its earnings. Conversely, a low P/E often indicates that the market has less confidence that the company's earnings will increase rapidly or steadily, and therefore will not pay as much for its stock.

R-squared: A measurement of how closely the portfolio's performance correlates with the performance of its benchmark, such as the MSC AC World Free ex US Index. In other words, it is a measurement of what portion of a portfolio's performance can be explained by the performance of the overall market or index. Ranges from 0 to 1, where 0 indicates no correlation and 1 indicates perfect correlation.

Risk (Standard Deviation): A measure of the portfolio's risk. A higher standard deviation represents a greater dispersion of returns, and thus a greater amount of risk. The annualized standard deviation is calculated using monthly returns.

Silo: Constructs portfolios using the top 20% of stocks based on each of the four sub-models used to construct William Blair's composite model, then averages the returns coming from each of the four portfolios. The portfolios are rebalanced on a monthly basis and weights stocks based on relative market capitalization. (The Equal Weighted strategy equally weights the returns coming from each of the sub-portfolios; the Optimized approach weights Quality 5%, Valuation 60%, Earnings Trend 5%, and Momentum 30%. The optimization was based on a monte-carlo simulation that sought an optimal weighting of each sub-portfolios to achieve the highest return).

Sortino Ratio: A modification of the Sharpe ratio that differentiates harmful volatility from general volatility by taking into account the standard deviation of negative asset returns, called downside deviation. The Sortino ratio subtracts the risk-free rate of return from the portfolio's return, and then divides that by the downside deviation. A large Sortino ratio indicates there is a low probability of a large loss.

Sharpe-Ratio: A risk-adjusted measure calculated using standard deviation and excess return (Portfolio return – Risk Free Rate) to determine reward per unit of risk. The higher the Sharpe ratio, the better the portfolio's historic risk-adjusted performance.

Tracking Error: Tracking Error measures the extent to which a portfolio tracks its benchmark. The tracking error of an index portfolio should be lower than that of an active portfolio. The tracking error will always be greater than zero if the portfolio is anything other than a replication of the benchmark.

Trailing 1-Year Turnover: This figure reflects the portfolio's trading activity by calculating the amount of the portfolio's holdings bought or sold over the prior year, expressed as a percentage of the portfolio's average market value. Turnover figures may be related to the amount of trading costs experienced by the portfolio.

Weighted Average Market Capitalization: Market capitalization refers to the total market value of each company's outstanding shares. The Weighted Average Market Capitalization for a portfolio is calculated as the average market capitalization of the stocks within the portfolio, weighted by the amount of each stock owned.

Weighted Median Market Capitalization: This calculation represents the median market capitalization of the stocks in the portfolio, weighted by the amount of each stock owned.

Glossary – Indices

Bloomberg Barclays U.S. Aggregate Bond Index: A broad-based benchmark that measures the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market, including Treasuries, government-related and corporate securities, mortgage-backed securities (agency fixed-rate and hybrid ARM pass-throughs), asset-backed securities and commercial mortgage backed securities.

Bloomberg Barclays Intermediate Govt./Credit Index: A fixed-rate government and corporate bonds rated investment grade or higher.

Bloomberg Barclay's Multiverse Index: Provides a broad-based measure of the global fixed-income bond market. The index represents the union of the Global Aggregate Index and the Global High-Yield Index and captures investment grade and high yield securities in all eligible currencies. Standalone indices such as the Euro Floating-Rate ABS Index and the Chinese Aggregate Index are excluded. The Multiverse Index family includes a wide range of standard and customized sub-indices by sector, quality, maturity, and country.

Bloomberg Barclays U.S. Intermediate Aggregate Bond Index: A broad-based benchmark that measures the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market, including Treasuries, government-related and corporate securities, mortgage-backed securities (agency fixed-rate and hybrid ARM pass-throughs), asset-backed securities and commercial mortgage backed securities with maturities between one and 10 years.

ICE BofAML 1-Year U.S. Treasury Note Index: An unmanaged index comprised of a single U.S. Treasury Bill issued at the beginning of each month and held for a full month. Each month the index is rebalanced and the issue selected is the outstanding U.S. Treasury Note that matures closest to, but not beyond one year from the rebalancing date.

ICE BofAML 3-Month Treasury Bill Index: An unmanaged market index of U.S. Treasury securities maturing in 90 days that assumes reinvestment of all income.

J.P. Morgan Cash Index: Measures the total return of a rolling investment in a notional fixed income instrument with a maturity of three months. The deposit rates used in the calculation of the JP Morgan Cash Index are LIBOR or similar local reference rates.

Merrill Lynch 1-Year U.S. Treasury Note Index: Comprised of a single U.S. Treasury Bill issued at the beginning of each month and held for a full month. Each month the index is rebalanced and the issue selected is the outstanding U.S. Treasury Note that matures closest to, but not beyond one year from the rebalancing date.

Merrill Lynch 3-Month Treasury Bill Index: An unmanaged index market index of U.S. Treasury securities maturing in 90 days that assumes reinvestment of all income.

MSCI (Morgan Stanley Capital International): MSCI indices are the most widely used benchmarks by global portfolio managers. MSCI offers international investors performance benchmarks for 51 national stock markets as well as regional, sector, industry group, and industry aggregations.

MSCI China A Onshore Index: A free-float weighted equity index, designed to measure performance of China A share securities listed on either the Shanghai or Shenzhen Stock Exchanges.

MSCI All Country World ex-US EAFE Index: An unmanaged index that includes developed and emerging markets outside the United States.

MSCI All Country World ex-US Small Cap Index: A free float-adjusted market capitalization index designed to measure global developed and emerging market small capitalization equity performance, excluding the U.S.

MSCI EAFE Index: A free float-adjusted market capitalization index which captures large and mid cap representation across Developed Markets countries around the world, excluding the U.S. and Canada.

MSCI EAFE IMI Index: A free float-adjusted market capitalization index which captures large, mid and small cap representation across Developed Markets countries around the world, excluding the U.S. and Canada.

MSCI EAFE Growth Index: A free float-adjusted market capitalization index that is designed to measure the equity market performance of developed markets, excluding the U.S. & Canada.

MSCI All Country World ex-US Index: An unmanaged index that includes developed and emerging markets, excluding the U.S.

MSCI All Country World ex-US Growth Index: A free float-adjusted market capitalization index that is designed to provide a broad measure of equity-market performance throughout the world, excluding the U.S. It includes those MSCI All Country World ex-US securities with higher price-to-book ratios and higher forecasted growth rates.

MSCI All Country World ex-US IMI Index: A free float-adjusted market capitalization index that is designed to measure equity market performance in the global developed and emerging markets, excluding the U.S.

MSCI All Country World IMI Index: A free float-adjusted market capitalization index that is designed to measure equity market performance in the global developed and emerging markets.

MSCI All Country World ex-US IMI Growth Index: A free float-adjusted market capitalization index that is designed to measure equity market performance in the global developed and emerging markets, excluding the U.S. It includes those MSCI All Country World ex-US IMI Index securities with higher price-to-book ratios and higher forecasted growth rates.

MSCI World ex-US Growth Index: A free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets, excluding the U.S., with higher price-to-book ratios and higher forecasted growth rates.

MSCI World ex-US Index: A free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets, excluding the U.S.

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

MSCI Emerging Markets IMI Index: A free float-adjusted market capitalization index which captures large, mid and small cap equity market performance in the global emerging markets.

MSCI Emerging Markets Small Cap Index: A free float-adjusted market capitalization index that is designed to measure equity market performance of small cap companies in emerging markets.

MSCI Emerging Markets Large Cap Index: A free float-adjusted market capitalization index that is designed to measure equity market performance of large cap companies in emerging markets.

MSCI World ex-US Small Cap Index: An unmanaged index that includes non-US developed markets.

Russell 1000 Index: Measures the performance of the 1000 largest companies in the Russell 3000 Index, which represents approximately 90% of the total market capitalization of the U.S. market.

Russell 1000 Growth Index: Measures the performance of those Russell 1000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell 1000 Value Index: Measures the performance of the large cap value segment of the U.S. equity universe. It includes those Russell 1000 companies with lower price-to-book ratios and lower forecasted growth values.

Russell 2000 Index: Measures the performance of the 2000 smallest companies in the Russell 3000 index, which represents approximately 8% of the total market capitalization of the Russell 3000 index.

Russell 2000 Growth Index: Measures the performance of those Russell 2000 companies with higher price to book ratios and higher forecasted growth values.

Russell 2000 Value Index: Measures the performance of those Russell 2000 companies with lower price-to-book ratios and lower forecasted growth values.

Russell 2500 Index: Measures the performance of the 2500 smallest companies in the Russell 3000 Index.

Russell 2500 Growth Index: Measures the performance of those Russell 2500 companies with higher price-to book ratios and higher forecasted growth values.

Russell 2500 Value Index: Measures the performance of those Russell 2500 companies with lower price-to book ratios and lower forecasted growth values.

Russell 3000 Index: Measures the performance of the 3000 largest U.S. companies based on total market capitalization, which represents approximately 98% of the investable U.S. equity market.

Russell 3000 Growth Index: Measures the performance of those Russell 3000 companies with higher price-to-book ratios and higher forecasted growth values.

Russell Midcap Index: Measures the performance of the 800 smallest companies in the Russell 1000 Index, which represent approximately 27% of the total market capitalization of the Russell 1000 companies.

Russell Midcap Growth Index: Measures the performance of those Russell Midcap companies with higher price-to-book ratios and higher forecasted growth values.

Russell Midcap Value Index: Measures the performance of the mid-cap value segment of the U.S. equity universe. It includes those Russell Midcap Index companies with lower price-to-book ratios and lower forecasted growth values.

S&P 500 Index: The Standard & Poor's 500 Index (S&P 500) is an index of 500 stocks chosen for market size, liquidity and industry grouping, among other factors. The S&P 500 is designed to be a leading indicator of U.S. equities and is meant to reflect the risk/return characteristics of the large cap universe. Companies included in the index are selected by the S&P Index Committee, a team of analysts and economists at Standard & Poor's. The S&P 500 is a market value weighted index—each stock's weight is proportionate to its market value.

A direct investment in an unmanaged index is not possible.

Important Disclosures – Emerging Markets Growth Strategy

This content is for informational and educational purposes only and not intended as investment advice or a recommendation to buy or sell any security. Investment advice and recommendations can be provided only after careful consideration of an investor's objectives, guidelines, and restrictions. Any investment or strategy mentioned herein may not be appropriate for every investor. Factual information has been taken from sources we believe to be reliable, but its accuracy, completeness or interpretation cannot be guaranteed. Information and opinions expressed are those of the author(s) and may not reflect the opinions of other investment teams within William Blair. Information is current as of the date appearing in this material only and subject to change without notice.

Performance and Fees

Past performance is not indicative of future returns. Gross investment performance assumes reinvestment of dividends and capital gains, is gross of investment management fees and net of transaction costs. Performance results will be reduced by the fees incurred in the management of the account. For example, assuming an annual gross return of 8% and an annual management/advisory fee of .40%, the net annualized total return of the portfolio would be 7.58% over a 5-year period. Net investment performance represents the deduction of the highest fee charged to any account in the composite. Investment management fees are described in William Blair's Form ADV Part 2A.

Risk

The strategy involves a high level of risk and may not be appropriate for everyone. You should only consider it for the aggressive portion of your portfolio. The strategy's returns will vary, and you could lose money by investing in the strategy. The strategy holds equities which may decline in value due to both real and perceived general market, economic, and industry conditions. Investing in foreign denominated and/or domiciled securities may involve heightened risk due to currency fluctuations, and economic and political risks, which may be enhanced in emerging markets. The securities of emerging market companies may be subject to greater volatility and less liquidity than companies in more developed markets. Individual securities may not perform as expected or a strategy used by the Adviser may fail to produce its intended result. Currency rates may fluctuate significantly over short periods of time and may reduce the returns of a portfolio. Convertible securities may be called before intended, which may have an adverse effect on investment objectives.

Benchmark

The Morgan Stanley Capital International (MSCI) Emerging Markets IMI Index (net) is a free float-adjusted market capitalization index that is designed to measure equity market performance in the global emerging markets. This series approximates the minimum possible dividend reinvestment. The Index is unmanaged and does not incur fees or expenses. It is not possible to directly invest in an unmanaged index.

For more information, please visit us at www.williamblair.com

Quantitative Models – Definitions

Factor	Examples
<p>Quality</p>	
<p>The William Blair Quality Model attempts to put into quantitative terms one of the cornerstones of the firm’s investment philosophy: identifying high quality companies. The score combines measurements of sustainable value creation, earnings quality, and financial strength.</p>	<p>Cash Flow ROIC Cash Flow Accruals Net Debt/EBITDA</p>
<p>Valuation</p>	
<p>The William Blair Valuation Model combines varying metrics used to characterize the relationship between the stock’s trading price and its intrinsic value. By going beyond using only one or two measures, the model attempts to build a more holistic version of a stock’s worth vis-a-vis the market. The score combines measurements of earnings/cash flow based, asset-based, and model-based factors.</p>	<p>Free Cash Flow Yield Price/NTM Earnings Enterprise Value/Sales</p>
<p>Earnings Trend</p>	
<p>The William Blair Earnings Trend Model captures information about short- and medium-term changes in analyst estimates in an attempt to anticipate future estimate changes and stock performance. The score combines measurements of earnings revisions, earnings momentum, and earnings surprise.</p>	<p>3 Month EPS Revisions Standardized Unexpected Earnings (SUE)</p>
<p>Momentum</p>	
<p>The William Blair Momentum Model combines information about short- and medium-term performance trends for each stock in order to identify stocks that may be able to persist in outperformance over the near term.</p>	<p>12 Month Volatility Adjusted Return 6 Month Sharpe Ratio</p>
<p>Growth</p>	
<p>The William Blair Growth Model builds a long-term growth estimate based on a combination of realized and forecast growth rates. The inputs and results of this model are not limited to earnings, but instead cast a broader net to include measures of a firm’s overall growth. In addition to providing a Growth Model score, the growth rate generated by the model is used as an input into other models.</p>	<p>Historical & Expected Growth 6 & 10 Year Average Trend Growth</p>
<p>Volatility</p>	
<p>The William Blair Volatility Model captures the variability in short- and long-term fundamental returns which include ROE, Margins, and EPS.</p>	<p>ROE Range/Average Coefficient of Variation & Dispersion of EPS</p>
<p>Composite</p>	
<p>The William Blair Composite Model produces an aggregate score from the Quality, Valuation, Earnings Trend, and Momentum models using a proprietary weighting mix.</p>	

William Blair proprietary quantitative model.

Composite Presentation Report

Emerging Markets Growth

Calendar Year	Composite Gross Return (%)	Composite Net Return (%)	MSCI Emerging Mkts IMI (net) Return (%)	Composite 3-Yr Std Dev (%)	Benchmark 3-Yr Std Dev (%)	Number of Portfolios	Dispersion (%)	Composite Assets End of Period \$(mm)	Total Firm Assets \$(mm)
2010	24.73	23.40	19.90	33.95	33.01	10	0.19	4,013.53	44,186.10
2011	-15.89	-16.73	-19.49	23.83	26.04	13	0.11	3,788.28	41,191.28
2012	22.17	20.95	18.68	19.95	21.49	13	0.22	5,276.65	49,610.61
2013	3.83	2.80	-2.20	17.55	19.03	13	1.01	5,271.28	62,018.81
2014	5.73	4.68	-1.79	14.03	14.78	13	0.58	5,276.88	63,060.05
2015	-14.17	-15.02	-13.86	13.57	13.84	12	0.21	4,103.22	64,777.78
2016	2.93	1.90	9.90	15.01	15.72	13	0.20	4,369.80	64,872.51
2017	51.19	49.69	36.83	14.88	15.11	12	0.34	6,004.52	73,549.85
2018	-21.05	-21.84	-15.04	15.35	14.43	11	0.39	3,961.08	48,880.26
2019	29.61	28.32	17.64	14.11	13.94	13	0.77	4,923.42	58,446.29

Disclosures:

William Blair Investment Management claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. William Blair Investment Management has been independently verified for the periods January 1, 1993 through December 31, 2019. A firm that claims compliance with the GIPS standards must establish policies and procedures for complying with all the applicable requirements of the GIPS standards. Verification provides assurance on whether the firm's policies and procedures related to composite and pooled fund maintenance, as well as the calculation, presentation, and distribution of performance, have been designed in compliance with the GIPS standards and have been implemented on a firm-wide basis. The Emerging Markets Growth Composite has had a performance examination for the periods from composite inception through December 31, 2019. The verification and performance examination reports are available upon request.

For purposes of compliance with GIPS, the Firm is defined as all portfolios managed by William Blair Investment Management, a distinct operating unit within William Blair. William Blair Investment Management currently operates as William Blair Investment Management, LLC, an investment adviser registered with the United States Securities and Exchange Commission ("SEC") which is a separate legal entity that is distinct from William Blair & Company, L.L.C. Registration with the SEC does not imply a certain level of skill or training.

The Emerging Markets Growth strategy invests in a broad range of well managed, quality growth companies based in emerging markets. A portfolio manager change occurred effective 5/1/2015 and 3/1/2018. The investment strategy was not materially altered by the personnel change.

The benchmark that best reflects the composite's investment strategy is the MSCI Emerging Markets Investable Market Index (net), which is a free float-adjusted market capitalization index that is designed to measure equity market performance, net of withholding taxes, in the global emerging markets.

Portfolios must have an initial market value greater than or equal to \$1 million to be included in the composite. New portfolios are added to the composite at the beginning of the month following the first full calendar month under management. Portfolios that change investment strategies are transferred between composites in the first full monthly reporting period the portfolio is managed under the new style. Portfolios will be excluded from the composite the first month immediately following the last complete month of authorized management by the Firm. Portfolios are removed from this composite, in the event of a significant cash flow, for the month during which the flow occurs. Portfolios are typically added back into the composite the following month. A portfolio is determined to have a significant cash flow if the accumulated net external flows of cash and/or securities during a month total more than 25% of the beginning of month portfolio market value. Additional information regarding the treatment of significant cash flows is available upon request.

Performance includes the reinvestment of dividends and other earnings. Portfolio and composite returns are calculated daily. Valuations and returns are denominated in U.S. Dollars. Accrual accounting is used for dividends. The dividend accruals included in portfolio valuations are net of applicable withholding taxes. Pending withholding tax reclaims are not accrued for in the portfolio valuations. Composite dispersion measures represent the consistency of a firm's composite performance with respect to the individual portfolio returns within a composite. The dispersion of annual returns is measured by the asset-weighted standard deviation of the gross returns in the composite. Dispersion includes only those portfolios that have been included in the composite for the entire year. The three-year annualized standard deviation measures the variability of the gross composite returns and the benchmark returns over the preceding 36-month period. This statistic is not presented until there are 36 months of performance available.

Performance results are stated gross of management fees and net of a model investment management fee for the strategy. The model fee is the maximum separate account management fee as of the time the composite return was calculated, applied by dividing that annual fee by the count of the annual calculation periods for the composite and then subtracting that quotient from the periodic gross composite returns. Actual fees may vary depending on, among other things, the applicable fee schedule and portfolio size. The current separate account management fee schedule is as follows:

Up to \$20,000,000: 1.00%
 Next \$30,000,000: 0.80%
 Next \$50,000,000: 0.70%
 Next \$50,000,000: 0.65%
 Next \$50,000,000: 0.60%
 Next \$200,000,000: 0.40%
 Over \$400,000,000: 0.35%

The strategy is available via one or more pooled funds, which may have alternate fee schedules. The highest pooled fund management fee is 1.9%. The highest pooled fund expense ratio is 2.2%. The Emerging Markets Growth Composite was created in March 2005. The composite performance inception date is October 1, 1996.

A complete list and description of firm composites and pooled funds is available upon request. Additional information regarding policies for valuing portfolios, calculating performance and preparing compliant presentations is also available upon request. Past performance is not indicative of future results.

PERFORMANCE REPORT

MWRA EMPLOYEES' RETIREMENT SYSTEM

December, 2020

Sebastian Grzejka, CAIA, Senior Consultant

Lebo McCallum, Analyst



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

GOALS & OBJECTIVES

Investment Return Objective

“Its primary goal is to provide promised benefits to participants and beneficiaries of the MWRA Employees’ Retirement system. Plan assets should be equal to or greater than the present value of the projected benefit obligations (“fully funded”). When Plan assets are less than the present value of projected benefit obligations, a schedule will be established and a plan will be in place to meet a fully funded status. When achieving return objectives required to fully fund the system, the Board is intent on controlling risk. Consistency of returns and risk of loss are primary considerations. The Board has also determined that the annual performance of plan assets should not vary substantially from returns achieved by other public pension funds with similar goals and objectives.”

Return Expectations

The investment growth should be maintained in such a manner that the minimum nominal rate of return does not cause a negative real rate of return over a full market cycle:

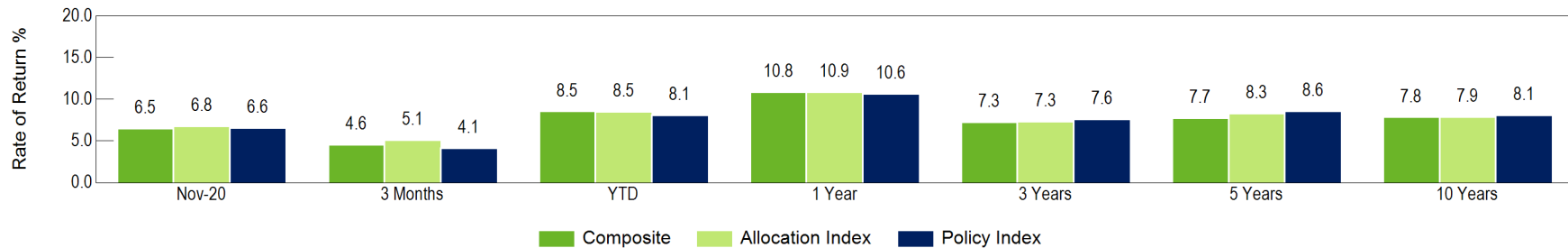
- **Time Horizon:** Return assumptions will be based on a ten year time horizon with a detailed review and analysis to be made at least annually to monitor allocations and assumptions. Should a manager deviate from proscribed mandate or expected risk and return profile by a consequential degree, that manager may be reevaluated at any time.
- **Liquidity Needs:** Presently contributions exceed plan withdrawals to provide benefits, payouts, and/or plan expenses. Portfolio liquidity will be managed based on the cash flow needs of the System.
- **Regulatory Considerations:** Assets of this Fund shall be invested in a manner consistent with the fiduciary standards established under Code of Massachusetts Regulations 840 (“840 CMR”). The Board shall also use as precedent the Employee Retirement Income Security Act (ERISA).



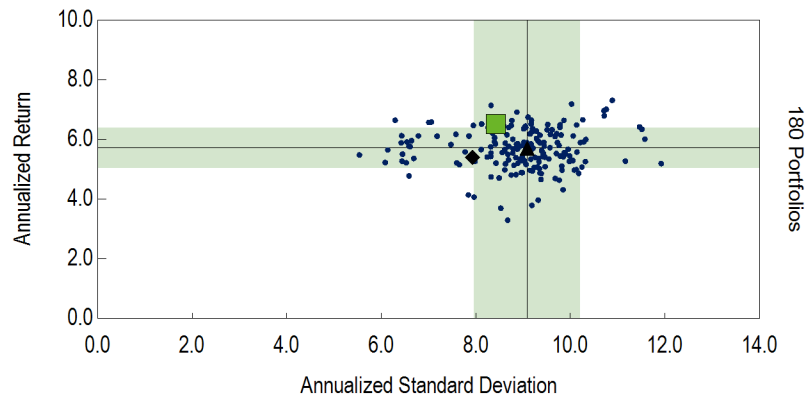
MWRA Employees' Retirement System

EXECUTIVE SUMMARY

Net Return Summary Ending November 30, 2020



20 Years Ending September 30, 2020



Statistics Summary

	Anlzd Ret	Anlzd Std Dev	Rank
Composite	6.5%	8.4%	15
Allocation Index	5.4%	7.9%	78
Policy Index	5.8%	8.5%	52
InvMetrics Public DB Gross Median	5.9%	9.1%	--

Performance

- The Composite returned 6.5% (net) for the month underperforming the Allocation Index (6.8%) and underperforming the Policy Index (6.6%) over the same period respectively.
- Developed market equities rallied in November, driven by the results of the U.S. elections and the potential success of COVID-19 vaccines. The S&P 500 Index returned 10.9% for the month while the MSCI ACWI ex USA was up 13.5% for the month. The portfolio's Domestic Equity composite returned 11.9% (net) while international equity returned 13.4% (net) for the month. The portfolio has no direct emerging markets equity exposure at the moment, pending the outcome of a formal EME search process.
- In fixed income, yields were relatively flat during the month with 10- and 30-year Treasury yields falling one and six basis points, respectively. The Fixed Income Composite returned 1.7% (net) for the month while the BC Agg and BC US HY returned 1.0% and 4.0% respectively
- This brings the overall performance on a trailing one year period return to 10.8% (net), while the allocation and policy index returned 10.9% (net) and 10.6%(net) respectively

20 years Risk/Return is as of 9/30/2020. Chart reflects universe data on quarter end months only.

Returns for 20 years Risk/Return and Statistics Summary are gross of fees.

Since inception return is 8.4% gross of fees. Prior to 1999, performance history does not capture separate net and gross returns.



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Composite	628,051,623	100.0	100.0	6.5	4.6	8.5	10.8	7.3	7.7	7.8	6.9	Jan-86
Allocation Index				6.8	5.1	8.5	10.9	7.3	8.3	7.9	--	Jan-86
Policy Index				6.6	4.1	8.1	10.6	7.6	8.6	8.1	--	Jan-86
Total Balanced	4,134,216	0.7	0.0	0.0	-0.4	-0.1	2.6	1.7	4.4	3.7	3.7	Dec-10
PRIT Core Fund	4,134,216	0.7		0.0	-0.4	1.3	3.3	5.4	7.6	7.9	6.6	Apr-99
60% S&P 500 / 40% BBgBarc Aggregate				7.0	2.6	12.1	14.1	10.5	10.4	10.2	6.5	Apr-99
Total Domestic Equity	193,238,428	30.8	26.0	11.8	6.1	14.7	17.9	13.7	13.1	13.5	7.7	May-99
Russell 3000				12.2	5.7	15.7	19.0	13.2	13.9	14.0	7.2	May-99
Large Cap	150,412,879	23.9	20.0	10.6	3.9	16.4	19.9	15.6	13.9	14.0	14.0	Dec-10
Rhumblin Advisors S&P 500 Index Fund	75,178,556	12.0	8.0	11.0	3.9	14.0	17.4	13.1	13.9	14.1	8.9	Apr-97
S&P 500				10.9	3.9	14.0	17.5	13.2	14.0	14.2	8.9	Apr-97
Coho Relative Value Equity	37,558,829	6.0	6.0	11.4	5.9	7.6	11.1	10.4	--	--	11.9	Mar-16
Russell 1000 Value				13.5	9.2	-1.0	1.7	5.3	8.4	10.9	10.6	Mar-16
Polen Focused Growth	37,675,494	6.0	6.0	8.9	2.0	29.6	33.0	24.8	--	--	21.6	Feb-16
Russell 1000 Growth				10.2	1.5	32.4	36.4	21.5	19.6	17.3	22.1	Feb-16
Small Cap	42,825,548	6.8	6.0	16.3	14.3	9.3	11.8	8.9	11.1	12.3	12.3	Dec-10
Boston Partners Small Cap Value	21,599,858	3.4	3.0	19.6	16.8	-4.3	-2.1	1.2	6.2	9.1	10.0	Feb-97
Russell 2000 Value				19.3	17.8	-3.0	0.3	0.8	6.8	8.7	8.5	Feb-97
Loomis Sayles Small Cap Growth	21,225,690	3.4	3.0	13.0	11.8	23.9	26.6	16.5	15.6	15.3	7.4	Jan-97
Russell 2000 Growth				17.6	16.0	23.1	25.9	12.8	13.2	13.3	7.7	Jan-97
Total Non-US Equity	116,429,271	18.5	21.0	13.3	9.5	8.9	13.7	5.2	8.3	5.3	4.8	Mar-99
International Equity	116,429,271	18.5	15.0	13.3	9.8	10.9	14.9	6.8	8.7	6.2	4.5	Sep-05
SEG Baxter Street	39,371,412	6.3	5.0	11.8	7.4	11.7	14.9	10.2	--	--	12.3	May-16
MSCI ACWI ex USA				13.5	8.3	5.0	9.5	3.8	7.4	5.2	8.0	May-16
Schroder International Alpha Trust Class 1	47,643,021	7.6	5.0	14.3	8.9	17.3	22.5	8.4	9.8	--	7.8	Mar-12
MSCI ACWI ex USA				13.5	8.3	5.0	9.5	3.8	7.4	5.2	5.3	Mar-12
Baillie Gifford International Growth Fund Class K	29,414,838	4.7		13.9	--	--	--	--	--	--	14.5	Oct-20
MSCI ACWI ex USA				13.5	8.3	5.0	9.5	3.8	7.4	5.2	11.0	Oct-20
Emerging Markets Equity	--	--	6.0	--	--	--	--	--	--	--	--	Nov-13
MSCI Emerging Markets				9.2	9.7	10.2	18.4	4.9	10.7	3.6	4.6	Nov-13

Since inception return is 8.4% gross of fees. Prior to 1999, performance history does not capture separate net and gross returns.

In November 2019, Loomis Sayles and Schroders transitioned from a mutual fund to a CIT structure. Performance prior to transitioning to the CIT investment vehicle is linked to mutual fund performance history.



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Fixed Income	168,528,862	26.8	27.0	1.7	1.2	9.6	9.8	5.8	5.7	5.3	6.7	Mar-99
Garcia Hamilton Fixed Income Aggregate	49,762,888	7.9	8.0	0.8	0.3	7.6	7.3	--	--	--	6.0	Apr-18
<i>BBgBarc US Aggregate TR</i>				1.0	0.5	7.4	7.3	5.5	4.3	3.7	6.6	Apr-18
Lord Abbett Core Fixed Income	26,528,736	4.2	4.0	1.2	0.8	8.0	7.8	--	--	--	6.6	Apr-18
<i>BBgBarc US Aggregate TR</i>				1.0	0.5	7.4	7.3	5.5	4.3	3.7	6.6	Apr-18
Rhumblin TIPS	31,479,483	5.0	5.0	1.1	0.1	9.5	9.9	5.8	--	--	4.3	Jun-16
<i>BBgBarc US TIPS TR</i>				1.1	0.1	9.7	10.1	5.8	4.7	3.5	4.5	Jun-16
Loomis Sayles Multisector Full Discretion Trust	49,178,794	7.8	8.0	3.1	2.6	13.1	13.7	7.1	7.4	6.5	8.0	Mar-99
<i>BBgBarc US Aggregate TR</i>				1.0	0.5	7.4	7.3	5.5	4.3	3.7	5.0	Mar-99
<i>BBgBarc US High Yield TR</i>				4.0	3.4	5.1	7.2	5.7	7.6	6.8	6.9	Mar-99
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	11,523,680	1.8	2.0	2.3	2.4	2.5	3.9	--	--	--	3.4	Aug-19
<i>Credit Suisse Leveraged Loan</i>				2.1	3.0	1.5	3.1	3.7	4.7	4.5	2.5	Aug-19
Invesco Mortgage Recovery Loans Feeder Fund	55,282	0.0		0.0	0.1	-0.4	-4.8	6.5	0.4	7.0	12.1	Apr-10
<i>BBgBarc US Aggregate TR</i>				1.0	0.5	7.4	7.3	5.5	4.3	3.7	4.0	Apr-10
Total Hedge Fund	36,598,198	5.8	6.0	1.5	2.2	3.1	4.4	3.1	3.0	3.4	3.2	Oct-06
PRIM Portfolio Completion Strategies	13,301,393	2.1		0.0	0.7	-3.9	-2.8	1.1	2.7	3.6	3.3	Oct-06
Corbin Pinehurst Partners	11,362,475	1.8		3.7	4.0	8.5	10.4	--	--	--	7.2	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				3.4	3.6	6.4	8.2	3.8	3.6	3.1	6.0	Nov-18
UBS Neutral Alpha Strategies	11,199,321	1.8		1.2	2.5	7.9	9.1	--	--	--	6.1	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				3.4	3.6	6.4	8.2	3.8	3.6	3.1	6.0	Nov-18
Entrust Peru Wind Down	735,008	0.1		-0.1	-0.5	-2.9	-5.7	-5.0	--	--	-5.0	Dec-17
<i>HFRI Fund of Funds Composite Index</i>				3.4	3.6	6.4	8.2	3.8	3.6	3.1	3.8	Dec-17
Other	6,785,968	1.1	0.0	0.0	0.0	0.6	1.2	1.8	1.3	0.7	0.7	Dec-10
Cash Account	6,785,968	1.1		0.0	0.0	0.6	1.2	1.8	1.3	0.7	1.8	Feb-00
<i>91 Day T-Bills</i>				0.0	0.0	0.4	0.6	1.5	1.1	0.6	1.6	Feb-00

Importantly, all returns in this report, including those of the private real estate managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.

Corbin Pinehursts Partners and UBS Neutral Alpha Strategies are preliminary as of 9/30/2020 and subject to change when finalized.



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Total Real Estate	49,566,721	7.9	10.0	0.0	0.9	0.4	2.6	6.3	7.4	10.2	7.6	Apr-99
<i>NCREIF Property Index</i>				0.0	0.7	0.5	2.0	5.1	6.3	9.4	8.5	Apr-99
Morgan Stanley Prime Property (\$2.8m commitment in '95)	19,856,116	3.2		0.0	1.1	-0.2	1.3	5.3	6.9	11.0	8.4	Sep-95
TA Realty Core Property Fund, LP (\$15m commitment in '19)	19,879,695	3.2		0.0	0.8	1.9	3.7	--	--	--	4.3	Jun-19
Invesco Mortgage Recovery II (\$3M commitment in '15)	1,012,508	0.2		0.0	0.0	0.7	-2.3	11.9	11.3	--	11.0	Oct-15
Landmark VI (\$2m commitment in '11)	93,759	0.0		0.0	-4.1	-9.0	-18.2	-10.9	-6.4	--	3.8	Jul-11
Landmark VIII (\$4m commitment in '17)	1,190,192	0.2		0.0	2.8	-4.7	0.4	13.9	--	--	13.5	Nov-17
Courtland/Mesirow MFire (\$2m commitment in '11)	624,767	0.1		0.0	0.0	-7.4	-12.0	-2.2	2.5	--	2.3	May-12
Cerberus (\$1.5m commitment in '12)	604,290	0.1		0.0	-4.0	-3.2	1.3	6.4	5.5	--	10.7	May-13
TA Realty Fund X LP (\$3.5m commitment in '12)	367,725	0.1		0.0	-2.2	-8.6	-6.8	7.9	8.0	--	8.9	May-13
TerraCap Partners III, LP (\$2.6m commitment in '15)	1,729,862	0.3		0.0	0.7	1.8	2.3	6.4	10.7	--	10.6	Jul-15
TerraCap Partners IV, LP (\$4m commitment in '17)	4,207,808	0.7		0.0	1.7	0.9	10.3	9.4	--	--	9.1	Nov-17
Total Private Equity	52,769,959	8.4	10.0	0.0	5.1	1.0	1.6	8.1	4.4	11.9	8.9	Apr-99
<i>CJA US All PE</i>				0.0	0.0	-1.6	2.1	9.2	10.6	12.4	11.8	Apr-99
<i>NASDAQ W/O Income</i>				11.8	3.6	36.0	40.8	21.1	19.0	17.2	7.7	Apr-99
PRIM Vintage Year 2008 (\$3m commitment in '08)	954,080	0.2		0.0	13.7	-5.1	-4.3	8.4	13.7	17.0	7.6	Jun-08
PRIM Vintage Year 2009 (\$1m commitment in '09)	195,911	0.0		0.0	56.0	40.2	48.0	32.0	25.5	21.8	11.2	Nov-09
PRIM Vintage Year 2010 (\$1m commitment in '10)	508,238	0.1		0.0	26.2	27.7	22.3	17.5	16.8	12.5	9.2	Jun-10
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	924,301	0.1		0.0	6.5	3.5	3.3	13.0	16.6	--	3.4	May-11
PRIM Vintage Year 2012 (\$1m commitment in '12)	735,344	0.1		0.0	22.4	28.9	30.4	18.6	18.8	--	-13.0	Jun-12
PRIM Vintage Year 2014 (\$2m commitment in '14)	1,906,151	0.3		0.0	19.3	14.7	19.8	23.1	19.5	--	3.0	Jun-14
PRIM Vintage Year 2017 (\$2m commitment in '17)	1,198,529	0.2		0.0	13.8	5.2	10.7	10.4	--	--	7.1	May-17
PRIM Vintage Year 2020 (\$5m commitment in '20)	217,508	0.0		0.0	7.7	--	--	--	--	--	0.7	Mar-20
Alcentra European DLF (\$5m commitment in '14)	1,108,983	0.2		0.0	0.8	-4.8	-3.4	-0.2	2.5	--	4.0	Jan-15
Ascent Fund IV (\$2m commitment in '04)	31,080	0.0		0.0	-0.3	-1.1	-2.0	-54.1	-47.5	-32.6	-21.4	Jul-04
Ascent Fund IV-B (\$1m commitment in '16)	149,795	0.0		0.0	-2.1	-28.9	-36.3	-21.8	--	--	-13.8	Jul-16
Ascent Fund V (\$2m commitment in '08)	1,624,903	0.3		0.0	2.1	-10.5	-11.0	-5.5	0.6	6.0	4.1	Oct-08
Ascent VI (\$3m commitment in '15)	2,846,317	0.5		0.0	1.7	-7.3	-7.4	1.4	0.3	--	0.3	Dec-15
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	5,718,477	0.9		0.0	0.0	-9.6	-7.9	0.8	--	--	0.8	Dec-17

Importantly, all returns in this report, including those of the private markets managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.

Market values for Morgan Stanley Prime Property, TA Realty Core Property Fund, and PRIM are stated as of 9/30/2020. All other Real Estate and Private Equity managers are as of 6/30/2020 and are adjusted for cash flows.



MWRA Employees' Retirement System

TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	3 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Invesco Fund IV (\$3m commitment in '03)	13,273	0.0		0.0	0.0	-5.6	-30.0	-16.1	-7.9	3.7	--	Feb-04
Invesco Fund VI (\$5m commitment in '13)	6,308,126	1.0		0.0	0.0	7.0	7.9	10.7	10.3	--	12.6	Jul-13
Kayne Energy Fund VII (\$5m commitment in '15)	1,300,446	0.2		0.0	5.9	-66.8	-71.6	-36.3	--	--	-17.4	Jan-16
Foundry 2007 (\$3m commitment in '07)	206,805	0.0		0.0	3.8	-11.4	-34.1	-19.2	-26.3	5.3	15.0	Dec-07
Foundry 2010 (\$3m commitment in '10)	4,088,571	0.7		0.0	28.5	25.9	19.9	18.0	7.7	--	10.1	Jan-11
Foundry 2010 Annex (\$0.4m commitment in '15)	390,580	0.1		0.0	96.4	100.9	76.4	51.7	30.4	--	28.7	Sep-15
Pinebridge PEP V (\$6m commitment in '07)	710,372	0.1		0.0	0.0	7.7	6.8	0.4	0.8	7.8	--	Mar-08
Landmark XV (\$3m commitment in '13)	1,191,683	0.2		0.0	6.6	-10.4	-7.9	5.5	6.3	--	10.3	Nov-13
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	6,751,674	1.1		0.0	2.7	9.7	25.2	42.6	--	--	33.0	Jan-17
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	4,058,683	0.6		0.0	0.0	17.1	19.9	18.9	--	--	16.4	Feb-17
Park Square Credit Opportunities III (\$3m commitment in '17)	2,634,590	0.4		0.0	2.1	5.7	8.4	--	--	--	6.3	Feb-18
Ironsides Constitution Opportunities (\$3m commitment in '18)	2,356,903	0.4		0.0	2.2	5.0	7.1	--	--	--	8.1	Sep-18
HarbourVest Dover Street X (\$9m commitment in '20)	1,413,181	0.2		0.0	0.0	--	--	--	--	--	70.0	Jun-20
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	1,590,777	0.3		0.0	10.8	--	--	--	--	--	10.8	Jul-20
JFL Equity Investors V, L.P. (\$8m commitment in '20)	1,634,679	0.3		0.0	-7.9	--	--	--	--	--	-7.9	Sep-20
<i>Private Equity Benchmark (1 Qtr. Lag)</i>				<i>0.0</i>	<i>9.4</i>	<i>2.1</i>	<i>3.4</i>	<i>10.6</i>	<i>10.3</i>	<i>12.5</i>	<i>9.4</i>	<i>Sep-20</i>

Importantly, all returns in this report, including those of the private markets managers, are based on a time weighted return calculation and not based on IRRs, which can result in return differences.

Pinebridge PEP V is valued as of 3/31/2020 and adjusted for cash flows. All other Private Equity managers are valued as of 6/30/2020 and are adjusted for cash flows.



MWRA Employees' Retirement System

NOTES

- 1 - Results for periods longer than one year are annualized.
- 2 - Total Balances, Large Cap, Small Cap, and Other Composite performance starts 12/1/2010.
- 3 - Preliminary Total Composite net of fee since inception return is 6.8% for the current month.
- 4 - Preliminary Total Composite gross of fee since inception return is 8.4% for the current month.
- 5 - Targets, Allocation Index, and Policy Index have been updated to reflect new allocation of 06/01/2020.
- 6 - Policy Index changed from Nasdaq to Cambridge All PE to reflect as of 5/1/2012.
- 7 - Policy Index Consists of: 20% S&P 500, 6% Russell 2000, 10% MSCI EAFE, 5% MSCI ACWI IMI , 6% MSCI Emerging Markets, 12% BBgBarc US Aggregate TR, 5% BBgBarc US TIPS TR, 8% BBgBarc US Universal TR, 10% NCREIF Property Index, 10% C|A US All PE , 6% HFRI Fund of Funds Composite Index, 2% Credit Suisse Leveraged Loan.
- 8 - Allocation index consists of: Weighted index of underlying managers to their respective benchmark.



MWRA Employees' Retirement System

ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 11/30/2020	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
PRIT Core Fund	0.49% of Assets	\$4,134,216	0.7%	\$20,258	0.49%
Rhumblin Advisors S&P 500 Index Fund	0.05% of Assets	\$75,178,556	12.0%	\$37,589	0.05%
Coho Relative Value Equity	0.50% of First 75.0 Mil, 0.40% of Next 75.0 Mil, 0.35% Thereafter	\$37,558,829	6.0%	\$187,794	0.50%
Polen Focused Growth	0.65% of Assets	\$37,675,494	6.0%	\$244,891	0.65%
Boston Partners Small Cap Value	1.00% of Assets	\$21,599,858	3.4%	\$215,999	1.00%
Loomis Sayles Small Cap Growth	0.45% of Assets	\$21,225,690	3.4%	\$95,516	0.45%
SEG Baxter Street	1.00% of Assets	\$39,371,412	6.3%	\$393,714	1.00%
Schroder International Alpha Trust Class 1	0.55% of Assets	\$47,643,021	7.6%	\$262,037	0.55%
Baillie Gifford International Growth Fund Class K	0.60% of Assets	\$29,414,838	4.7%	\$176,489	0.60%
Garcia Hamilton Fixed Income Aggregate	0.25% of First 25.0 Mil, 0.20% Thereafter	\$49,762,888	7.9%	\$112,026	0.23%
Lord Abbett Core Fixed Income	0.19% of Assets	\$26,528,736	4.2%	\$50,405	0.19%
Rhumblin TIPS	0.05% of First 50.0 Mil, 0.04% Thereafter	\$31,479,483	5.0%	\$15,740	0.05%
Loomis Sayles Multisector Full Discretion Trust	0.50% of First 20.0 Mil, 0.40% of Next 20.0 Mil, 0.30% Thereafter	\$49,178,794	7.8%	\$207,536	0.42%
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	0.40% of Assets	\$11,523,680	1.8%	\$46,095	0.40%
Invesco Mortgage Recovery Loans Feeder Fund	No Fee	\$55,282	0.0%	--	--
PRIM Portfolio Completion Strategies	No Fee	\$13,301,393	2.1%	--	--
Corbin Pinehurst Partners	0.85% of Assets	\$11,362,475	1.8%	\$96,581	0.85%
UBS Neutral Alpha Strategies	0.90% of Assets	\$11,199,321	1.8%	\$100,794	0.90%
Entrust Peru Wind Down	0.50% of Assets	\$735,008	0.1%	\$3,675	0.50%
Cash Account	No Fee	\$6,785,968	1.1%	--	--
Morgan Stanley Prime Property (\$2.8m commitment in '95)	No Fee	\$19,856,116	3.2%	--	--
TA Realty Core Property Fund, LP (\$15m commitment in '19)	No Fee	\$19,879,695	3.2%	--	--
Invesco Mortgage Recovery II (\$3M commitment in '15)	No Fee	\$1,012,508	0.2%	--	--
Landmark VI (\$2m commitment in '11)	No Fee	\$93,759	0.0%	--	--



MWRA Employees' Retirement System

ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 11/30/2020	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Landmark VIII (\$4m commitment in '17)	No Fee	\$1,190,192	0.2%	--	--
Courtland/Mesirow MFire (\$2m commitment in '11)	No Fee	\$624,767	0.1%	--	--
Cerberus (\$1.5m commitment in '12)	No Fee	\$604,290	0.1%	--	--
TA Realty Fund X LP (\$3.5m commitment in '12)	No Fee	\$367,725	0.1%	--	--
TerraCap Partners III, LP (\$2.6m commitment in '15)	No Fee	\$1,729,862	0.3%	--	--
TerraCap Partners IV, LP (\$4m commitment in '17)	No Fee	\$4,207,808	0.7%	--	--
PRIM Vintage Year 2008 (\$3m commitment in '08)	No Fee	\$954,080	0.2%	--	--
PRIM Vintage Year 2009 (\$1m commitment in '09)	No Fee	\$195,911	0.0%	--	--
PRIM Vintage Year 2010 (\$1m commitment in '10)	No Fee	\$508,238	0.1%	--	--
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	No Fee	\$924,301	0.1%	--	--
PRIM Vintage Year 2012 (\$1m commitment in '12)	No Fee	\$735,344	0.1%	--	--
PRIM Vintage Year 2014 (\$2m commitment in '14)	No Fee	\$1,906,151	0.3%	--	--
PRIM Vintage Year 2017 (\$2m commitment in '17)	No Fee	\$1,198,529	0.2%	--	--
PRIM Vintage Year 2020 (\$5m commitment in '20)	No Fee	\$217,508	0.0%	--	--
Alcentra European DLF (\$5m commitment in '14)	No Fee	\$1,108,983	0.2%	--	--
Ascent Fund IV (\$2m commitment in '04)	No Fee	\$31,080	0.0%	--	--
Ascent Fund IV-B (\$1m commitment in '16)	No Fee	\$149,795	0.0%	--	--
Ascent Fund V (\$2m commitment in '08)	No Fee	\$1,624,903	0.3%	--	--
Ascent VI (\$3m commitment in '15)	No Fee	\$2,846,317	0.5%	--	--
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	No Fee	\$5,718,477	0.9%	--	--
Invesco Partnership Fund IV (\$3m commitment in '03)	No Fee	\$13,273	0.0%	--	--
Invesco Fund VI (\$5m commitment in '13)	No Fee	\$6,308,126	1.0%	--	--
Kayne Energy Fund VII (\$5m commitment in '15)	No Fee	\$1,300,446	0.2%	--	--
Foundry 2007 (\$3m commitment in '07)	No Fee	\$206,805	0.0%	--	--
Foundry 2010 (\$3m commitment in '10)	No Fee	\$4,088,571	0.7%	--	--
Foundry 2010 Annex (\$0.4m commitment in '15)	No Fee	\$390,580	0.1%	--	--
Pinebridge (AIG) PEP V Asia (\$6m commitment in '07)	No Fee	\$58,955	0.0%	--	--
Pinebridge (AIG) PEP V Co-Investment (\$6m commitment in '07)	No Fee	\$61,317	0.0%	--	--
Pinebridge (AIG) PEP V Europe (\$6m commitment in '07)	No Fee	\$27,360	0.0%	--	--



MWRA Employees' Retirement System

ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 11/30/2020	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Pinebridge (AIG) PEP V Large Market US Buyout (\$6m commitment in '07)	No Fee	\$113,012	0.0%	--	--
Pinebridge (AIG) PEP V Preferred Participation Fund (\$6m commitment in '07)	No Fee	\$228,331	0.0%	--	--
Pinebridge (AIG) PEP V Secondary (\$6m commitment in '07)	No Fee	\$34,466	0.0%	--	--
Pinebridge (AIG) PEP V Small-Mid Market US Buyout (\$6m commitment in '07)	No Fee	\$90,939	0.0%	--	--
Pinebridge (AIG) PEP V US Venture (\$6m commitment in '07)	No Fee	\$95,992	0.0%	--	--
Landmark XV (\$3m commitment in '13)	No Fee	\$1,191,683	0.2%	--	--
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	No Fee	\$6,751,674	1.1%	--	--
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	No Fee	\$4,058,683	0.6%	--	--
Park Square Credit Opportunities III (\$3m commitment in '17)	No Fee	\$2,634,590	0.4%	--	--
Ironsides Constitution Opportunities (\$3m commitment in '18)	No Fee	\$2,356,903	0.4%	--	--
HarbourVest Dover Street X (\$9m commitment in '20)	No Fee	\$1,413,181	0.2%	--	--
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	No Fee	\$1,590,777	0.3%	--	--
JFL Equity Investors V, L.P. (\$8m commitment in '20)	No Fee	\$1,634,679	0.3%	--	--
Investment Management Fee		\$628,051,623	100.0%	\$2,267,137	0.36%

Note:

Estimate fee for privates are ~\$997,801 annually, which brings the total expense ratio for privates to ~16 bps. This brings the total estimated expense ratio for MWRA to ~52 bps.



Information Disclaimer

- Past performance is no guarantee of future results.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- NEPC's source for portfolio pricing, calculation of accruals, and transaction information is the plan's custodian bank. Information on market indices and security characteristics is received from other sources external to NEPC. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.
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Reporting Methodology

- The client's custodian bank is NEPC's preferred data source unless otherwise directed. NEPC generally reconciles custodian data to manager data. If the custodian cannot provide accurate data, manager data may be used.
- Trailing time period returns are determined by geometrically linking the holding period returns, from the first full month after inception to the report date. Rates of return are annualized when the time period is longer than a year. Performance is presented gross and/or net of manager fees as indicated on each page.
- For managers funded in the middle of a month, the "since inception" return will start with the first full month, although actual inception dates and cash flows are taken into account in all Composite calculations.
- This report may contain forward-looking statements that are based on NEPC's estimates, opinions and beliefs, but NEPC cannot guarantee that any plan will achieve its targeted return or meet other goals.



Asset Allocation Rebalance Summary

November 30, 2020

	Market Value	Weight in Fund	Target Weight	Recommendation	New Market Value	New Weight
Composite	\$628,051,622	100.0%	100.0%	\$0	\$628,051,622	100.0%
Total Balanced	\$4,134,216	0.7%	0.0%	\$0	\$4,134,216	0.7%
PRIT Core Fund	\$4,134,216	0.7%	0.0%	\$0	\$4,134,216	0.7%
Total Domestic Equity	\$193,238,427	30.8%	26.0%	-\$20,000,000	\$173,238,427	27.6%
Rhumblin Advisors S&P 500 Index Fund	\$75,178,556	12.0%	8.0%	-\$18,000,000	\$57,178,556	9.1%
Coho Relative Value	\$37,558,829	6.0%	6.0%	\$0	\$37,558,829	6.0%
Polen Focused Growth	\$37,675,494	6.0%	6.0%	\$0	\$37,675,494	6.0%
Robeco Boston Partners Small Cap Value	\$21,599,858	3.4%	3.0%	-\$1,000,000	\$20,599,858	3.3%
Loomis Sayles Small Cap Growth	\$21,225,690	3.4%	3.0%	-\$1,000,000	\$20,225,690	3.2%
Total International Equity	\$116,429,271	18.5%	21.0%	\$20,000,000	\$136,429,271	21.7%
SEG - Baxter Street Fund	\$39,371,412	6.3%	5.0%	\$0	\$39,371,412	6.3%
Schroders International Alpha	\$47,643,021	7.6%	5.0%	-\$8,000,000	\$39,643,021	6.3%
Baillie Gifford	\$29,414,838	4.7%	5.0%	-\$10,000,000	\$19,414,838	3.1%
EME	\$0	0.0%	6.0%	\$38,000,000	\$38,000,000	6.1%
Total Equity	\$309,667,698	49.3%	47.0%	\$0	\$309,667,698	49.3%
Total Fixed Income	\$168,528,863	26.8%	27.0%	-\$3,000,000	\$165,528,863	26.4%
Garcia Hamilton	\$49,762,888	7.9%	8.0%	-\$3,000,000	\$46,762,888	7.4%
Lord Abbett	\$26,528,736	4.2%	4.0%	\$0	\$26,528,736	4.2%
Loomis Sayles Multi Sector Bonds	\$49,178,794	7.8%	8.0%	\$0	\$49,178,794	7.8%
Rhumblin TIPS	\$31,479,483	5.0%	5.0%	\$0	\$31,479,483	5.0%
Octagon Senior Secured Loans	\$11,523,680	1.8%	2.0%	\$0	\$11,523,680	1.8%
Invesco Mortgage Recovery	\$55,282	0.0%	0.0%	\$0	\$55,282	0.0%
Total Hedge Fund	\$36,598,197	5.8%	6.0%	\$0	\$36,598,197	5.8%
PRIM Absolute Return Fund	\$13,301,393	2.1%		\$0	\$13,301,393	2.1%
Corbin Pinehurst Partners	\$11,362,475	1.8%		\$0	\$11,362,475	1.8%
UBS Neutral Alpha Strategies	\$11,199,321	1.8%		\$0	\$11,199,321	1.8%
Entrust Peru Winddown	\$735,008	0.1%		\$0	\$735,008	0.1%
Total Real Estate	\$49,566,721	7.9%	10.0%	\$0	\$49,566,721	7.9%
TA Realty Core	\$19,879,695	3.2%		\$0	\$19,879,695	3.2%
Morgan Stanley PPF	\$19,856,116	3.2%		\$0	\$19,856,116	3.2%
Total Private Equity	\$52,769,959	8.4%	10.0%	\$0	\$52,769,959	8.4%
Cash	\$6,785,968	1.1%	0.0%	\$3,000,000	\$9,785,968	1.6%
Peoples United Cash	\$6,785,968	1.1%	0.0%	\$3,000,000	\$9,785,968	1.6%



EMERGING MARKET EQUITY SEARCH

MASS. WATER RESOURCE'S AUTHORITY RETIREMENT SYSTEM



December, 2020

Sebastian Grzejka, CAIA, Senior Consultant
Lebo McCallum, Analyst



BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | PORTLAND | SAN FRANCISCO

SUMMARY OF EMERGING MARKET EQUITY SEARCH

- **Target fund strategy:**
 - Emerging Market Equity

- **Advertised requirements for the search:**
 1. Candidates must have familiarity with and agree to comply (in writing) with Massachusetts G.L. Chapter 32 and Chapter 176 of the Acts of 2011. Additionally, candidates must have familiarity and agree to comply with the reporting and investment guidelines administered by PERAC.
 2. Candidates must read and agree to the attached side letter pertaining to mandatory contractual language, based on the guidelines above.
 3. Candidates must be registered with the SEC or Massachusetts Secretary of State
 4. Candidates must have at least \$500 million in assets in the fund that is being suggested
 5. Fund must have a track record of at least 5 years
 6. Fund strategy must be in a pooled vehicle (Commingled or mutual fund)
 7. Fund liquidity must be daily or monthly

- **Responses were due by September 25, 2020 at 4:00 PM EST**
 - A total of 39 managers responded (Artisan responded with 2 strategies)
 - At the September meeting 13 managers were selected for further review



FIRM AND PRODUCT SUMMARY

Firm/Product	Firm/Team Comments	Investment Style/Strategy	Performance Expectations	Portfolio Positioning	Rating/Comment
Emerging Markets Equity					
ABS - ABS EMS Portfolio	ABS Investment Management is an independent equity multimanager firm specializing in equity long/short and equity long only strategies. They are headquartered in Greenwich CT.	ABS follow a Fund of funds approach using a qualitative, bottom-up process to select and invest with funds managed by local specialists. They seek managers with a competitive edge, strong ethics and a clear alignment of interest.	The goal is to create a portfolio of country and regional specialists selected bottom up with on the ground market expertise that together can exceed the return of the MSCI EM IMI TR Index.	The ABS EM Strategic Portfolio is expected to invest in 10-15 managers. The portfolio will have a small/mid cap bias, but no strong country or sector bias relative to its benchmark.	Advantageous Given its fund of funds structure, this strategy will have a double layer of fees
Axiom - Emerging Markets	Axiom is a boutique firm that is 100% employee owned. Founder, Andrew Jacobson, retains the majority of the equity in the firm.	This is an all cap growth strategy that focuses on earnings-per-share growth and changes in earnings expectations. The team implements the strategy through bottom-up stock selection.	The strategy tends to outperform in rising markets and give up performance in down markets.	Typically the portfolio will have twice the earning per share growth than the MSCI EM Index. This is an all cap strategy that will invest across the cap spectrum.	Highly Advantageous PM recently went on leave
Columbia Threadneedle - Emerging Mkt Equity	Columbia Threadneedle Investments is wholly owned by Ameriprise Financial, and has over 30 locations globally. Investment teams are based in four countries: United Kingdom, United States (eight offices), Malaysia and Singapore. The EM investment team is based out of Portland, Oregon.	Bottom up fundamental strategy focuses on sustainable growth. The strategy also leverages quant and macro inputs from broad internal resources at CMIA. Since inception on average 70% of performance has been generated through stock selection, with country and sector allocation making up the rest of positive contributions.	The strategy is positioned to perform well in all market environments. The portfolio may underperform when the market is experiencing a high beta rally, led by low quality securities.	The strategy typically holds 100-160 stocks. Sector and country weight can be +/- 10% relative to benchmark. Max position sizes are +/- 2% relative to the benchmark.	Highly Advantageous Significant retail assets in strategy Offering founders pricing for CIT
William Blair - Intl Emerging Mkts	Large private partnership with products in all asset classes. Quality Growth is the central philosophy across William Blair's equity platform.	Strategy relies on intensive fundamental, bottom up research focusing on quality growth stocks, combining with objective scoring input from their proprietary quant models. They define Quality Growth as higher growth for longer than market expectations.	Strategy should participate in up markets especially when earnings growth is being rewarded. Given the growth bent the strategy won't do well in value oriented markets.	The strategy will have 120-175 holdings with a maximum sector weight of 35%, and individual name limit of 5% for large caps, 2% for mid and 1% for small cap names. Turnover ranges between 80-120%, half from new buys/sells, the rest from trims/adds.	Highly Advantageous Previous MWRA Manager



FIRM COMPARISON SUMMARY

Firm Name	Location	Year Firm Founded	Total Assets Under Mgmt (\$MM)	% Employee Owned	% Parent Owned	Parent Company Name	% Publicly Held	% Other Ownership
Emerging Markets Equity								
ABS Investment Management LLC	Greenwich, Connecticut	2002	5,970	59	0	NA	0	41
Axiom International Investors LLC	Greenwich, Connecticut	1998	15,812	100	0	NA	0	0
Columbia Management Investment Advisers, LLC	Boston, Massachusetts	1985	363,839	0	100	Ameriprise Financial, Inc.	0	0
William Blair Investment Management, LLC	Chicago, Illinois	1935	61,714	100	0	NA	0	0

PRODUCT COMPARISON

Firm/Product	Vehicle Proposed	Liquidity In	Liquidity Out	Client Fee for \$30.00 mm	NEPC Negotiated/Reduced Fee (bps)	Reported Fee (bps)
Emerging Markets Equity						
ABS - ABS EMS Portfolio	Commingled Fund	Daily	Daily	225,000.00	---	75
Axiom - Emerging Markets	Commingled Fund	Daily	Daily	222,000.00	74	98
Columbia Threadneedle - Emerging Mkt Equity	Commingled Fund	Daily	Daily	150,000.00	---	50
William Blair - Intl Emerging Mkts	Commingled Fund	Daily	Daily	280,000.00	---	93



EQUITY PRODUCT COMPARISON

Firm/Product	Primary Equity Capitalization	Current Number of Holdings	Typical Holdings	Wgtd. Avg. Mkt. Cap (\$MM)	Median Mkt. Cap (\$MM)	Annual Turnover (%)	Max Cash Position (%)	Typical Cash (%)
Emerging Markets Equity								
ABS - ABS EMS Portfolio	All Cap	523	400	93,626	4,377	NA	15	2
Axiom - Emerging Markets	All Cap	85	88	210,903	24,451	43	10	1
Columbia Threadneedle - Emerging Mkt Equity	All Cap	103	110	195,274	10,370	28	NA	NA
William Blair - Intl Emerging Mkts	All Cap	121	130	111,592	5,438	86	10	1

EQUITY SECTOR ALLOCATIONS

Firm/Product	Consumer Discretionary (%)	Consumer Staples (%)	Energy (%)	Financials (%)	Health Care (%)	Industrials (%)	Info. Tech. (%)	Materials (%)	Real Estate (%)	Comm. Serv. (%)	Utilities (%)	Other (%)
Emerging Markets Equity												
ABS - ABS EMS Portfolio	30.9	18.0	5.2	4.3	1.9	2.4	3.1	13.2	3.8	14.3	3.1	0.0
Axiom - Emerging Markets	26.0	4.3	3.7	12.6	5.6	7.6	21.7	3.8	0.7	14.1	0.0	0.0
Columbia Threadneedle - Emerging Mkt Equity	27.8	2.7	4.3	15.3	5.4	4.2	22.3	2.3	0.6	15.0	0.2	0.0
William Blair - Intl Emerging Mkts	22.1	9.7	3.5	5.1	8.5	6.2	26.1	2.2	0.0	16.5	0.0	0.0
Columbia Threadneedle - Emerging Mkt Equity	27.8	2.7	4.3	15.3	5.4	4.2	22.3	2.3	0.6	15.0	0.2	0.0
Neuberger Berman - Emerging Markets	14.7	10.1	4.0	16.3	3.2	4.9	22.5	4.4	1.7	16.6	1.7	0.0



PERFORMANCE

NEPC, LLC

TRAILING PERIOD RETURNS - (NET OF FEES)

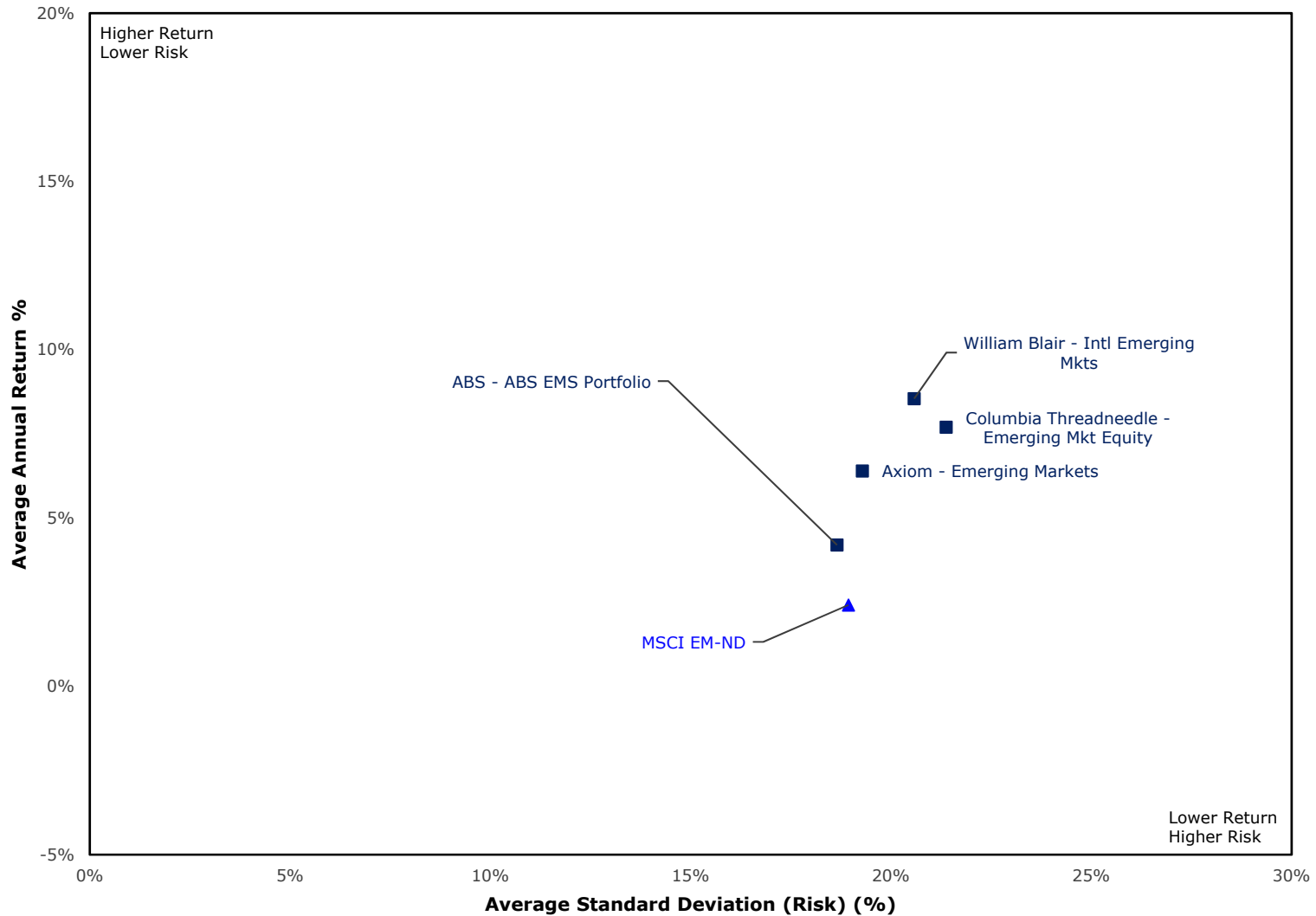
	Benchmark	Qtr	YTD	1 Year	3 Year	5 Year	7 Year	10 Year
Emerging Markets Equity								
ABS - ABS EMS Portfolio	1	11.3%	3.8%	14.2%	4.2%	10.8%	6.7%	NA
Axiom - Emerging Markets	1	13.2%	8.0%	21.3%	6.4%	11.9%	6.6%	5.5%
Columbia Threadneedle - Emerging Mkt Equity	1	15.6%	10.8%	26.3%	7.7%	13.7%	8.0%	5.8%
William Blair - Intl Emerging Mkts	1	15.9%	18.9%	32.3%	8.5%	13.1%	7.8%	6.0%
Actual Return								
1 MSCI EM-ND		9.6%	-1.2%	10.5%	2.4%	9.0%	3.7%	2.5%

CALENDAR YEAR RETURNS - (NET OF FEES)

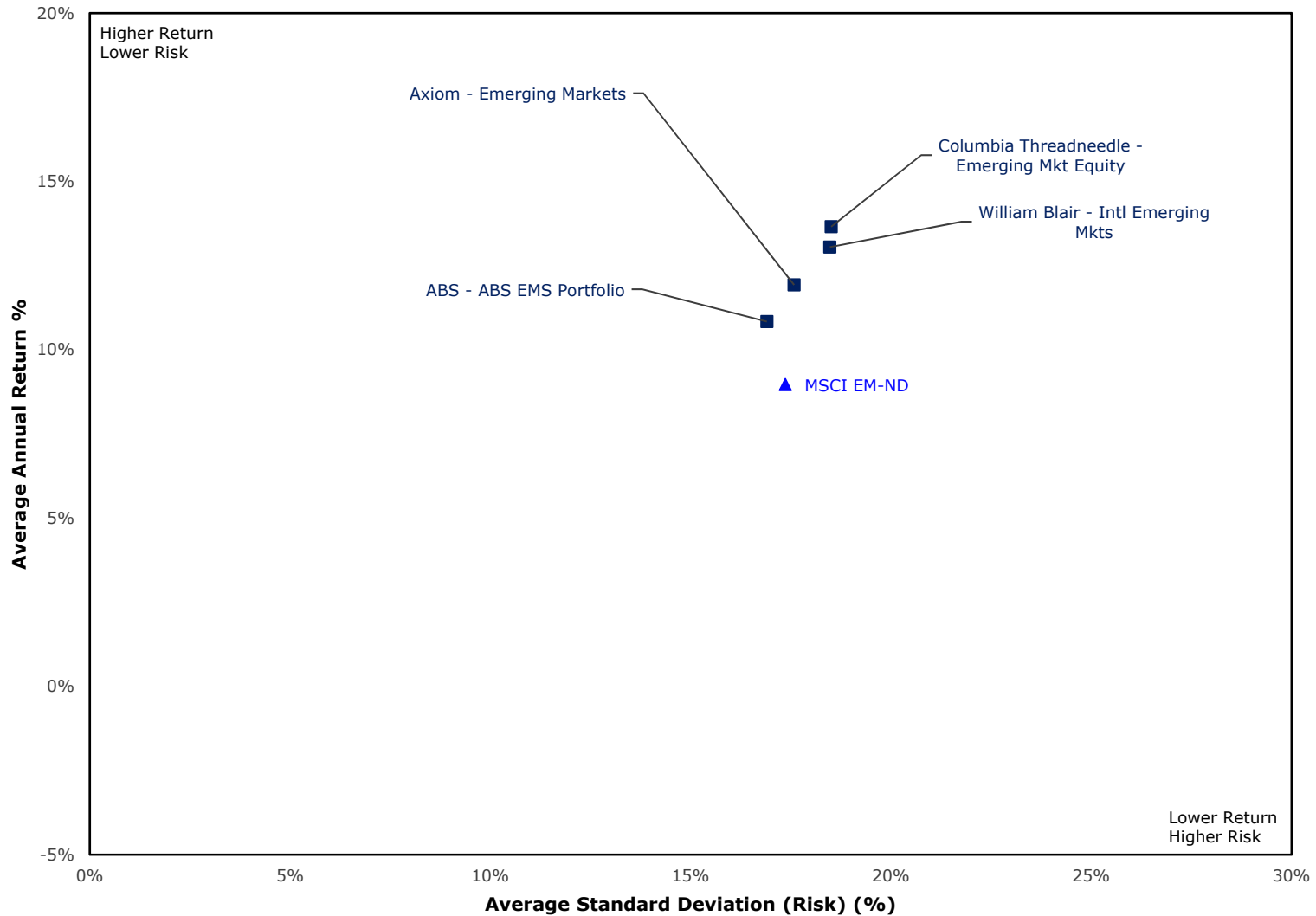
	Bench mark	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Emerging Markets Equity											
ABS - ABS EMS Portfolio	1	19.7%	-15.3%	38.7%	8.3%	-4.8%	3.5%	5.0%	NA	NA	NA
Axiom - Emerging Markets	1	24.8%	-16.6%	41.2%	8.2%	-12.2%	-1.2%	3.3%	21.8%	-18.3%	26.1%
Columbia Threadneedle - Emerging Mkt Equity	1	32.0%	-20.8%	47.5%	5.8%	-8.4%	-1.2%	-0.6%	24.2%	-17.9%	20.6%
William Blair - Intl Emerging Mkts	1	28.4%	-21.8%	49.8%	2.0%	-15.0%	4.8%	2.9%	21.1%	-16.7%	23.6%
Actual Index Return											
1 MSCI EM-ND		18.4%	-14.6%	37.3%	11.2%	-14.9%	-2.2%	-2.6%	18.2%	-18.4%	18.9%



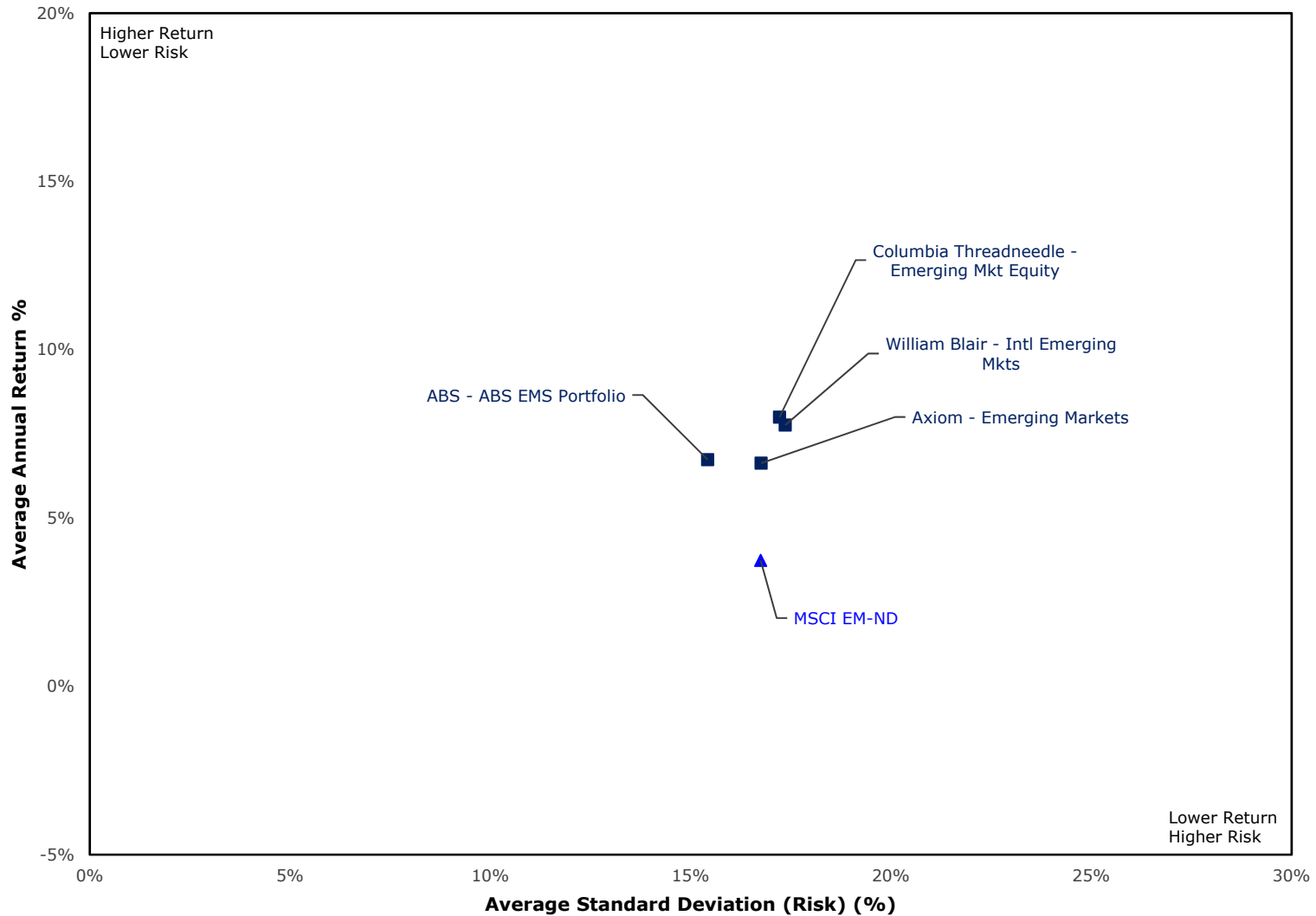
3 YEAR TOTAL RISK/RETURNS COMPARISON - (NET OF FEES)



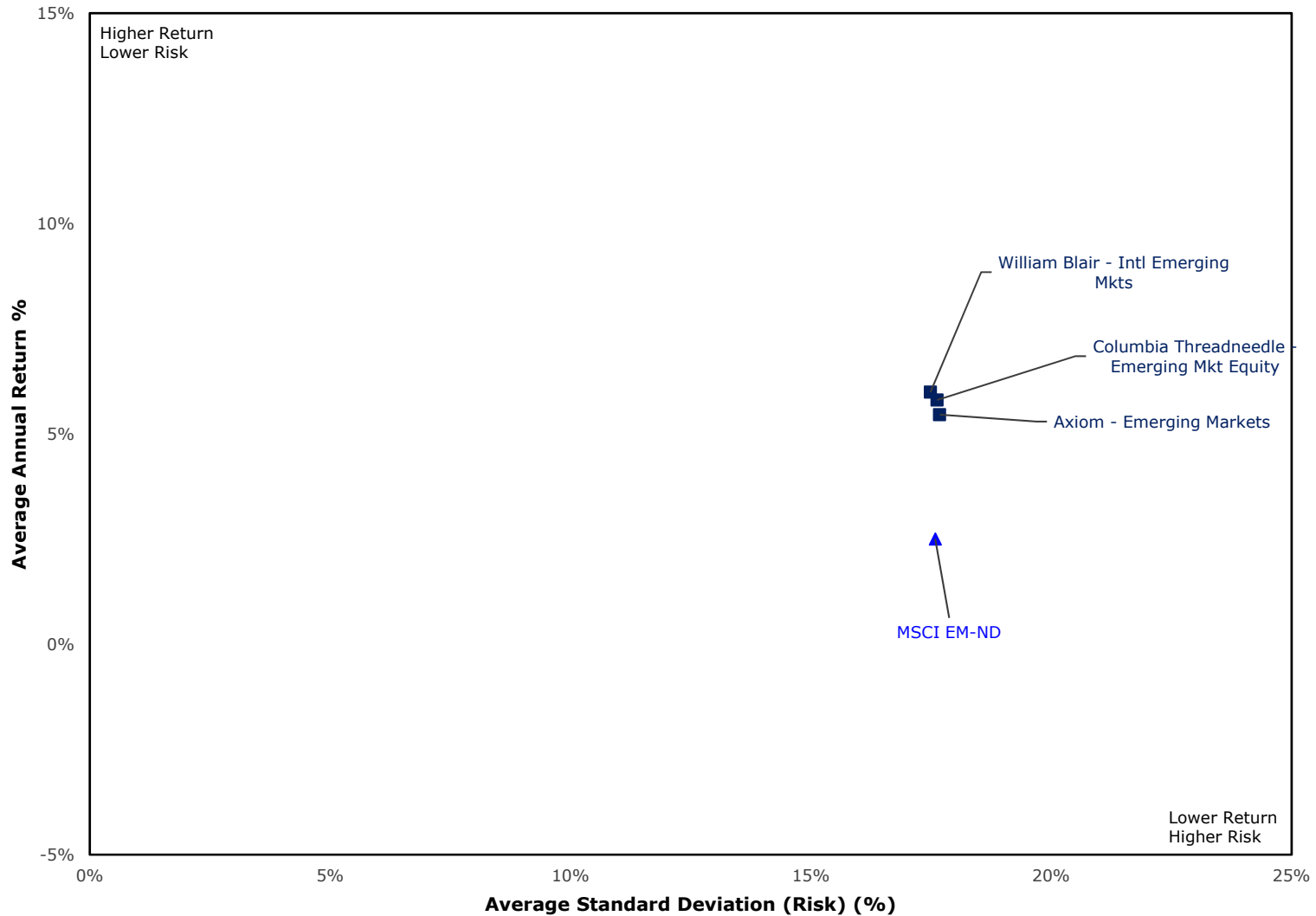
5 YEAR TOTAL RISK/RETURNS COMPARISON - (NET OF FEES)



7 YEAR TOTAL RISK/RETURNS COMPARISON - (NET OF FEES)



10 YEAR TOTAL RISK/RETURNS COMPARISON - (NET OF FEES)



APPENDIX

NEPC, LLC

SEMI FINALISTS

Firm/Product	Firm/Team Comments	Investment Style/Strategy	Performance Expectations	Portfolio Positioning	Rating/Comment
Emerging Markets Equity					
Acadian - Emerging Markets	Acadian is founded in Boston in 1986. As of June 2019 the firm has around 100bn in UAM and circa 400 employees worldwide with global offices in London, Singapore, Sydney and Tokyo.	The strategy is a quantitative model that focuses on valuation, price trend, quality, and earnings. It is slightly different than other Acadian models as the EM team uses a top-down country model in their process.	This strategy will do better in markets where value is in favor.	Quantitative blend of top-down country model and bottom-up stock selection model. Can be a stand alone EM manager or paired with a bottom-up fundamental manager.	Advantageous Quantitative strategy with over 400 holdings
Artisan – Sustainable Emerging Markets	Employee owned multi investment boutique firm.	The team seeks to invest in companies uniquely positioned to benefit from growth potential in emerging markets and/or possessing a sustainable competitive advantage. The team utilizes a bottom-up research process focusing on identifying companies priced at a discount relative to their estimate of their sustainable earnings. Ultimately, they aim to build a portfolio of companies with the strongest risk-adjusted upside reflective of the full emerging markets opportunity set.	Given the benchmark agnostic approach, the strategy may look very different from the index at times.	Benchmark agnostic, all cap approach. Portfolio will hold between 60 and 80 stocks and can also invest in frontier markets.	Advantageous Smallest assets of strategies profiled Can invest in frontier markets Offering founders pricing for CIT
Neuberger Berman - Emerging Markets	Neuberger Berman is a private, independent, employee-owned investment manager with approximately 500 current employee owners as of December 31, 2019.	Focused on secular growth with a heavy emphasis on ROE.	Product will do better when the domestic consumer sectors are in favor. The strategy is also skewed towards smaller cap stocks.	Portfolio will consist of roughly 100 names and have a maximum exposure of 20% in developed markets or the frontier countries.	Advantageous Relatively high fees



SEMI FINALISTS

Firm/Product	Firm/Team Comments	Investment Style/Strategy	Performance Expectations	Portfolio Positioning	Rating/Comments
Emerging Markets Equity					
Man Numeric - EM Core	Numeric was founded in 1989 and acquired by Man Group in 2014.	The strategy takes a quantitative approach to investing, with fundamental underpinnings as a basis for all alpha signals. The strategy uses two complementary sets of models, Valuation and Information Flow, and risk is controlled through portfolio construction rules, which leads to a predictable tracking error range assuming overall market volatility remains relatively stable.	Relative value approach, utilizing a proprietary Statistical Factor Risk Model to ensure the portfolio is neutral to the index on key risk attributes.	Typically holds between 200 and 400 securities. (There is no stated minimum or maximum number of holdings). The maximum position is limited to +2.5% active weight versus the benchmark at the time of purchase; there is no minimum position.	Advantageous Quantitative strategy with over 200 holdings Strategy has experienced outflows YTD
Invesco - Emerging Markets Eq	Invesco completed the acquisition of Oppenheimer Funds in May 2019. Invesco Ltd. is a publicly listed company trading on the New York Stock Exchange. Justin Leverenz is the portfolio manager of the Invesco Oppenheimer Emerging Markets Equity Strategy; he took over as lead PM in 9/2019.	The team's edge lies in their focus on deep fundamentals and a long term horizon of 3-5 years to identify companies with unique assets or innovative products that result in leading, sustainable advantages.	The Strategy expects to outperform when "rational" markets prevail, and to protect in down-markets due to their focus on quality. Historical tracking error has been high and alpha generation has been lumpy.	The portfolio typically consists of 70-100 companies. Position sizes reflect the team's conviction in the risk reward of each security. Country and industry exposure are a result of stock selection. Industry limit is typically less than 25% of the portfolio. The portfolio is absolute risk-oriented, and there is no specific tracking error target.	Advantageous Team and strategy were part of OFI acquisition by Invesco in 2019. PM departure in 2019 Largest strategy profiled
RBC - RBC EMEF	Philippe Langham is the head of the global emerging markets team. The entire team is based in London.	The RBC strategy is blend of top down and bottom up research. The top down decisions drive country and sector allocation.	The strategy has tended to protect capital in falling markets while trailing the benchmark in sharp market corrections.	The portfolio will be concentrated in 40-80 names. They have the ability to hold up to 15% in cash.	Highly Advantageous Can hold cash as part of the process



SEMI FINALISTS

Firm/Product	Firm/Team Comments	Investment Style/Strategy	Performance Expectations	Portfolio Positioning	Rating/Comments
Emerging Markets Equity					
Schroders - Emerging Mkts Equity	Large firm with resources on the ground across the globe.	The strategy, uses a mix of top-down analysis and bottom-up stock selection. They look to derive 50% of value from country allocation and 50% from stock selection driven by fundamental research.	Never expect them to be too far away from the benchmark on the up or downside. Strategy has demonstrated better downside protection.	Stand alone EM manager or a good core top-down base option for a multi manager EM approach.	<p>Advantageous</p> <p>Large retail assets in strategy</p> <p>Existing MWRA Managers</p>
WCM - Emerging Markets	WCM Investment Management is a global equity firm based in Laguna Beach, California. The firm is 75% employee-owned. There are 28 equity owners at WCM. Natixis recently bought a 25% ownership stake in WCM in 2019.	WCM focuses on quality, growing businesses in emerging markets, characterized by superior growth prospects, as well as by high returns on invested capital and low or no debt. When selecting equity investments, their minimum time horizon is 3-5 years.	The strategy will outperform when GARP (growth at a reasonable price) is in favor.	The portfolio has approximately 30 holdings and exposure to at least 15 global industries with maximum industry exposure limited to 15%. Sector exposure is limited to a maximum of 35%.	<p>Advantageous</p> <p>WCM focuses entirely on equities</p> <p>Team approach across regional strategies</p>
Wellington - Emerging Markets Opp	Wellington is an independent, private partnership. The firm is owned by 165 partners, all of whom are fully active in the firm. Wellington announced the retirement of Brendan Swords, Chief Executive Officer, effective January 30, 2021. At his retirement Jean Hynes will assume the role of CEO.	The portfolio follows a bottom-up, fundamental research approach. The portfolio is opportunistic in its stock selection and will invest in ideas across the style and market cap spectrum over a three to five year investment horizon. The portfolio will generally hold a broad range of market caps, but is expected to have a meaningful allocation to small- and mid-cap companies.	The investment objective of the Emerging Market Opportunities approach is to provide long-term returns in excess of the MSCI Emerging Market Investable Market Index (IMI). The alpha target is 4% per annum over full market cycles.	The portfolio is diversified and typically 60 - 70 stocks. Stock position sizes will typically start at 1.5% and will typically not exceed 5%, subject to a maximum of 7%.	<p>Advantageous</p> <p>Previous MWRA manager</p> <p>Relatively high fees</p>



MANAGERS EXCLUDED AFTER FIRST ROUND

Firm	Vehicles	Fees	Fund AUM (MM)	Style	Approach	Comments
Emerging Market Equity						
Aberdeen Standard Investments	Commingled/US LLC	First \$50 million: 90 bps Next \$50 million: 85 bps Over \$100 million: 80 bps	\$18,021.0	Core	Fundamental All-Cap	<ul style="list-style-type: none"> Aberdeen merged with Standard Life in 2017 AUM losses since 2018 Not advantageous
American Century Investments	Separate Account	First \$50mm 80 bps Next \$50mm 75 bps Over \$100mm 70 bps	\$4,156.0	Growth	Fundamental All-Cap	<ul style="list-style-type: none"> Offers separate account, commingled fund and mutual fund Meaningful retail assets Not advantageous
AJO Partners	Pooled vehicle (Cayman Islands)	0.70% on first \$25 million 0.60% on next \$25 million 0.50% on next \$25 million 0.45% on next \$25 million 0.40% thereafter	\$837.0	No style focus	Quantitative All-Cap	<ul style="list-style-type: none"> Firm announced it is closing at year end 2020 Not advantageous
Artisan Partners Developing World Strategy	CIT	1.05%	\$5,396.1	Core	Fundamental All-Cap	<ul style="list-style-type: none"> Relatively high fees Not advantageous
Ashmore Investment Management Limited	CIT/UCITS	75 bps	\$1,249.0	Core	Fundamental All-Cap	<ul style="list-style-type: none"> Majority of assets in strategy are in separate accounts Not advantageous
Aubrey Capital Management limited	Commingled	75 bps	\$531.6m	Growth	Fundamental All-Cap	<ul style="list-style-type: none"> Firm has ~\$1.2 billion in total AUM Not advantageous
Barings LLC	Commingled	48 bps	\$598.5	GARP	Fundamental All-Cap	<ul style="list-style-type: none"> Would require negotiation on indemnity clause in side letter Not advantageous
BlackRock	Mutual Fund	Class K: 83 bps	\$2,996.0	Core	Fundamental Mid-Large Cap	<ul style="list-style-type: none"> Significant assets are in retail mutual fund Not advantageous
Connor, Clark & Lunn Investment Management	Commingled	80 bps on the first \$50mm 70bps on the next \$50mm 60 bps thereafter	\$632.7	Growth	Quantitative All-Cap	<ul style="list-style-type: none"> Quantitative approach Over 700 holdings Not advantageous
Coronation Investment Management International (Pty)	Commingled/Pooled	First \$200 million at: 0.85% Next \$200 million at: 0.83% Next \$200 million at: 0.80% Next \$200 million at: 0.78%	\$4,999.8	Value	Fundamental All-Cap	<ul style="list-style-type: none"> Strategy can use derivatives such as futures for cashflow management Strategy can invest up to 25% in developed markets Not advantageous



MANAGERS EXCLUDED AFTER FIRST ROUND

Firm	Vehicles	Fees	Fund AUM (MM)	Style	Approach	Comments
Emerging Market Equity						
Driehaus Capital Management LLC	CIT	Below \$20 m at 80 bps If above \$20 m: First \$50 m at 75 bps Next \$50 m at 65 bps Thereafter at 60 bps	\$4,398.6	Growth	Combined All-Cap	<ul style="list-style-type: none"> Recent departure of CEO Not advantageous
Eastspring Investments Incorporated	CIT	Class S: 50 bps (man fee)	\$759.3	Value	Fundamental All-Cap	<ul style="list-style-type: none"> Asset losses since 2017 Not advantageous
Fisher Investments	Commingled	First \$25 million at: 1.25% Next \$25 million at: 1.20% Next \$50 million at: 1.10% 100m plus at: 1.00%	\$12,290.9	Core	Fundamental Large-Cap	<ul style="list-style-type: none"> Relatively high fees Recent AUM losses Not advantageous
GAM Investments	Commingled	40 bps	\$1,190.7	Core	Combined All-Cap	<ul style="list-style-type: none"> Firm AUM losses since 2018 Not advantageous
LSV Asset Management	Commingled	First \$50 m at: 1.00% Next \$50 m at: 0.90% Next \$400 m at: 0.75% Additional over \$500 m: 0.65%	\$5,143.2	Deep Value	Quantitative All-Cap	<ul style="list-style-type: none"> Strategy charges a 30 bps fee for contributions and withdrawals Not advantageous
Macquarie Investment Management	Mutual Fund	Institutional Class: 1.37% Class R6: 1.25%	\$7,003.1	Core	Fundamental Large-Cap	<ul style="list-style-type: none"> Highest management fee profiled Not advantageous
NS Partners Ltd	Commingled	First \$25 m at: 0.85% Next \$25 m at: 0.80% Next \$50 m at: 0.70% Thereafter at: 0.60%	\$632.7	Growth	Fundamental All-Cap	<ul style="list-style-type: none"> Total firm AUM is ~\$3.0 billion Not advantageous
Oaktree Capital Management	Commingled	80 bps	\$6,105.9	Value /Core	Fundamental All-Cap	<ul style="list-style-type: none"> Recently acquired by Brookfield Asset Management Not advantageous
Parametric Portfolio Associates LLC	CIT/Mutual Fund	CIT: First \$150M: 78 bps Thereafter: 73 bps Mutual Fund: 96 bps	\$3,776.2	Core	Quantitative All-Cap	<ul style="list-style-type: none"> Quantitative approach Will structurally be underweight larger countries Recently acquired by Morgan Stanley Not advantageous
Pzena Investment Management, LLC	Mutual Fund/ Illinois Group Trust/ CIT	Mutual Fund: 1.08% Illinois Group Trust: 1.00% on the first \$50 m, 0.70% thereafter CIT: 1.0%	\$3,740.6	Deep Value	Fundamental All-Cap	<ul style="list-style-type: none"> Relatively high fees Deep value approach Not advantageous



MANAGERS EXCLUDED AFTER FIRST ROUND

Firm	Vehicles	Fees	Fund AUM (MM)	Style	Approach	Comments
Emerging Market Equity						
QMA LLC	Commingled	65 bps on first \$50 mm 60 bps on first \$50 mm 55 bps thereafter	\$1,483.2	Core	Quantitative Large-Cap	<ul style="list-style-type: none"> Recent changes to CIO and Director of Research Recent strategy AUM losses Not advantageous
Thornburg Investment Management, Inc.	Commingled 3(c)(7) / 3(c)(11)	First \$25 M: 99 bps Next \$75 M: 95 bps Over \$100 M: 90 bps/ Tier 1 (<\$50 M): 95 bps, Tier 2 (=/> \$50 M): 90 bps, Tier 3 (<\$50 M): 105 bps (a) Tier 4 (=/> \$50 M): 100 bps (a) (a)Includes 10 bps rev. share	\$833.3	Core	Fundamental All-Cap	<ul style="list-style-type: none"> Large retail assets in strategy Not advantageous
Van Eck Associates Corporation	Mutual Fund	100 bps	\$2,781.9	GARP	Fundamental All-Cap	<ul style="list-style-type: none"> Relatively high fees Large retail assets in strategy Not advantageous
Vontobel Asset Management	Commingled	0.95% for the first \$150 m in average net assets 0.85% of the average net assets of the Fund over \$150 m	\$12,786.62	Growth	Fundamental All-Cap	<ul style="list-style-type: none"> Strategy has experienced outflows since 2017 Not advantageous
Wells Fargo Asset Management	Commingled Vehicles	Mutual Fund : 114 bps EM Equity 3c1: 100 bps Collective Investment Trust: E Share class: 95 bps E1 share class: 90 bps E2 share class: 85 bps	\$9,765.8	Core	Fundamental All-Cap	<ul style="list-style-type: none"> Relatively high fees for certain vehicles Not advantageous
Westwood Global Investments, LLC	Commingled	1.15%	\$7,026.8	Core	Fundamental All-Cap	<ul style="list-style-type: none"> Would require further discussion around side letter, specifically indemnification language Not advantageous



*Manager has tentatively agreed to the terms of the side letter but retain the right to negotiate in good faith later.

LITIGATION

Firm	Manager's explanation of Prior or Pending Litigation
Emerging Markets Equity	
ABS Investment Management LLC	There is no prior or pending litigation.
Axiom International Investors LLC	There is no prior or pending litigation.
Columbia Management Investment Advisers, LLC	<p>Where required, Columbia Management Investment Advisers provides disclosure regarding such matters in Part 2A of the ADV.</p> <p>Ameriprise Financial and Columbia Management Investment Advisers believe that neither of them, nor any of their affiliates, is currently the subject of any pending legal, arbitration, regulatory or other governmental matters that are likely to have a material adverse effect on the financial condition of Ameriprise Financial or the ability of Columbia Management to meet its contractual commitments to clients. Ameriprise Financial is required to make 10Q, 10-K and, as necessary, 8-K filings with the Securities and Exchange Commission on legal and regulatory matters that relate to Ameriprise Financial and its affiliates. Copies of these filings may be obtained by accessing the SEC website at www.sec.gov.</p>
William Blair Investment Management, LLC	There is no prior or pending litigation.



DISCLAIMER

- **This report contains summary information regarding the investment management approaches described herein but is not a complete description of the investment objectives, policies or portfolio management and research that supports these approaches. This analysis does not constitute a recommendation to implement any of the aforementioned approaches.**
- **Past performance is no guarantee of future results.**
- **Information on market indices was provided by sources external to NEPC, and other data used to prepare this report was obtained directly from the investment manager(s). While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
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