

**MWRA EMPLOYEES' RETIREMENT BOARD MEETING**

**AGENDA**

**Thursday, March 25, 2021 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 - Draft Job Description for Executive Secretary
- 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 February 25, 2021 Minutes – VOTE

Item 4 Approval of Warrant 3-2021– VOTE

Item 5 Approval of Monthly Transfers 3-2021 – VOTE

Item 6 Acknowledgement of Edward Sullivan Retirement Application Under G.L. c 32 §5 – VOTE

Item 7 Segal – January 1, 2021 Preliminary Actuarial Valuation Results

Item 8 Approval of FY22 COLA – VOTE

Item 9 Appointment of Election Officer – VOTE

Item 10 Manager Presentations

- 10:30 a.m. a) RhumbLine Advisers
- 10:45 a.m. b) Boston Partners
- 11:00 a.m. c) CarVal
- 11:15 a.m. d) PRIM

Item 11 NEPC

- a) Flash Report as of 2/20/2021
- b) Rebalance Recommendation
- c) Private Markets Strategic and Pacing Plan
- d) Axiom EME Strategy – New PM Hire
- e) Baillie Gifford Partnership Update

Item 12 Legal Update

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

- Item 99-1 PERAC Memo #11-2021 – Benefit Calculation Submission Via PROSPER
- Item 99-2 PERAC Memo #12-2021 – Tobacco Company List
- Item 99-3 Cerberus Letter re. Personnel Update
- Item 99-4 Communication from Executive Director Regarding Retirement Office Access
- Item 99-5 Communication from Executive Director Regarding State-approved Office Supply Vendor W.B. Mason

**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, April 29, 2021, 10:00 a.m., Chelsea**

**MASSACHUSETTS WATER RESOURCES  
AUTHORITY EMPLOYEES' RETIREMENT  
BOARD MEETING  
FEBRUARY 25, 2021**

A meeting of the MWRA Employees' Retirement Board was held via conference call on Thursday, February 25, 2021, due to safety concerns regarding the Coronavirus. The 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 via conference call were James M. Fleming, Thomas J. Durkin, Kevin McKenna, Andrew Pappastergion, Frank Zecha, Carolyn Russo, Julie McManus, and Sebastian Grzejka. Mr. Fleming was not feeling well and asked that Mr. Durkin Chair the meeting. Members of the public including Gar Chung from Financial Investment News attended. Vice Chairman Durkin called the meeting to order at 10:07 a.m.

- 1) Call the meeting to order-roll call of members: Mr. Fleming present, Mr. McKenna present, Mr. Pappastergion present, Mr. Zecha present, and Mr. Durkin present.
- 2) Standing Committee Reports
  - i. By-Laws Committee: No report
  - ii. Human Resources Committee: No report
  - iii. Special Committee, Stipend: No report
  - iv. Job Review Committee: No report
- 3) Approval of Minutes – VOTE
  - a) January 28, 2021 Minutes
  - b) January 28, 2021 Executive Session Minutes

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

**VOTED**

to approve the minutes of the January 28, 2021 meeting as presented.

5-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Durkin voting yes

On a motion made by Mr. McKenna and seconded by Mr. Fleming:

**VOTED**

to approve the Executive Session minutes of the January 28, 2021

meeting as presented. 5-0, roll call with Mr. Fleming voting yes, Mr.

McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Durkin voting yes

- 4) Approval of Warrants – VOTE
  - a) Warrant 2-2021
  - b) Warrant 2-2021A – Retiree Payroll

On an omnibus motion made by Mr. Fleming and seconded by Mr. Zecha:  
**VOTED**

to approve Warrants 2-2021 and 2-2021A - Retiree Payroll as presented. 5-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Durkin voting yes

- 5) Approval of Monthly Transfers 2-2021 – VOTE

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

**VOTED**

to approve the rebalance transfers as presented and as recommended by NEPC. 5-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Durkin voting yes

- 6) Acknowledgement of retirement applications under G.L. c 32 §5 – VOTE
  - a) Kathleen Scruton DOR 12/26/2020
  - b) Ernest Langelier DOR 1/9/2021
  - c) Bonnie Gillespie-Perry DOR 1/20/2021
  - d) Richard Famolare DOR 1/20/2021
  - e) Tina Saunders DOR 1/22/2021
  - f) Ravindra Joshi DOR 1/23/2021
  - g) Kathleen Kolar DOR 1/30/2021
  - h) Brian Rozowsky DOR 2/6/2021
  - i) Michael Rivard DOR 2/13/2021
  - j) Joseph Giangregorio DOR 2/14/2021

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

**VOTED**

to acknowledge above superannuation retirements. 5-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Durkin voting yes

- 7) Approval of Frederick Brandon's buyback of City of Framingham employment – VOTE

Mr. Durkin asked the Executive Director to provide a summary of the issue. The Executive Director stated that although Mr. Brandon provided W-2's to substantiate his earnings throughout his prior service with Framingham, the employer was unable to provide a breakdown of the hours he worked while he was a student. Whereas s. 20(5)(c)(1) permits the Board to use fair estimates when it is unable to secure original records, the Executive Director used minimum wage rates to compute the estimate of hours worked, resulting in nine months of service credit based on a 40-hour work week. The Executive Director noted that per s. 20(5)(c)(1), if the methodology is approved by the Board, the computation will be forwarded to PERAC's Actuary for his approval.

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

**VOTED**

to approve the buyback of Frederick Brandon of nine months of prior service credit with the (then) Town of Framingham, conditioned upon receipt of final approval by PERAC's Actuary. 5-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Durkin voting yes

- 8) Draft Job Description for Executive Secretary for Review or Referral to Subcommittee – VOTE

Mr. Durkin deferred to the Executive Director for comment. The Executive Director reported that she is requesting that the draft job description be referred to the Human Resources Committee for review and recommendations.

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

**VOTED**

to refer to the Human Resources Committee, the draft job description for the position of Retirement Board Executive Secretary for the Committee's review and recommendations. 5-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Durkin voting yes. Mr. Durkin stated that he will provide the Board with recommendations at the March meeting.

- 9) Legal

In regard to the draft job description, Board Counsel recommended the addition of a provision which states clearly that the position is exempt from FLSA requirements. (Fair Labor Standards Act)

Hass v. Stanton - Board Counsel reported that although MWRAERB was previously dismissed as a party to the current matter of legal fees, the most recent decision does not make that entirely clear. The Order does state that Ms. Stanton does not owe anything for Mr. Stanton's legal fees, and that the Board properly disbursed to her what was due pursuant to the Domestic Relations Order. Counsel noted that due to the efforts of the Executive Director that Ms. Stanton was able to secure an amended Order to provide her a portion of the retroactive benefit and of the retirement benefit payable to Mr. Stanton on an ongoing basis. It was inquired of Board Counsel by Counsel for Ms. Stanton as to whether her now asserting a claim for recovery of legal fees would be considered frivolous, and Board Counsel opined that it would not, but that an appeal of the Order itself likely would be considered so.

Counsel reported that *O'Leary* is still awaiting review in Appeals Court.

Board Counsel reported that HD1794 would provide 3 years of service credit for those public employees who were considered essential during the pandemic and who worked on-site rather than from home. He stated that the bill, which is still in its draft form, now has between 25 and 30 co-sponsors so it is gaining some traction, but that it is deficient in that it does not contain a provision for local option acceptance, as has been required to prevent imposition of unfunded mandates in accordance with Proposition 2 ½.

Mr. McKenna asked Board Counsel how we would account for the service credit actuarially. Counsel stated that it is difficult to do but the Actuaries will figure it out, and that "essential" was broadly defined and could encompass a lot of people. Further, because Retirement Board Staff are responsible for distribution of public benefits, they were included in the Commonwealth's definition of "essential" throughout the pandemic, and it is his reading that they would therefore qualify under the draft bill as it is currently written.

Counsel reported that at the request of the Executive Director he had sent a communication to PERAC in regard to their failure to acknowledge the Board's selection of ABS as a result of the EM RFP process. He noted that the Executive Director and NEPC had provided PERAC with reams of additional material on January 13, 2021 as requested, and that ABS had submitted additional information as well. By statute PERAC has ten days to issue acknowledgment. They have instead deemed the submission incomplete and placed the matter "under review", but have declined to inform the Board as to what documentation

might be missing. Counsel interprets this as an indication that the investment will not be approved. Mr. McKenna noted that Plymouth County already invests with ABS, so they are already managing other MA public funds. Counsel noted that in reviewing all of the materials, nothing leaped off the page which would indicate a serious issue with the manager, which creates the impression that PERAC may have information in regard to the manager which the Board and NEPC do not have, and which to date PERAC has not shared.

Counsel recommended that the Board take the time to review the recently-released Hampden County Retirement System PERAC Audit. The very significant findings may result in referrals to the Ethics Commission, the Office of the Inspector General, and/or the Attorney General, and he said there have been public calls for the Board Members to resign. Although the negative publicity causes harm to all Systems, Counsel acknowledged that in contrast the MWRAERS' Executive Director's oversight of the System has resulted consistently in only a few inconsequential findings in the annual private audits as well as in the most recent PERAC audit.

Counsel reported that Middlesex has requested review by PERAC tax Counsel Ice Miller of the treatment of rehired annuitants. Tax law provides that retirees who are hired post-retirement to serve the same communities from which they retired are exempt from OBRA contributions. However, Ice Miller has opined that the Systems are all separate and therefore retirees hired by governmental entities other than the ones from which they retired are not exempt from the OBRA requirements. It is Counsel's assertion that the MA public retirement systems were created and are governed under uniform statutes and that therefore annuitants rehired by any governmental unit should be treated equally, and as exempt.

Mr. McKenna asked if there is any update on *Capozzi*, and Counsel stated that the matter remains before CRAB. Mr. McKenna asked what Ms. Capozzi is receiving now and the Executive Director confirmed that Ms. Capozzi is currently receiving the 2/3 option C benefit.

Mr. Durkin noted relative to the recently-automated PERAC SFI process, that he had previously suggested that mandatory 268B filers should be able to send the Ethics Commission 268B receipt in lieu of submitting the SFI to PERAC, and that PERAC now permits the substitute submission.

Counsel thanked the Board and NEPC for the accommodation for the early timeslot, and signed off the call at 10:40 a.m.

#### 10) Manager Presentations

The following managers underwent an annual investment manager review pursuant to 840 CMR 16.07. The managers presented performance and investment reports detailing the manager's activities which the Board reviewed.

Invesco  
Ascent  
Loomis Sayles

Each manager was cautioned that the Board cannot fully guarantee security of the meeting platform and cautioned the participants against sharing information considered proprietary. The Board reviewed and compared each manager's performance with the Retirement System's investment goals and policies. The Board ensured that comprehensive written quarterly reports were filed with the Board and with PERAC and that these reports included a review of investment performance and relative performance, a review of the System's investments, and a report on each investment manager's current investment outlook or forecast as well as strategy for the future and key personnel staffing changes.

The Board determined each manager continues to operate in a manner represented when retained and outlined in the agreement between the Board and the manager.

Jake Passero and Rivka Altman presented on behalf of Invesco in regard to the Fund IV and VI accounts, and the IMRF I and II accounts. Mr. Passero stated that Fund IV is no longer active and has a NAV of roughly \$12,000 remaining from which audit expenses will be prepaid. The remainder is expected to be distributed around June 2021. Through 9/30 the fund has a net IRR of 9.2%.

In regard to Fund VI, Invesco has called \$4m of the Board's \$6m commitment, but has redeployed funds which would have otherwise been distributed in lieu of additional calls. The Fund has a net IRR of 15.2%. Mr. Passero noted that venture was well-positioned and performed well during the pandemic and that buyouts also contributed, demonstrating that the fund's diversification had done its job.

Mr. McKenna asked whether the numbers being presented are 9/30, and Mr. Passero confirmed that they are. Mr. Grzejka asked when the Board might



expect 12/31 numbers noting that Invesco's reporting has consistently lagged that of the other managers, and has impacted the Annual Statement and CAFR. Mr. Passero stated that he would expect them to be released in a few weeks but that he would follow up with NEPC.

Ms. Altman stated that IMRF is in the liquidation stage. There is one condo property remaining and it is actively on the market. In regard to IMRF II, 70% of the fund had been monetized pre-CoVid, and there are four assets remaining. The US assets are faring better than the EU assets due to prolonged shutdowns and uncertainty. The remaining Phoenix property is a parking garage which derives its income from a nearby Courthouse which was closed but which will eventually re-open. The Dublin Shopping center property has experienced a prolonged closure because of government-imposed shutdowns, construction was halted, and its outlook is uncertain. Offices in France have been open, but the fund's office property has been hurt by work-from-home expansion and there is no market. Invesco expects the disposition of the remaining assets to be at least two quarters later than the target dates, likely in late 2022. The fund has a gross IRR target of 12.25% and the managers are constantly monitoring government restrictions and virus and vaccination trends.

Mr. Durkin inquired as to whether Invesco has renegotiated its terms with the Phoenix project's lender. Ms. Altman reported that Invesco has a long-standing established relationship with Bank of America, and IMRF just requested extra time to repay rather than changing the terms. Bank of America knows the Courthouse will reopen, and would rather accommodate IMRF's request than have them "hand back the keys" to the property. Ms. Altman and Mr. Passero thanked the Board and signed off the call at 10:55 a.m.

Tom Scanlon and Walter Dick joined the call to present on behalf of Ascent Venture Partners. Ascent has reduced its team, reduced salaries and implemented furloughs. Mr. Oblak has left the firm, but is under contract to assist in the management and disposition of the remaining assets. Ascent received \$14m in PPP loans to deploy across seventeen underlying companies, some of which will be paying back the funds. Across the Ascent Funds, the System has invested \$8.3m, Ascent has returned \$4.9m and there is \$4.5m in remaining value. There is one remaining asset in Fund IV-B, BryterCx, a company which is still growing and which is expected to bring additional value to IV-B investors. Mr. Scanlon reported that Ascent has done extensive write-downs, but that some of the assets remaining in funds V and VI have recovered somewhat. Q4 numbers are not yet available. Mr. Dick reported that four of the remaining six

assets in V have performance-driver potential, including Invaluable and Nova Scientific. The companies are leaner and better positioned to perform, and Ascent is examining exit options, with disposition expected by December 2021. Mr. Scanlon cited Splash, Connected2Fiber, and Sidecar as the remaining performance drivers in fund VI. Mr. McKenna asked if Splash tracks who developed business for client companies. Mr. Scanlon reported that Splash is an event planner that was able to pivot quickly to plan virtual events for clients such as Anheuser-Busch and Facebook. They track data of participants which can then be brought back to the companies and tracked moving forward. Mr. McKenna said he thought they tracked who closed the deal, and Mr. Dick responded to a small degree, but that it largely represents, for example, events attended by Budweiser's distributors, and some underlying buyers, and that Splash is already planning for resuming in-person events for the fall. Mr. Scanlon stated that Splash has also partnered with Zoom and Microsoft teams to amass additional data on event participation. Mr. Dick stated that Ascent was apprehensive when the pandemic first hit, but that underlying managers have made tough decisions & cuts, and that they hope to bring additional value to investors. He and Mr. Scanlon thanked the Board and signed off at 11:16 a.m.

At 11:17 a.m. Mike Finocchi, Fred Sweeney and Noreen Drohan joined the meeting to present on behalf of Loomis Sayles. Mr. Finocchi stated that the MWRAERS is Loomis Sayles' longest standing client dating back to the 90's, and thanked the Board for their trust in the team. He stated that roughly only 3% of Loomis' employees are working on-site, and that staff are not allowed to take the train if they do go into the office. Mr. Sweeney stated that the Full Discretion Trust (Fixed Income) investment has a stable team, and that although Dan Fuss has stepped back, it was part of a long-term succession plan, and that he still services as Vice Chairman and Senior Advisor to the firm. Q1 of 2020 was rough but the fund came back strong, ending the year at 14.57%. FDT was conservatively positioned, had a lot of reserves, and bought into the down market, acquiring the "fallen angels" such as GM, Expedia, Anheuser-Busch, and Boeing which are expected to recover from the pandemic in the long term. Loomis expects a return to normalcy beginning this summer. YTD 2021 the FDT is negative, but is outperforming the benchmark. The CoVid-sensitive sectors are beginning to catch up, and the credit backdrop is improving. The FDT is sticking to its discipline of bottom-up selection, focusing on the best ideas and on risk mitigation. Mr. Durkin asked about Loomis' outlook on inflation. Mr. Sweeney said they expect a pop, possibly up to 2.25 to 2.5%, but that long term he expects the rate of inflation to settle in at around 2%.

Ms. Drohan reported that the Small Cap Growth team has had no significant changes, and reiterated Loomis' appreciation for MWRAERS as its longest-term client. YTD 2020 the fund came in at 34.83% net of fees. The fund lagged the bench in the fourth quarter, predominantly because low-quality names not held in the portfolio drove performance. Mr. McKenna remarked that the Russell 2000 growth had come in at 42.7%, but Mr. Grzejka noted that is the Russell's 1-year performance number through January 31, 2021, as opposed to Loomis' number through December 31, 2020. Ms. Drohan stated that none of the fund's picks anticipated the pandemic, but that two of the fund's positions, Five-9 and Quidel benefitted from it. Five-9 makes call center software, and Quidel makes flu diagnostic tests and was able to transition very quickly to manufacturing rapid CoVid tests. Both positions were systematically trimmed over the course of the year to stay within the targets. Detractors included Chef's Warehouse and Essent Group (mortgage insurance) which were sold on a stop-loss in Q1. The fund is now underweight in biotech and overweight in consumer staples, and focuses on stocks with low share turnover, which may imply lower volatility. The fund expects lower returns for 2021 after two very strong years.

Mr. Zecha asked Ms. Drohan about MyoKardia, which she reported was purchased by Bristol Myers Squibb, and about Rocket Pharmaceuticals, which the fund continues to hold. Mr. Grzejka asked about how Loomis factors in the Game Stop phenomenon in the second half of January, and about SPACs (Special Purpose Acquisition Companies). Ms. Drohan stated their quality discipline prevented any exposure to companies similarly situated to GameStop. She noted that although three quarters of 2020 IPOs were SPAC, the fund has no plan to participate in the short term, but that it is possible over the long term. Mr. Zecha asked about February 2021 MTD performance. The fund is up about 9% with the bench at roughly 7.2%, because quality has outperformed over the last two weeks. Mr. Zecha asked about fees. Mr. Grzejka stated that the fees are at 45bps, which Ms. Drohan noted is well below other clients' fees due to the longevity of the MWRAERS account. Mr. Finocchi, Mr. Sweeney, and Ms. Drohan thanked the Board and signed off at 11:43 a.m.

- 11) NEPC
  - a) Flash Report as of 1/31/2021
  - b) Rebalance Recommendation
  - c) 2021 Asset Allocation Review
  - d) Garcia Hamilton Fee Proposal

Mr. Durkin asked Mr. Grzejka for his comments about the managers' presentations. In regard to Ascent, Mr. Grzejka cited mixed results, and remarked that very early-stage companies are either strikeouts or home runs. Fund VI has better return prospects. Fund V was a 2008 vintage, but has done well buying at bottom. Ascent has certainly not been the best performer among the Private Equity account, and at this point they are just managing out the remaining assets.

The Loomis Fixed Income Account (now FDT) has an annualized return of 9% since 1999 which is exceptional for a bond fund. It is managed by a four-person team, and has been a consistent performer in spite of occasional hiccups. Mr. McKenna stated that he keeps getting marketing materials from LMCG in regard to a Fixed Income alternative strategy and asked if that might have a place in the portfolio. Mr. Grzejka stated that he is not familiar with the product, but would look at it, although there is no Fixed income RFP planned for 2021.

Mr. Grzejka reported that at the end of January the System's investments stood at \$644m. He noted that for January the fund was down roughly 50bps but that February is positive to date. None of the managers held GameStop or affected securities so the quality disciplines detracted from relative performance. US Equities were up, as were Non-US. The Board funded the Axiom EM account for \$20m, but is still awaiting word from PERAC in regard to ABS. Boston is still awaiting word as well, in spite of the fact that other MA Systems have assets under management with ABS. Rates put pressure on the Fixed Income results for the month of January, but the portfolio still has strong one-year numbers. Senior loans and bank loans are also beginning to recover, with Octagon ending the month positive 90bps. Hedge Fund performance was mixed with PRIT outperforming both Corbin and UBS. Most of the Real Estate and Private Equity December numbers have not yet been reported. Alcentra and Terracap III just came in, and hopefully most of the rest will come in over the next few weeks. NEPC will update December to finalize the Flash once most of the reporting is received.

Mr. Zecha inquired about Growth vs. Value bias. Mr. Grzejka stated that it is very difficult to time. Value tends to be in favor in abrupt short snaps, so maintaining a balance between the two still makes sense particularly for a public pension fund and has been proved effective over the long term. He noted that stocks such as Alphabet and Apple are still considered Growth names, but that there is very low likelihood that their values will plummet. The System has benefitted from the Board's consistent rebalancing over 2020 to take equity run-

up proceeds off the table. In regard to the rebalance recommendations, the intent is still to fund ABS \$20m from Schroders and Baillie Gifford, provided PERAC approves the investment and no new information which would impact the Board's decision is revealed. NEPC is also recommending rebalancing to cash \$2m from Rhumblin S&P and \$2m from Schroders, to maintain a roughly 1% or \$7m position in order to fund retirement payroll, accounts payable, and capital calls.

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

**VOTED**

to accept the rebalance recommendations of NEPC as presented. 5-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Durkin voting yes

In performing its annual asset allocation review NEPC is recommending a more defensive posture, with a slightly larger position in US and EM equities, and smaller position in non-US, eliminating entirely the Non-US Developed Small Cap position.

The Loomis FDT, Octagon and Hedge Fund allocations will provide some protection. Mr. Zecha asked about Gold, and Mr. Grzejka note that we would need a very long time horizon for that to work. Long term returns fall somewhere between Equities and Fixed Income, but in individual years Gold can sharply underperform. In addition, Gold is currently at historic highs. NEPC expects a recovery, although some area will be a little slower than others. Businesses will reopen, people will start traveling and going out. Over the second half of 2020 spending was up, and unemployment is falling. Increases in demand may lead to inflation, but how the Fed reacts will affect to what degree. NEPC expects inflation to settle in at about 2% after a possible near-term spike.

NEPC views the two most dominant market themes for 2021 as Virus Trajectory and Permanent Interventions. Vaccine approvals and new treatments will allow reopening, and permanent interventions such stimulus packages and Central bank actions are expected to spur economic growth. If virus variants arise that are not responsive to the vaccine, it will lead to volatility as it did in the UK. Globalization backlash has led to extremism in politics and protectionism. China is expected to overtake the US as the world's largest economy within the next ten years and investor's need to recognize and prepare for that. Ten-year returns are expected to be subdued as a result of overvaluations, making PE and EM more attractive. Rate compression is driving Fixed Income returns. The recommended asset allocation changes are small overall, and include an

increase in equities from 57% to 60%, a reduction from 12% to 10% in Core Bonds and from 5% to 4% in TIPS.

Mr. McKenna asked how much additional risk would be required to make up the additional 40bps between the current actuarial assumption of 7.1% and the expected long term return of 6.7% for the proposed asset allocation targets. Mr. Grzejka estimated an additional 10% allocation to PE and an increase in EM allocation would be required. Mr. McKenna asked why NEPC is not recommending that and Mr. Grzejka responded that the result would be a 20% allocation to private equity and a total of 30% of the System's portfolio would be illiquid. Mr. Grzejka concluded that active management would be a better way to make it up.

Mr. Durkin remarked that asset allocation is the most important decision before the Board, and asked the members for comment regarding comfort level with NEPC's proposal. Mr. Zecha stated he is comfortable with it if we can achieve 6.7% annual return over the long term. He noted that Gar Chung is on the line and suggested an article in his publication regarding the MWRAERS' conservative posture given the 90% funded status.

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

**VOTED**

to adopt the asset allocation policy as recommended by NEPC and as contained in their annual review. 5-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Durkin voting yes

Mr. Fleming remarked that it may have been a mistake not to invest in the shipping opportunity with Entrust, and asked if that is still an option. Mr. Grzejka noted that two years ago when it was proposed was a very different landscape with green issues causing headwinds. Shipping was essentially dormant over the first half of 2020, but did well over the second half. The PE RFP will be forthcoming so new opportunities may be considered. Mr. McKenna asked if the Board has funded the entire commitment to Kayne Anderson and Mr. Grzejka stated he believes 5-7% of committed capital has not yet been called. Mr. Zecha asked if any of the investments were affected by the cold snap in Texas. Mr. Grzejka reported that some of Garcia Hamilton's staff were personally affected, but that we do not yet have reporting on the investments.

Garcia Hamilton has proposed a new fee structure which will reduce fees overall, lowering base fees from 23bps to 12.5bps with a performance fee of 15% of performance above 12.5%. The fees will be based on a rolling three-year return, and are capped at the prior maximum 25bps. NEPC is recommending approval of the new fee structure, and will ask Garcia Hamilton for a 1/1/2021 effective start date.

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

**VOTED**

to accept the new fee proposal submitted by Garcia Hamilton as recommended by NEPC. 5-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Durkin voting yes

Mr. Durkin asked if anyone had any additional matters prior to entertaining a motion to adjourn. The Executive Director reported that she had had a telephone conference with Segal yesterday and that Ms. VanDermark had requested that the Board allot approximately fifteen minutes at the March meeting for a preliminary discussion about the 1/1/2021 Valuation to discuss matters including possible investment return and salary gains, possible transition to public employee-specific mortality tables, and a possible reduction to the investment return assumption.

Mr. Durkin asked for the Executive Director to give the Board an update on the laptops. The Executive Director reported that while she was in the process of installing Zoom and setting up the Board Members' laptops to recognize the Board's Wifi she found that the computers had been returned to her without any of the standard-configuration software (Office, antivirus, encryption) installed. The MIS Maximo Service Request confirmed that the installation of the standard software requested on behalf of the Board by Mr. Pappastergion was not communicated to those responsible for the laptop set-up. The Executive Director returned the laptops to MIS again, and was told they hope to return them with the software installed early next week. Retirement will reimburse the Authority for the cost of the licenses as it does for expenses such as salaries and postage. Mr. McKenna suggested that it may be best to distribute the laptops after the cases arrive. The Executive Director responded that is the plan, and that she expects that the cases will be delivered prior to the return of the laptops. Once the computers are returned and inspected she will arrange to distribute them to the Board Members. After Mr. Durkin provided Board Staff with training on the Citrix share file system yesterday, the Retirement Coordinator tested the share system by sending the link to the Board package in an email to the Executive Director. The Executive Director was able to access the Board package by

clicking on the link. The package took time to come up when connected to the internet from outside of the MWRA System due to size, but still worked. Staff will do more testing prior to the next meeting.

On a motion made by Mr. Fleming and seconded by Mr. Pappastergion:  
**VOTED**  
 to adjourn the February 25, 2021 meeting of the MWRA Retirement Board. 5-0, roll call with Mr. Fleming voting yes, Mr. McKenna voting yes, Mr. Pappastergion voting yes, Mr. Zecha voting yes and Mr. Durkin voting yes

The meeting was adjourned at 12:48 p.m.

The following were provided to the Board members for their review:

PERAC Memo #8-2021 – Required Minimum Distribution: Now Age 72  
 For This Year's Notifications  
 PERAC Memo #9-2021 – Actuarial Data  
 PERAC Memo #10-2021 – Forfeiture of Retirement Allowance for  
 Dereliction of Duty by Members  
 PERAC Pension Newsflash

**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.**

The next regularly scheduled meeting of the MWRA Employees' Retirement Board will be held Thursday, March 25, 2021 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 Mr. McKenna, Elected Member



---

Andrew Pappastergion, Ex Officio

---

Thomas J. Durkin, Appointed Member

---

Frank Zecha, Fifth Member



NEPC, LLC

**Firm:** RhumbLine Advisers Limited Partnership  
**Strategy/Product:** MA S&P 500 Pooled Index Fund/Tips Index Strategy  
**Client:** MWRA

### **NEPC Manager Due Diligence Questionnaire - Update**

#### **Instructions**



In support of our upcoming meeting we ask that you please complete this due diligence questionnaire. Please provide your responses in the form of brief descriptions, lists or tables added directly to this Word document.

Thank you for taking the time to complete this questionnaire. Please note that your response will be part of the NEPC Research Database.

#### **Firm/Organization**

##### **1. Have there been any changes in ownership or management in the past year?**

There were no material ownership changes, however we did add a Chief Operating Officer to our management team during April 2020. Please refer to Steve Goff's biography below:

- Joined RhumbLine in 2020 as Chief Operating Officer.
- More than 28 years of industry experience.
- Member of the firm's Investment/Risk and Management Committees.
- Oversees RhumbLine's operations within all departments and serves as leader for the firm's daily operational functions. Responsible for providing leadership, management and strategic direction across all internal support teams to ensure implementation of the firm's strategic plan.
- Prior experience: Managing Director of Operations at SCS Financial Services; Senior Vice President of Investment Operations/Market Data Services at Putnam Investments; Enterprise Account/Project Manager at Thomson Financial Services and a management position at State Street Bank and Trust Company.
- B.S. in Business Administration from Northeastern University.

##### **2. List firm AUM, net flows and accounts gained/lost for the past 5 years.**

Firm AUM (as of 2/28/2021): \$85,469.1MM

During the past 5 years (12/31/15 thru 12/31/20), we gained 337 accounts totaling \$21,538.1MM in assets. During this same time period, we lost 78 accounts totaling \$3,581.5MM in assets. This nets to an increase of 259 accounts with \$17,956.6MM in AUM.

##### **3. Have there been any new or discontinued products in the past year?**

RhumbLine's strategic plan is to stay the course and continue to offer plain vanilla, customized and smart beta index products to existing and new institutional clients. RhumbLine has the capacity to manage additional strategies and add client relationships without requiring significant additions to staff due to the efficiencies we have built into our



business model. RhumbLine recently opened the following new products during the past year:

- 1.) Russell 1000 HEDI Moderate Tracking Index Strategy (2/2020)
- 2.) S&P 1000 Value Index Strategy (12/2020)
- 3.) Russell 2500 Value Index Strategy (2/2020)
- 4.) MSCI ACWI Ex-USADR

**4. Are any products capacity constrained?**

No. We do not have any capacity constraints on any of our products.

**5. Describe any current or pending regulatory, compliance or litigation issues and the expected business impact.**

None.

**Portfolio Management Team**

**1. Have there been any changes in the portfolio management team in the past year?**

No.

**2. Are there any expected changes to the team in the future (planned additions or departures)?**

We are in the process of hiring another Portfolio Manager whose expertise is in Fixed Income.

**Process**

**1. Have there been significant changes in any of the areas below in the past year?**

- Identification of investment ideas
- Process for exploring and vetting ideas
- Portfolio trading practices including buy/sell rules
- Approach to portfolio monitoring and risk management

*Not Applicable.* We have not experienced any changes related to the areas listed above.

**Philosophy**

**1. Describe recent changes in investment philosophy, if any.**

*Not Applicable.* Our investment philosophy has remained the same since inception of our firm (1990).

**Portfolio**

**1. If not included in your meeting presentation, provide portfolio holdings, sector exposure, geographic exposure and common characteristics (yield, duration, market cap, P/E, etc.).**



Please refer to attachment; *Portfolio Holdings\_20210228*

**2. List strategy AUM, net flows and accounts gained/lost for the past 5 years.**

S&P 500 Index Strategy (as of February 29, 2021): \$26,451.3MM  
TIPS Index Strategy (as of February 29, 2021): \$2,346.7MM

During the past 5 years (1/1/2015 thru 12/31/2020) we gained a total 71 accounts invested in the S&P 500 Index Strategy totaling \$1,887.7 MM in assets. We lost 25 accounts in the S&P 500 Index Strategy totaling \$937.2 MM in assets.

During the past 5 years (1/1/2015 thru 12/31/2020) we gained a total of 14 accounts invested in the TIPS Index Strategy totaling \$1,512.2 MM in assets. During this same time period we have not lost any accounts invested in the TIPS Index Strategy.

**3. Describe investor concentration for the strategy and note the percent of AUM attributable to the top five investors.**

**Top 5 Investors in the S&P 500 Index Strategy:**

- 1.) 20.4%
- 2.) 15.4%
- 3.) 10.4%
- 4.) 10.3%
- 5.) 6.5%

**Top 5 Investors in the TIPS Index Strategy:**

- 1.) 56.0%
- 2.) 22.0%
- 3.) 8.4%
- 4.) 7.1%
- 5.) 1.8%

**Performance / Market Outlook**

**1. If not included in your meeting presentation, provide trailing returns as of the most recent quarter-end and calendar year returns for the past 10 years, both relative to benchmark.**

Please refer to the following attachments:

Quarterly Portfolio Performance 10 Year Trailing\_20201231

Yearly Portfolio Performance 10 Year Trailing\_20201231

**2. Briefly discuss recent performance trends and identify environments in which the strategy is likely to be in or out of favor.**

*Not applicable.* As an index manager our performance goal is to match the performance of the appropriate index.



- 3. Describe your market outlook and how strategy positioning is impacted by your views.**

Our market outlook has always been to stay within the set guidelines of the index (S&P 500 Pooled Index Fund & TIPS Index Strategy).

- 4. Could you please include a slide in your presentation that shows the MWRA's account history, initial contribution, cumulative subsequent contributions, cumulative subsequent distributions, gain/loss and current value.**

*Please refer to attachment included in presentation.*

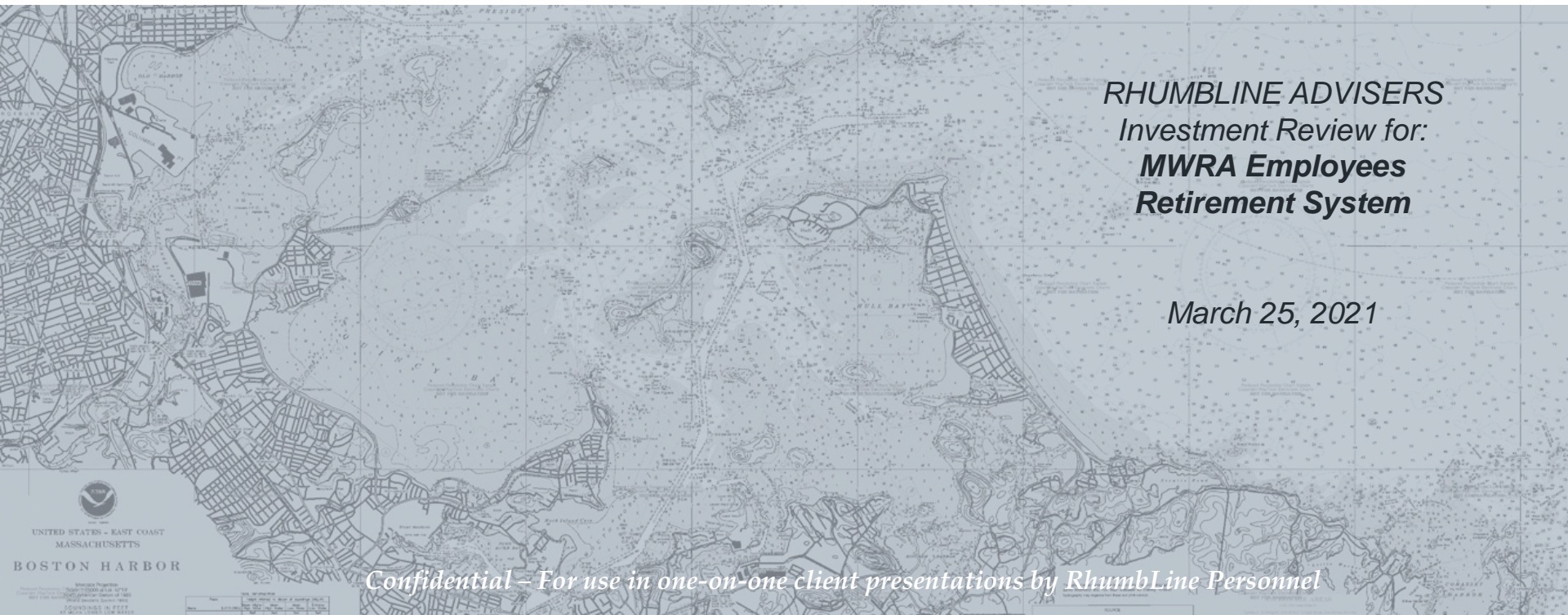


# RhumbLine

Institutional Index Management

**RHUMBLINE ADVISERS**  
*Investment Review for:*  
**MWRA Employees**  
**Retirement System**

*March 25, 2021*



*Confidential – For use in one-on-one client presentations by RhumbLine Personnel*



UNITED STATES - EAST COAST  
MASSACHUSETTS  
BOSTON HARBOR

Scale  
1:50,000  
SOUNDINGS IN FEET  
AT MEAN LOW WATER

# S&P 500 Pooled Index Fund

Date of Inception: February 28, 1997



## PERFORMANCE (Gross of Management Fees thru 2/28/2021)

	<u>PORTFOLIO</u>	<u>S&amp;P 500 INDEX</u>
2021 - YTD thru February	1.72%	1.72%
Trailing 1 Year	31.26%	31.29%
Trailing 3 Year (Annualized)	14.11%	14.14%
Trailing 5 Year (Annualized)	16.78%	16.82%
Trailing 10 Year (Annualized)	13.39%	13.43%
<b>Since Inception (Annualized)</b>	<b>8.87%</b>	<b>8.80%</b>

## MARKET VALUE SUMMARY

Initial Contribution (2/28/1997):	\$5,000,000
Additional Contributions:	\$72,031,688
Withdrawals:	<u>\$69,683,340</u>
Net Investment:	\$7,348,348
<b>Market Value (as of February 28, 2021):</b>	<b><u>\$61,256,554</u></b>

## PARTICIPANT SUMMARY

Total Market Value of RhumbLine's S&P 500 Pooled Index Fund as of 2/28/2021:	\$866.9MM
Number of Investors:	15
MWRA Employees Retirement System % of Ownership:	7.07%

## COMMISSIONS & TRADING (2/29/2020 thru 2/28/2021)

Brokers Utilized:	IITG, Instinet, Jefferies, Liquidnet, Penserra, Loop Capital, Siebert Williams Shank & Jones Trading
Commissions:	\$21,955
Pro Rata Share:	1,552
Total Shares Traded:	2,298,066
Average Commission per Share:	1.0 ¢ /share

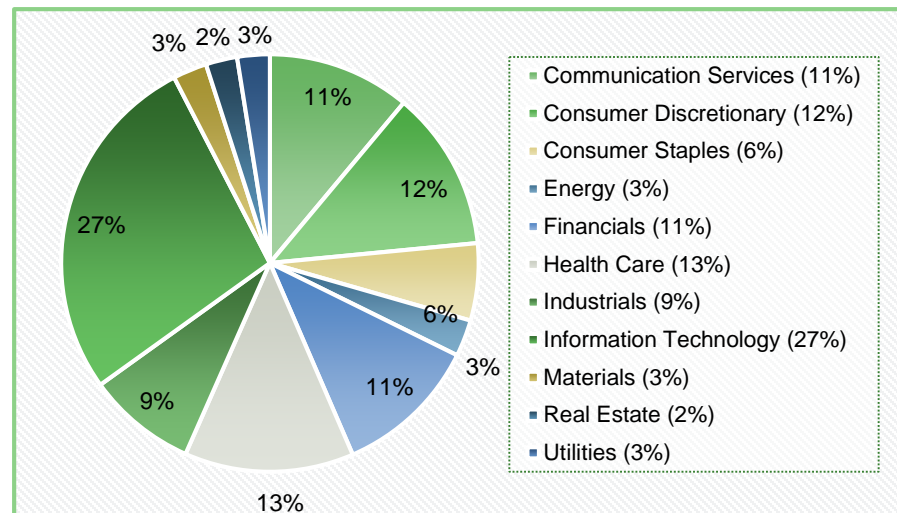
# S&P 500 Pooled Index Fund

as of February 28, 2021



## SECTOR RETURNS & WEIGHTS

<u>NAME</u>	<u># of STOCKS</u>	<u>2021 (YTD) RETURN</u>
Communication Services	26	4.79
Consumer Discretionary	61	-0.53
Consumer Staples	32	-6.51
Energy	23	27.39
Financials	65	9.63
Health Care	63	-0.72
Industrials	74	2.20
Information Technology	75	0.36
Materials	28	1.54
Real Estate	30	2.09
Utilities	<u>28</u>	-6.97
<b>TOTALS:</b>	<b>506</b>	



## TOP 10 HOLDINGS

<u>NAME</u>	<u>WEIGHT</u>	<u>2021 (YTD) RETURN</u>	<u>MARKET CAP (\$MM)</u>
Apple Inc	6.01	-8.48	2,061,639
Microsoft Corp	5.45	4.72	1,756,908
Amazon Com Inc	4.09	-5.04	1,551,881
Facebook Inc	1.92	-5.69	733,777
Alphabet Inc Cl-A	1.89	15.36	608,063
Alphabet Inc Cl-C	1.84	16.27	1,377,785
Tesla Mtrs Inc	1.59	-4.28	640,307
Berkshire Hathaway Inc	1.45	3.73	563,931
J P Morgan Chase	1.39	16.65	448,604
Johnson Johnson	<u>1.29</u>	1.31	417,153
<b>TOTALS:</b>	<b>26.92</b>		

## CHARACTERISTICS

	<u>PORTFOLIO</u>	<u>S&amp;P 500 INDEX</u>
Number of Holdings	506	505
Weighted Market Cap (\$MM)	456,549	456,887
P/B Ratio	3.62	3.62
P/E Ratio	38.20	38.14
Dividend Yield (%)	1.51	1.51
5 Year Earnings Growth (%)	15.28	15.29
Return on Equity (%)	36.83	36.82
Beta	1.00	1.00



# Barclays TIPS Index Strategy

Date of Inception: June 2, 2016



## PERFORMANCE (Gross of Management Fees thru 2/28/2021)

	<u>PORTFOLIO</u>	<u>BENCHMARK</u>
2021– YTD thru February	-1.27%	-1.29%
Trailing 1 Year	5.79%	5.85%
Trailing 3 Years (Annualized)	6.16%	6.11%
<b>SINCE INCEPTION (Annualized)</b>	4.22%	4.17%

## MARKET VALUE SUMMARY

Initial Contribution (6/2/2016):	\$18,000,000
Additional Contributions:	\$16,000,000
Withdrawals:	<u>\$8,000,000</u>
Net Investment:	\$26,000,000.00
<b>Market Value (as of February 28, 2021):</b>	<b><u>\$31,456,269.14</u></b>

# Characteristics

*as of February 28, 2021*

	<u>PORTFOLIO</u>	<u>US TIPS INDEX</u>
Number of Issues	44	44
Market Value (\$MM)	31.5	1,231,065.5
Price (\$)	112.622	112.666
Coupon	0.607	0.613
Effective Average Life	8.08	8.08
Current Yield	0.50	0.51
Yield to Maturity	0.93	0.93
Effective Duration	7.58	7.57
Effective Convexity	1.11	1.11
Quality	AAA	AAA

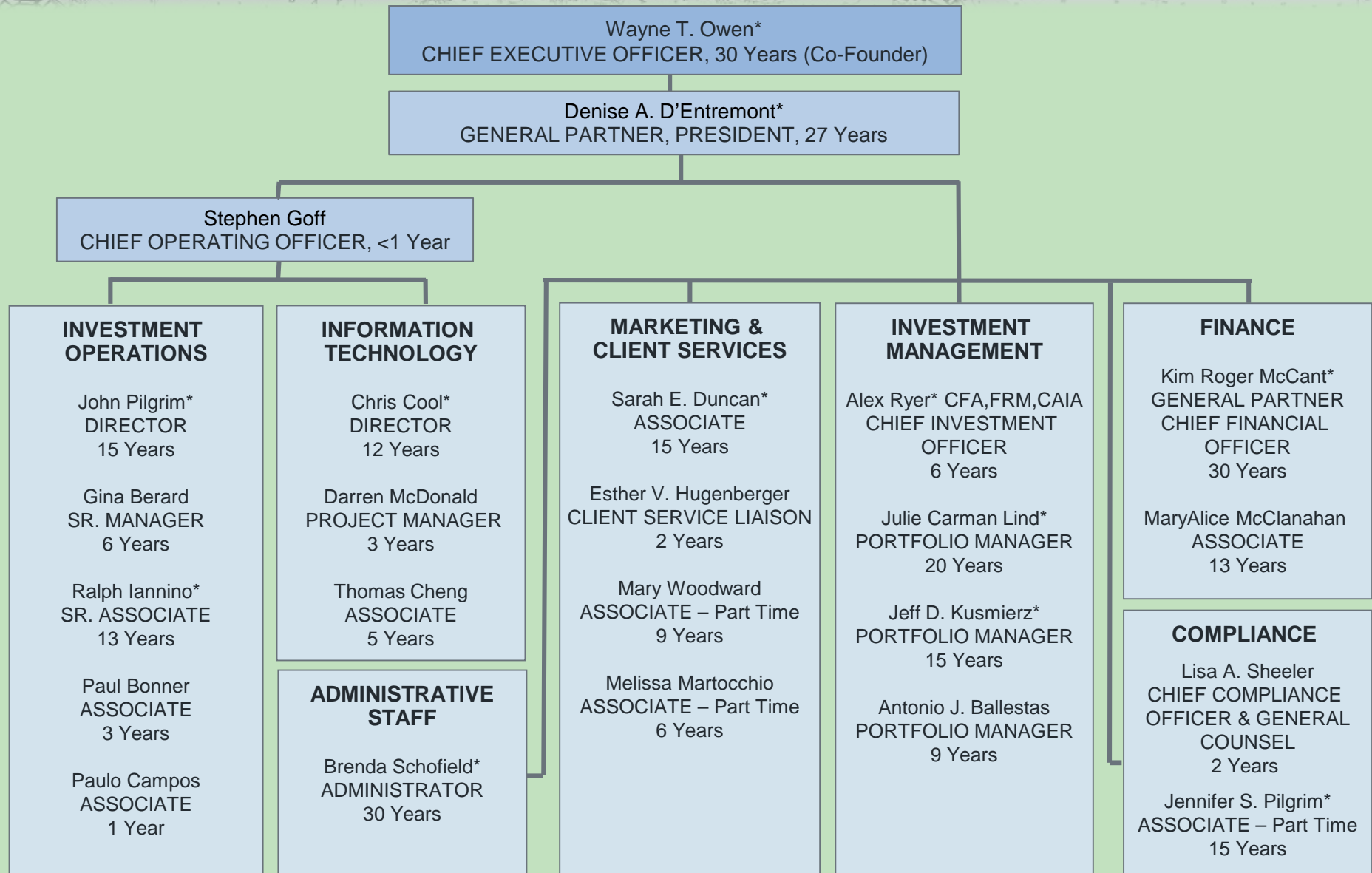
# Current Profile

*as of December 31, 2020*

- Assets under management: \$84.1 Billion
- Asset classes include:
  - Domestic Equity
  - Domestic Fixed Income
  - International Equity
- Diversified client base:
  - 113 Public Funds: 277 Accounts/\$55.9 Billion
  - 45 Corporate/ERISA: 79 Accounts/\$12.5 Billion
  - 80 Endowments/Foundations: 168 Accounts/\$8.2 Billion
  - 42 Taft-Hartley: 72 Accounts/\$4.2 Billion
  - 1 Sub-Advisory: 6 Accounts/\$3.3 Billion



# Organization Chart



\* Partners of the Firm  
# of years equals tenure at Firm

# RhumbLine Business Update

December 2020



## Product Highlights

---

Launched and funded the following new products:

- BB Capital US 1-3 Yr. Treasury Bond
  - BB Capital US 1-3 Yr. Government Bond
  - BB US Government Long
  - BB US Intermediate Treasury Bond
  - ICE BofA US 3-Month Treasury Bill
  - S&P 500 Low Vol. High Dividend
  - S&P Global Low Volatility
  - S&P 1000
  - S&P 1000 Value
  - MSCI US
  - MSCI ACWI
  - MSCI World
  - MSCI World ex-US
  - MSCI World Consumer Staples
  - Russell 1000 HEDI
  - Russell 2500 Value
  - BB TIPS *(Available as a Pooled or a SMA)*
  - FTSE Nareit All Equity *(Available as a Pooled or a SMA)*
- 

### PUBLIC FUNDS

- City of Greenville (SC)
- Orlando (City of) Operating Fund
- Taunton Contributory Ret. Sys. (MA)

### CORPORATE FUNDS

- AARP Services, Inc. (DC)
- Hormel Foods Corporation (MN)
- Legal Counsel for the Elderly (DC)

### ENDOWMENT/FOUNDATION FUNDS

- Community Foundation of Greater Memphis (TN)
- Colorado Health Foundation
- Seva Foundation (CA)

### TAFT-HARTLEY FUNDS

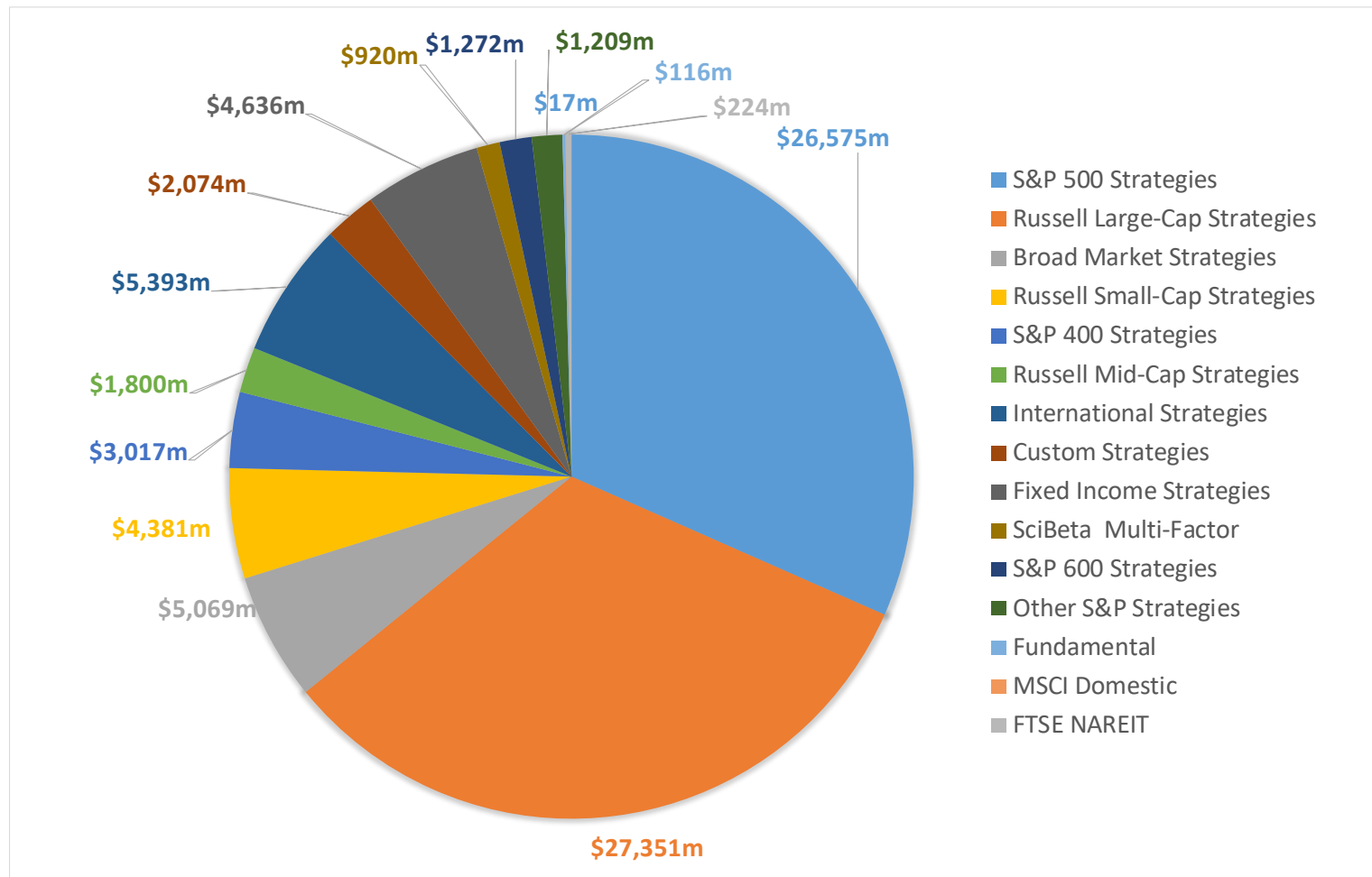
- Local 147 Construction Workers (NJ)
- St Louis Labor Healthcare Network
- Gulf Coast Carpenters & Millwrights Health Trust

*\*Above is a sampling of new client relationships or clients that have funded new products during 2019 and 2020. These clients were highlighted to show the breadth of clients we serve. It is not known whether these clients approve or disapprove of RhumbLine or its services.*

# Breakdown of Strategies

## \$84,052.8 MILLION

as of December 31, 2020



Please note that of the total assets under management, customized strategies are as follows:  
 Socially Screened = \$8,943.6MM, Sudan-Free = \$10,286.3MM, Other Screens = \$12,343.5MM

## LARGE CAP INDEX STRATEGIES

- Equal-Weighted Mega Cap
- S&P 100
- S&P 500\*
- S&P 500 Low Volatility High Dividend
- S&P 500 Equal Weighted\*
- Russell Top 200
- Russell Top 200 Growth
- Russell Top 200 Value
- Russell 1000\*
- Russell 1000 Growth\*
- Russell 1000 Value\*
- MSCI US

## MID CAP INDEX STRATEGIES

- S&P 400\*
- S&P 400 Growth
- Russell Mid Cap
- Russell Mid Cap Growth
- Russell Mid Cap Value

## SMALL-MID CAP INDEX STRATEGIES

- S&P 1000
- S&P 1000 Value
- Russell 2500
- Russell 2500 Value
- Russell Small Cap Completeness

## SMALL CAP INDEX STRATEGIES

- S&P 600\*
- Russell 2000
- Russell 2000 Growth
- Russell 2000 Value

## BROAD MARKET INDEX STRATEGIES

- S&P 1500
- S&P 1500 ex-Fossil Fuels
- Russell 3000
- Wilshire 5000
- MSCI Global Investible US

## INTERNATIONAL INDEX STRATEGIES

- S&P ADR
- MSCI EAFE\*
- MSCI ACWI
- MSCI ACWI ex-US
- MSCI ACWI ex-Fossil Fuels
- MSCI Emerging Markets
- MSCI Japan Broad
- MSCI World Consumer Staples
- MSCI World
- MSCI World ex-US
- DJ Brookfield Global Infrastructure
- DJ Brookfield Global Infrastructure Composite
- S&P Global LMC Commodity
- S&P Global Natural Resources
- S&P Global Low Volatility

## FIXED INCOME STRATEGIES

- Core Bond\*
- ICE BofA US 3-Mo. Treasury Bill
- Intermediate Government/Credit
- BB Capital US 1-3 Yr. Treasury Bond
- BB Capital US 5-7 Yr. Treasury Bond
- BB Capital US 1-3 Yr. Government
- BB US TIPS\*
- BB US Government Long
- BB US Intermediate Treasury Bond

## ALTERNATIVE STRATEGIES

- Russell RAFI US
- Russell RAFI Global ex-US
- Russell 1000 HEDI Mod. Tracking
- RhumbLine Multi-Factor
- Energy Select Sector
- FTSE Nareit All Equity REIT\*
- S&P Global Low Volatility
- SciBeta US Multi-Beta Multi-Strategy 4-Factor EW
- SciBeta Dev ex-US Value Diversified Multi-Strategy

## SPECIALTY STRATEGIES

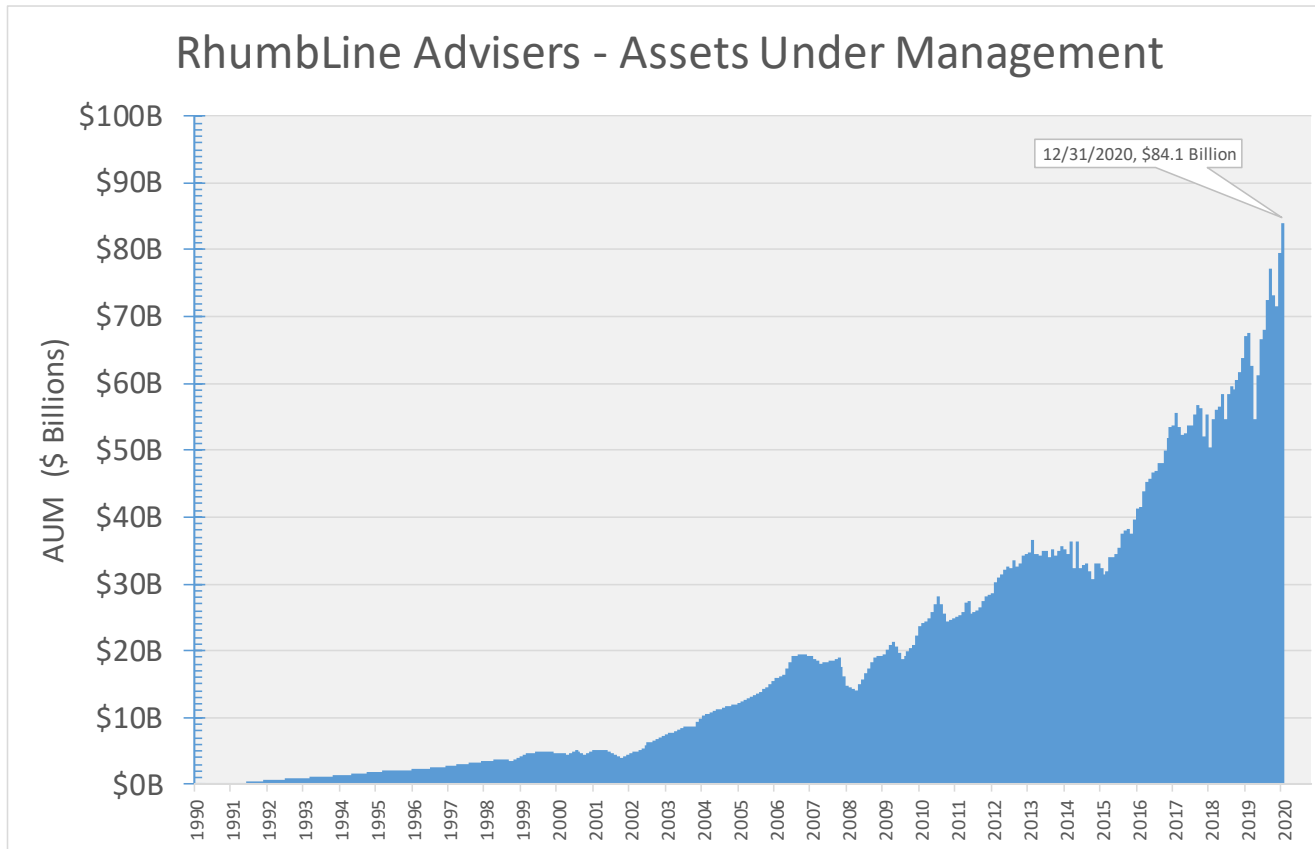
- Completeness
- Customized Screens
- Customized Tax-Efficient
- Equal Weighted
- Fossil Fuel-Free
- High Quality
- Minimum Volatility
- Sudan-Free
- Sustainable Investment
- Tobacco-Free

\*Also available through a pooled investment fund to qualified investors with at least \$5 million in assets.

\*\*Please contact us if interested in any index or strategy that is not listed.

# Assets Under Management

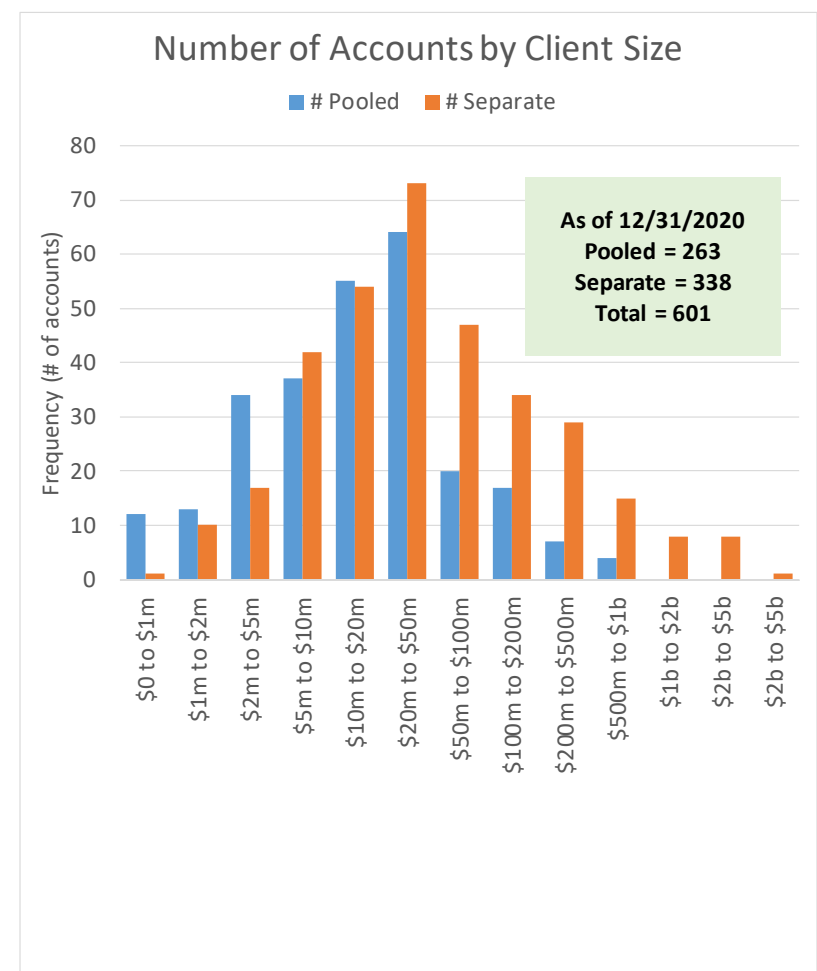
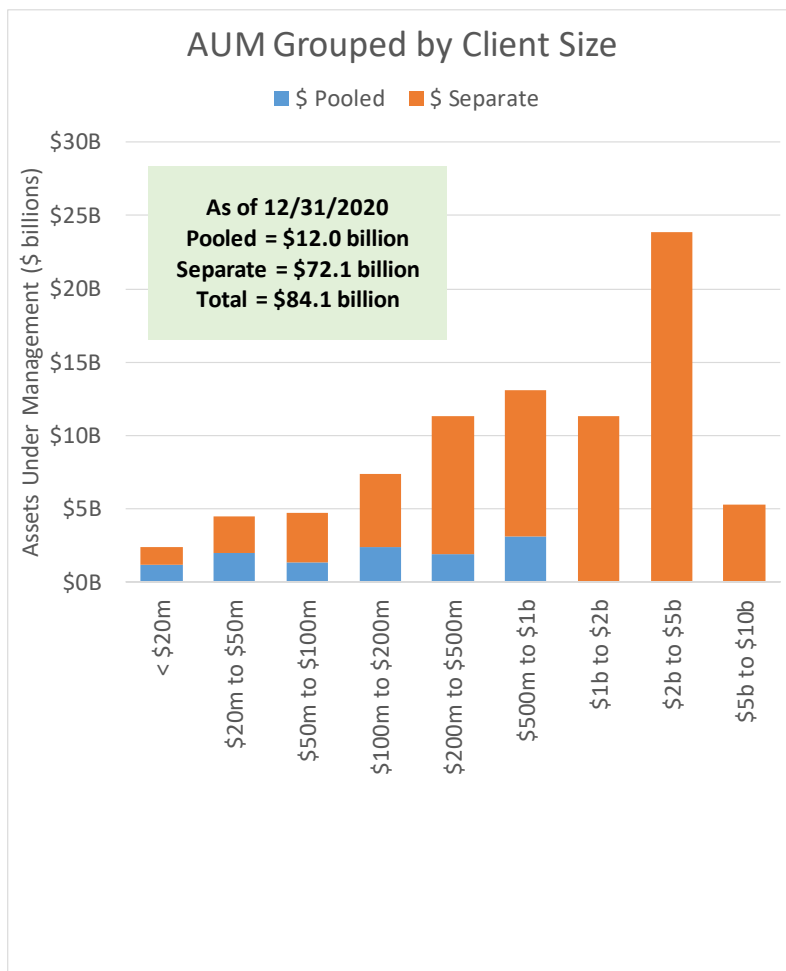
as of December 31, 2020





# Distribution of AUM as of December 31, 2020

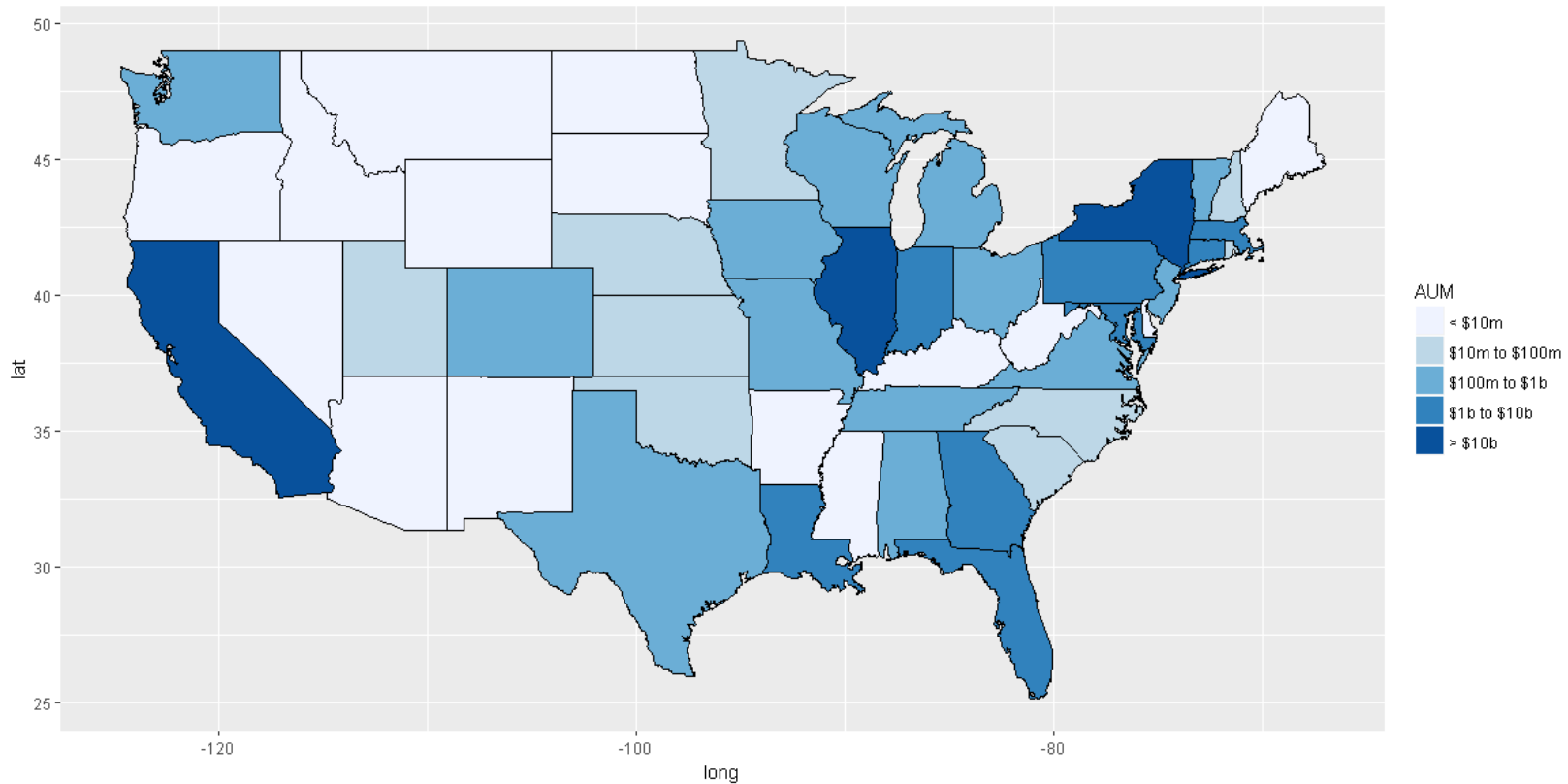
Sum and number of client accounts managed by RhumbLine, grouped into AUM bins.



# AUM by State

as of December 31, 2020

RhumbLine Advisers: Assets Under Management, by State (as of 2020-12-31)



# Composite Returns (Gross of Management Fees)

as of December 31, 2020



INDEX STRATEGIES	Inception Date	4th QTR 2020 (%)	1-YR Trailing (%)	Annualized			Assets as of 12/31/20 (\$M)
				3-YR Trailing (%)	5-YR Trailing (%)	Since Inception (%)	
<b>LARGE CAP</b>							
S&P 100	08/09	10.68	21.47	15.57	15.94	14.51	\$116.2
S&P 100 Index		10.71	21.52	15.59	15.97	14.52	
Equal Weighted Mega Cap	07/11	15.23	13.48	11.06	13.13	13.41	\$525.2
Equal Weighted Mega Cap Index		15.51	13.73	11.13	13.19	13.50	
S&P 500*	12/90	12.12	18.33	14.13	15.17	10.85	\$26,401.2
S&P 500 Index		12.15	18.40	14.18	15.22	10.70	
S&P 500 Equal Weighted*	07/03	18.37	12.82	10.44	12.95	11.11	\$155.6
S&P 500 Equal Weighted Index		18.46	12.83	10.44	12.95	11.06	
Russell Top 200	11/96	11.62	22.38	16.03	16.40	8.82	\$6,372.2
Russell Top 200 Index		11.63	22.37	16.04	16.42	8.76	
Russell Top 200 Value	06/97	14.11	1.70	6.45	9.85	7.04	\$142.1
Russell Top 200 Value Index		14.15	1.64	6.40	9.76	6.92	
Russell 1000*	12/96	13.66	20.89	14.77	15.55	9.29	\$15,378.2
Russell 1000 Index		13.69	20.96	14.82	15.60	9.25	
Russell 1000 Growth*	12/99	11.36	38.45	22.96	20.96	6.62	\$2,804.2
Russell 1000 Growth Index		11.39	38.49	22.99	21.00	6.57	
Russell 1000 Value*	05/96	16.20	2.79	6.06	9.71	8.67	\$2,252.7
Russell 1000 Value Index		16.25	2.80	6.07	9.74	8.60	
Russell 1000 HEDI Moderate Tracking	02/20	10.61	-	-	-	27.68	\$401.4
Russell 1000 HEDI Moderate Tracking Index		10.64	-	-	-	27.77	
MSCI US	10/19	13.29	21.28	-	-	24.78	\$16.8
MSCI US Index		13.15	21.37	-	-	24.91	
SciBeta US Multi-Beta Multi-Strategy 4-Factor EW	12/16	13.14	8.52	9.30	-	11.69	\$209.0
SciBeta US Multi-Beta Multi-Strategy 4-F EW Index		13.18	8.63	9.37	-	11.79	

The above composite returns are supplemental information to the GIPS® compliant performance presentations which are available upon request. Please refer to the disclosure page at the back of this presentation for important disclosures and disclaimers.

# Composite Returns (Gross of Management Fees)

as of December 31, 2020



INDEX STRATEGIES	Inception Date	4th QTR 2020 (%)	1-YR Trailing (%)	3-YR Trailing (%)	Annualized		Assets as of 12/31/20 (\$M)
					5-YR Trailing (%)	Since Inception (%)	
<b>MID CAP</b>							
S&P 400*	07/95	24.29	13.60	8.42	12.31	11.59	\$2,930.2
S&P 400 Index		24.37	13.66	8.45	12.35	11.48	
S&P 400 Growth	09/17	20.95	22.81	11.56	-	12.98	\$86.7
S&P 400 Growth Index		21.05	22.77	11.60	-	13.01	
Russell Mid Cap	12/05	19.91	17.13	11.60	13.38	9.79	\$587.2
Russell Mid Cap Index		19.91	17.10	11.61	13.40	9.77	
Russell Mid Cap Growth	04/99	19.03	35.71	20.51	18.65	9.22	\$670.6
Russell Mid Cap Growth Index		19.02	35.59	20.50	18.66	9.26	
Russell Mid Cap Value	08/07	20.38	4.91	5.41	9.79	7.76	\$542.5
Russell Mid Cap Value Index		20.43	4.96	5.37	9.73	7.71	
<b>MID-SMALL CAP</b>							
S&P 1000	05/19	26.31	12.81	-	-	12.81	\$259.3
S&P 1000 Index		26.36	12.98	-	-	12.98	
Russell 2500 Value	02/20	28.35	-	-	-	20.21	\$479.7
Russell 2500 Value Index		28.51	-	-	-	20.46	
Russell Small Cap Completeness	05/07	27.31	32.86	15.56	16.27	9.68	\$859.4
Russell Small Cap Completeness Index		27.29	32.88	15.60	16.33	9.60	
<b>SMALL CAP</b>							
S&P 600*	05/03	31.21	11.25	7.73	12.37	11.26	\$1,268.7
S&P 600 Index		31.31	11.29	7.74	12.37	11.18	
Russell 2000	12/04	31.36	19.83	10.24	13.22	8.67	\$2,485.9
Russell 2000 Index		31.37	19.96	10.25	13.26	8.64	
Russell 2000 Growth	03/05	29.52	34.43	16.13	16.30	10.91	\$76.3
Russell 2000 Growth Index		29.61	34.63	16.20	16.36	10.93	
Russell 2000 Value	04/04	33.28	4.76	3.77	9.65	7.71	\$472.8
Russell 2000 Value Index		33.36	4.63	3.72	9.65	7.70	

The above composite returns are supplemental information to the GIPS® compliant performance presentations which are available upon request. Please refer to the disclosure page at the back of this presentation for important disclosures and disclaimers.

# Composite Returns (Gross of Management Fees)

as of December 31, 2020



INDEX STRATEGIES	Inception Date	4th QTR 2020 (%)	1-YR Trailing (%)	Annualized			Assets as of 12/31/20 (\$M)
				3-YR Trailing (%)	5-YR Trailing (%)	Since Inception (%)	
<b>BROAD MARKET</b>							
S&P 1500	06/11	13.45	17.94	-	-	17.90	\$90.8
S&P 1500 Index		13.24	17.92	-	-	17.94	
Russell 3000	12/09	14.57	20.70	14.44	15.36	14.10	\$3,674.6
Russell 3000 Index		14.68	20.89	14.49	15.43	14.08	
Wilshire 5000	04/07	14.43	20.65	14.45	15.50	9.54	\$1,394.1
Wilshire 5000 Index		14.48	20.81	14.46	15.52	9.46	
Russell RAFI US	04/14	18.20	9.20	9.18	12.31	9.99	\$98.1
Russell RAFI US Index		18.54	9.33	9.24	12.32	10.05	
<b>INTERNATIONAL</b>							
DJ Brookfield Global Infrastructure Composite	10/17	8.58	-8.75	2.39	-	2.67	\$748.4
DJ Brookfield Global Infrastructure Composite Index		8.38	-9.51	1.55	-	1.82	
DJ Brookfield Global Infrastructure	06/15	7.45	-6.20	4.12	8.26	5.28	\$182.1
DJ Brookfield Global Infrastructure Index		7.27	-6.97	3.32	7.52	4.54	
MSCI Emerging Markets	01/13	20.99	18.03	6.30	13.08	5.11	\$339.5
MSCI Emerging Markets Index		19.70	18.31	6.17	12.81	4.90	
MSCI ACWI ex-US	04/14	17.07	10.29	4.89	8.90	4.90	\$2,206.1
MSCI ACWI ex-US Index		17.01	10.65	4.88	8.93	4.78	
MSCI EAFE*	05/14	16.00	8.00	4.54	7.69	4.31	\$895.9
MSCI EAFE Index		16.05	7.82	4.28	7.45	4.09	
Russell RAFI Global ex-US	04/14	21.48	4.91	2.08	8.27	3.78	\$18.3
Russell RAFI Global ex-US Index		21.66	3.66	1.97	8.35	3.74	
S&P Global Natural Resources	10/17	21.75	0.58	0.82	-	2.73	\$324.4
S&P Global Natural Resources Index		21.74	-0.05	0.38	-	2.27	
SciBeta Dev. ex-US Value Diversified Multi-Strategy	02/17	19.56	2.81	0.63	-	6.01	\$710.6
SciBeta Dev. ex-US Value Diversified Multi-Strategy Index		19.63	2.59	0.50	-	5.83	

The above composite returns are supplemental information to the GIPS® compliant performance presentations which are available upon request. Please refer to the disclosure page at the back of this presentation for important disclosures and disclaimers.

# Composite Returns (Gross of Management Fees)

## as of December 31, 2020



INDEX STRATEGIES	Inception Date	4th QTR 2020 (%)	1-YR Trailing (%)	Annualized			Assets as of 12/31/20 (\$M)
				3-YR Trailing (%)	5-YR Trailing (%)	Since Inception (%)	
<b>FIXED INCOME</b>							
Core Bond*	03/05	0.57	7.48	5.35	4.37	4.44	\$1,163.3
Bloomberg Barclays US Aggregate Bond Index		0.67	7.51	5.34	4.44	4.46	
Bloomberg Barclays US TIPS*	12/12	1.64	10.84	5.89	5.11	2.25	\$2,207.9
Bloomberg Barclays US TIPS Index		1.62	10.99	5.92	5.08	2.27	
Bloomberg Barclays Capital US 1-3 Yr. Treasury Bond	04/19	0.06	3.18	-	-	3.25	\$48.2
Bloomberg Barclays Capital US 1-3 Yr. Treasury Bond Index		0.05	3.16	-	-	3.32	
Bloomberg Barclays US Government Long	12/19	-2.92	17.15	-	-	17.15	\$741.0
Bloomberg Barclays US Government Long Index		-2.95	17.55	-	-	17.55	
Bloomberg Barclays US Intermediate Treasury Bond	05/20	-0.27	-	-	-	0.05	\$75.1
Bloomberg Barclays US Intermediate Treasury Bond Index		-0.23	-	-	-	0.04	
<b>SPECIALTY</b>							
Real Estate - FTSE Nareit All Equity REIT*	05/13	8.16	-5.09	5.43	6.72	7.52	\$223.7
Real Estate - FTSE Nareit All Equity REIT Index		8.15	-5.12	5.41	6.70	7.50	

\*Also available as a pooled investment fund to qualified investors with at least \$5 million in assets.

\*\* The asset figures above reflect the total strategy assets and include accounts which have been excluded from composites. Composite assets are listed on the GIPS® compliant presentations, which are available upon request.

The above composite returns are supplemental information to the GIPS® compliant performance presentations which are available upon request. Please refer to the disclosure page at the back of this presentation for important disclosures and disclaimers.

# Important Disclosures & Disclaimers



## General

All information contained herein is confidential and has been prepared for use in a one-on-one presentation with current or prospective qualified client's of RhumbLine Advisers Limited Partnership ("RhumbLine"). This material has been prepared for informational purposes only and should not be construed as investment advice or an offering of securities. RhumbLine permits consultants to share this presentation with prospects of RhumbLine provided they do so in a one-on-one presentation to qualified clients with the following disclosures provided. RhumbLine is an SEC-registered investment adviser, providing investment advice to clients on a discretionary basis. Registration with the SEC does not imply any level of expertise or training. RhumbLine claims compliance with the Global Investment Performance Standards (GIPS®). RhumbLine has been independently verified for the periods 01/01/09 – 12/31/19. The verification report is available upon request. To receive a copy or a complete list and description of RhumbLine's composites and/or GIPS Reports that adhere to the GIPS standards, please contact us at 617-345-0434 or [info@indexmng.com](mailto:info@indexmng.com).

## Performance

The U.S. Dollar is the currency used to express performance. Returns are presented gross of management fees and include trading expenses and the reinvestment of all income. Actual returns will be reduced by investment advisory fees and other expenses that may be incurred in the management of the account. Performance returns of RhumbLine's pooled funds are also net professional fees including custody and audit expenses. The collection of fees produces a compounding effect on the total rate of return, net of management fees. As an example, the effect of investment management fees on the total value of a client's portfolio assuming (a) quarterly fee assessment, (b) \$10,000,000 investment, (c) portfolio return of 8% a year, and (d) 0.10% annual investment advisory fee would be \$10,416 in the first year, and cumulative effects of \$59,816 over five years and \$143,430 over ten years. Actual investment advisory fees will vary. More information on RhumbLine's investment advisory fees are available upon request and are described in Part 2A of RhumbLine's Form ADV. PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.

## Index Disclosures

The S&P® Indices are products of S&P Dow Jones Indices, LLC, or its affiliates ("SPDJ"). S&P® is a registered trademark of Standard & Poor's Financial Services, LLC ("S&P"), and this trademark has been licensed for use by SPDJ and sublicensed for certain purposes by RhumbLine Advisers Limited Partnership ("RhumbLine"). The RhumbLine S&P Index Composites are not sponsored, endorsed, sold or promoted by SPDJ, Dow Jones, S&P, or their respective affiliates, and none of such parties make any representation regarding the advisability of investing in such products nor do they have any liability for any errors, omissions, or interruptions of the S&P Indices. The Russell® Indices are registered trademarks of the relevant London Stock Exchange PLC and its group undertakings (collectively "LSE Group") companies, and FTSE Russell is the trading name of certain of the LSE Group companies. All rights in the FTSE Russell indexes or data vest in the relevant LSE Group company which owns the index or the data. "FTSE®" is a trade mark of the London Stock Exchange Group companies, and is used by FTSE International Limited ("FTSE") under license. RAFI® is a registered trademark of Research Affiliates, LLC. The FTSE RAFI® Index Series is calculated by FTSE in conjunction with Research Affiliates LLC. "NAREIT" a trade mark of the National Association of Real Estate Investment Trusts ("NAREIT"). The FTSE NAREIT INDEX is calculated by FTSE. Neither FTSE nor NAREIT sponsor, endorse or promote this product and are not in any way connected to it and do not accept any liability. All intellectual property rights in the index values and constituent list vests in FTSE and NAREIT. RhumbLine has obtained full license from FTSE to use such intellectual property rights in the creation of this product. The Bloomberg Barclays Indices are a proxy of the indices distributed by Barclays Capital Inc. and is created by Wilshire Axiom or Bloomberg utilizing the characteristics data supplied by Barclays Capital Inc. The Wilshire Indexes<sup>SM</sup> are produced by Wilshire Associates Incorporated and have been licensed for use. All content of the Wilshire Indexes® 2009 is proprietary to Wilshire Associates Incorporated. The Carbon Underground 200™ is proprietary information of Fossil Free Indexes, LLC. Any use of these materials beyond this presentation without prior express written permission of Fossil Free Indexes, LLC, is strictly prohibited. The information contained in the Carbon Underground 200™ has been obtained from sources that Fossil Free Indexes, LLC, believes to be reliable; however, Fossil Free Indexes, LLC, does not guarantee its accuracy, timeliness or completeness, and it is subject to change without notice. The Carbon Underground 200™ is a trademark of Fossil Free Indexes, LLC. Users are not permitted to use this or any other Fossil Free Indexes, LLC, trademark without the prior written consent of Fossil Free Indexes, LLC. The Carbon Underground 200™ does not constitute financial or investment advice, or an offer to buy or sell, or a promotion or recommendation of any security, financial instrument or product or trading strategy. Neither MSCI nor any other party involved in or related to compiling, computing or creating the MSCI data makes any express or implied warranties or representations with respect to such data (or the results to be obtained by the use thereof), and all such parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any of such data. Without limiting any of the foregoing, in no event shall MSCI, any of its affiliates or any third party involved in or related to compiling, computing or creating the data have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages. No further distribution or dissemination of the MSCI data is permitted without MSCI's express written consent. Dow Jones Brookfield® Global Infrastructure Index is a registered trademark of Brookfield Redding, Inc. and/or its affiliates (including but not limited to Brookfield Asset Management, Inc.) Dow Jones® is a registered trademark of Dow Jones Trademark Holdings, LLC. The ERI Scientific Beta United States Multi-Beta Multi-Strategy Four-Factor Equal Weight Index and the ERI Scientific Beta Developed ex-USA Value Diversified Multi-Strategy Index are the intellectual property (including registered trademarks) of EDHEC Risk Institute Asia Ltd and/or its licensors, which is used under license within the framework of ERI Scientific Beta activity. The *RhumbLine SciBeta US Multi-Beta Multi-Strategy 4-Factor EW Index Strategy*, and the *RhumbLine SciBeta Developed ex-USA Value Diversified Multi-Strategy Index Strategy* that replicate fully or partially the ERI Scientific Beta United States Multi-Beta Multi-Strategy Four-Factor Equal Weight Index and the ERI Scientific Beta Developed ex-USA Value Diversified Multi-Strategy Index are not sponsored, endorsed, sold or promoted by EDHEC Risk Institute Asia Ltd and its licensors and neither EDHEC Risk Institute ASIA Ltd nor its licensors shall have any liability with respect thereto.

Index returns are calculated in U.S. dollars. Indexes are unmanaged, statistical composites and their returns do not include payment of any sales charges or fees an investor would pay to purchase the securities they represent. Such costs would lower performance. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index. Index performance is proprietary data of the listed index provider(s) and has been licensed for use by RhumbLine. Please refer to the RhumbLine's or the index provider's website for additional information.



*To the MWRA Employees Retirement System:  
Thank you for your business and continued support  
of our firm!*



THE RHUMBLINE TEAM

  
UNITED STATES - EAST COAST  
MASSACHUSETTS  
BOSTON HARBOR





**Firm:** Boston Partners Global Investors, Inc.  
**Strategy/Product:** Boston Partners Small Cap Value  
**Client:** MWRA Employees Retirement System

**NEPC Manager Due Diligence Questionnaire - Update**

**Instructions**

In support of our upcoming meeting we ask that you please complete this due diligence questionnaire. Please provide your responses in the form of brief descriptions, lists or tables added directly to this Word document.

Thank you for taking the time to complete this questionnaire. Please note that your response will be part of the NEPC Research Database.

**Firm/Organization**

**1. Have there been any changes in ownership or management in the past year?**

There have been no changes to ownership or the portfolio management team for the MWRA Retirement Fund in the past year.

**2. List firm AUM, net flows and accounts gained/lost for the past 5 years.**

**Boston Partners:**

	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
AUM (\$ in millions)	77,120	89,368	81,550	99,241	87,222
Net Flows (\$ in millions)	(12,721)	(10,893)	(7,790)	(3,272)	(1,652)
Accounts Gained	31	13	41	38	48
Accounts Lost	56	33	27	36	28

**3. Have there been any new or discontinued products in the past year?**

There have been no new products in the past year. We did close our 130/30 strategy due to the lack of prospect and client demand.

**4. Are any products capacity constrained?**

We closely monitor capacity in all our products. At the present time, all of our strategies are open.

**5. Describe any current or pending regulatory, compliance or litigation issues and the expected business impact.**

There are no pending issues at this time.



### Portfolio Management Team

**1. Have there been any changes in the portfolio management team in the past year?**

There have been no changes to the Small Cap team.

**2. Are there any expected changes to the team in the future (planned additions or departures)?**

There are no planned additions or departures at this time.

### Process

**1. Have there been significant changes in any of the areas below in the past year?**

- **Identification of investment ideas**

No changes.

- **Process for exploring and vetting ideas**

No changes.

- **Portfolio trading practices including buy/sell rules**

No changes.

- **Approach to portfolio monitoring and risk management**

No changes.

If helpful, we included a brief description of the Boston Partners investment process:

All Boston Partners strategies share the same philosophy and process. A centralized research team of fundamental and quantitative analysts support the portfolio managers and the Small Cap Value strategy.

Our investment process is grounded in bottom-up fundamental analysis. Efficient and repeatable, it is designed to identify “characteristics that work”: attractive valuation, sound business fundamentals and improving business momentum. The process is executed within a team-oriented culture that upholds individual accountability and provides the clarity of having final decision makers at the portfolio manager level.

Our investment process begins with quantitative scoring and screening to cull a target-rich subset universe based on the Three Circle characteristics for our fundamental research. We cast our net wide, scoring over 3,800 stocks in the US small cap universe every week based on their fundamentals, valuation and momentum. Our rating system dates back a quarter century and has been refined in step with the market’s evolution over time.

We validate each candidate’s screening score by using customized reporting tools to help us evaluate the company’s financial history. This enables us to efficiently identify bona fide candidates within our Three Circle stock selection framework and provides a roadmap for our fundamental research.

Our fundamental work incorporates the full menu of public filings, industry information and management discussion, which in conjunction with our professional judgment and



experience, formulate our assessment of each company's intrinsic value and, where applicable, its prospects for achieving it. Research findings are formally discussed and debated during our formal bi-weekly meetings. Portfolio managers are the final decision makers and every investment professional is accountable for the holdings in our portfolios.

#### Portfolio Construction

Boston Partners portfolios are built from the bottom up through fundamental research. Our portfolio construction process is aided by quantitative efficiency tools. Efficient and repeatable, the construction is grounded in our Three Circle stock selection framework. The sizing of each holding is determined by the degree of upside potential, our conviction level to the upside and the trading liquidity of the stock.

### Philosophy

#### 1. Describe recent changes in investment philosophy, if any.

There have been no recent changes to our investment philosophy. It has been in place for our 25 year history, and has been affirmed over time.

As a reminder, if helpful, below is a brief overview our investment philosophy:

Our investment philosophy is grounded in certain "fundamental truths" to investing, each proven to have worked over meaningful periods of time and in a variety of market environments:

1. Low valuation stocks outperform high valuation stocks
2. Companies with strong fundamentals, e.g. high and sustainable returns on invested capital, outperform companies with weak fundamentals.
3. Stocks with positive business momentum, e.g. rising earnings estimates, outperform stocks with negative business momentum.

We construct well-diversified portfolios that consistently possess these three characteristics; they are simple rules that limit downside risk, preserve capital and maximize the power of compounding.

The Boston Partners investment philosophy and process is rooted in a sensible set of principles and has not changed, but rather been affirmed, over various market cycles by the long-term performance of our strategies.



## Portfolio

- 1. If not included in your meeting presentation, provide portfolio holdings, sector exposure, geographic exposure and common characteristics (yield, duration, market cap, P/E, etc.).**

The information is provided in our presentation for the MWRA Employees Retirement Fund.

- 2. List strategy AUM, net flows and accounts gained/lost for the past 5 years.**

### Small Cap Value Strategy:

	2020	2019	2018	2017	2016
AUM (\$ in millions)	2,189	2,233	1,822	2,098	1,778
Net Flows (\$ in millions)	(195)	(175)	23	80	(16)
Accounts Gained	1	0	0	1	2
Accounts Lost	1	1	1	0	1

- 3. Describe investor concentration for the strategy and note the percent of AUM attributable to the top five investors.**

The top five investors make up approximately 53% of the entire strategy. These investors include separately managed institutional clients and sub-advisory relationships.

## Performance / Market Outlook

- 1. If not included in your meeting presentation, provide trailing returns as of the most recent quarter-end and calendar year returns for the past 10 years, both relative to benchmark.**

These returns have been provided in our presentation on page 1.

- 2. Briefly discuss recent performance trends and identify environments in which the strategy is likely to be in or out of favor.**

Our investment approach consistently produces portfolios with better-than-market valuation, solid business fundamentals and favorable business momentum, which have been proven to outperform the market averages over longer time periods and in various market conditions. Therefore, the portfolio is expected to perform well in most market environments, including those with an upward bias that are broadly based and balanced in terms of style. The most challenging market environment for our investment discipline would be a highly speculative one in which valuation and fundamental investment principles are disregarded. While these markets do occur from time to time (e.g. the late 90's), they are infrequent and generally of limited duration. In periods marked by a correction from prior market imbalances (e.g., 2000, 2001), exceptional turmoil (e.g., 2008) or recovery from profound valuation dislocations (e.g., 2009), the portfolio has tended to perform particularly well.



**3. Describe your market outlook and how strategy positioning is impacted by your views.**

Equities had a tumultuous year as the COVID-19 pandemic threw the global economy into a deep recession in the first quarter. Investor optimism rebounded as governments and central banks moved to aggressively provide fiscal and monetary stimulus and further accelerated over the last two months of the year as vaccines were approved and began to be distributed. The small cap market outperformed the overall market, as measured by the S&P 500 Index, with value besting growth.

We are encouraged by the strength of the strategy's return and outperformance since the market bottom in March. The Boston Partners team continues to be busy given the changing environment and market valuations. We remain focused on buying inexpensive companies that can weather a difficult period and carefully evaluate debt levels versus liquidity. We are finding attractive valuations where previous earnings levels were strong, and the company has the liquidity to weather an uncertain economy. We look forward to updating you on these investment opportunities we are uncovering during our meeting.

**4. Could you please include a slide in your presentation that shows the MWRA's account history, initial contribution, cumulative subsequent contributions, cumulative subsequent distributions, gain/loss and current value.**

This information has been included in our presentation on page 1.

## Small Cap Value

## Massachusetts Water Resources Authority Retirement System

**John C. Forelli, CFA**

Director of Portfolio Research  
jforelli@boston-partners.com  
+1 (617) 832-8272

**Elizabeth Sheerin**

Relationship Manager  
esheerin@boston-partners.com  
+1 (617) 832-8103

**William J. Supple**

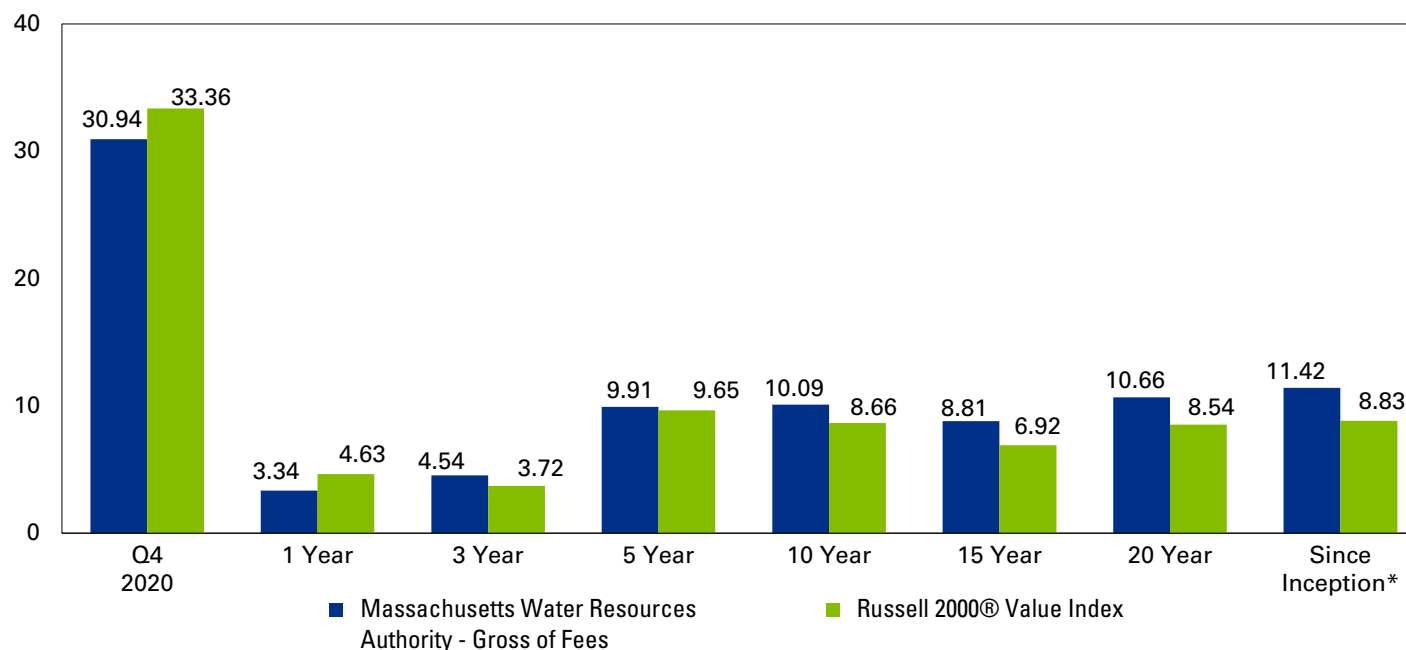
Head of Taft-Hartley and Public Funds  
Investor Relations  
bsupple@boston-partners.com  
+1 (617) 832-8193

## Your Boston Partners Team

<p><b>John C. Forelli, CFA</b> Director of Portfolio Research jforelli@boston-partners.com +1 (617) 832-8272</p>	<p>Mr. Forelli is the Director of Portfolio Research for Boston Partners. In this position, he directs our team of investment professionals in formulating, developing, and communicating the investment narrative for Boston Partners. Prior to this role, he was a senior portfolio analyst and has extensive experience with all of the firm's strategies. Mr. Forelli has 12 years of experience as a portfolio manager focused on large cap equities. He joined the firm from Independence Investments where he was large cap core portfolio manager, senior partner and member of the investment committee. Mr. Forelli was also a research analyst specializing in health care, chemical, capital goods and industrial companies. He began his career as an investment banker with Prudential Securities focusing on raising capital for emerging growth companies and merger and acquisition transactions. Mr. Forelli holds a B.A. degree in economics from Dartmouth College and an M.B.A. degree from the Tuck School of Business at Dartmouth College. He holds the Chartered Financial Analyst® designation and FINRA licenses 7 and 66. He has thirty-six years of industry experience.</p>
<p><b>Elizabeth Sheerin</b> Relationship Manager esheerin@boston-partners.com +1 (617) 832-8103</p>	<p>Ms. Sheerin is a member of the Relationship Management team at Boston Partners and she joined this team in 2011. She works with many of our key domestic and international clients in a client service and relationship manager capacity. Prior to joining our firm, she was a Client Service Representative at Putnam Investments. She also held several financial services related internships including working for Merrill Lynch Global Wealth Management and State Street Global Advisors. She holds a B.S. degree in business management from Babson College. Ms. Sheerin has eleven years of industry experience</p>
<p><b>William J. Supple</b> Head of Taft-Hartley and Public Funds Investor Relations bsupple@boston-partners.com +1 (617) 832-8193</p>	<p>Mr. Supple is in his nineteenth year with the firm, and has national Marketing and Relationship Management oversight responsibility for all Taft-Hartley and Public Sector clients. He joined the firm from Mellon Institutional Asset Management, where he was a Vice President with responsibility for Taft-Hartley clients in the Northeast and Midwest. Previously, he was Managing Director and Chief Operating Officer of the Leveraged Finance and Fixed Income Groups, and was also National Sales Manager, with BankBoston. Prior to his thirteen years at BankBoston, Mr. Supple was with Chase in New York City for six years. Mr. Supple is a former member of the Amalgamated Meatcutters and Butcher Workmen of North America, Local 2, AFL-CIO and the Service Employees International Union, Local 254 (Fenway Park Ushers). He served for seven years as a founding Trustee of the Commonwealth of Massachusetts Health Care Security Trust (Tobacco Settlement Funds). He has been elected to public office six times in Needham, MA, serving two terms as Chairman of the Trust Funds Commission, and served twelve years as an elected Town Meeting Member. Mr. Supple is a Member of the Sponsor Council of the Christian Brothers Institute of Massachusetts and is a past Chair of the Board of Directors at Catholic Memorial School. He is a Trustee of Newton Country Day School of the Sacred Heart and also served on the Finance Committee for the Jesuit's USA Northeast Province. He is a member of the Board of Advisors of the College of the Holy Cross, past Chair of the President's Council, and served as a member of the Institutional Advancement Committee of the Holy Cross Board of Trustees. Mr. Supple holds a B.A. degree (Cum Laude) from the College of the Holy Cross, an M.B.A. degree in finance from New York University, and FINRA licenses 7 and 63. Mr. Supple has over thirty-nine years of industry experience.</p>

# Investment Performance

As of December 31, 2020



## Statement of Changes

Beginning Assets (2/1/97)	\$2.6 M
Net Cash Flows	(\$12.3 M)
Investment Returns	\$32.9 M
<b>Current Assets (12/31/20)</b>	<b>\$23.2 M</b>

## Annualized Performance (%)

	Q4 2020	1 Year	3 Year	5 Year	10 Year	15 Year	20 Year	Since Inception*
<b>Massachusetts Water Resources Authority Retirement System - Gross of Fees</b>	<b>30.94</b>	<b>3.34</b>	<b>4.54</b>	<b>9.91</b>	<b>10.09</b>	<b>8.81</b>	<b>10.66</b>	<b>11.42</b>
<b>Massachusetts Water Resources Authority Retirement System - Net of Fees</b>	<b>30.61</b>	<b>2.31</b>	<b>3.49</b>	<b>8.82</b>	<b>9.00</b>	<b>7.73</b>	<b>9.56</b>	<b>10.31</b>
Russell 2000® Value Index	33.36	4.63	3.72	9.65	8.66	6.92	8.54	8.83

\* Inception date is February 1, 1997.

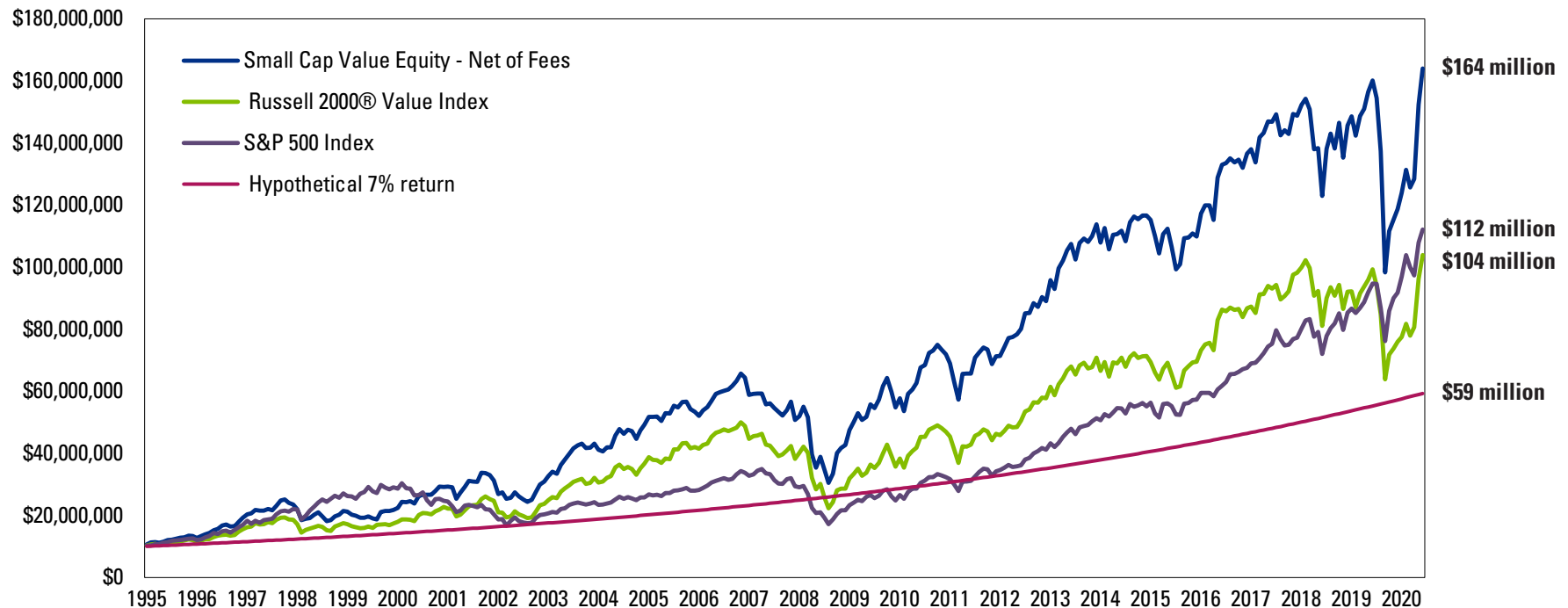
Past performance is not an indication of future results. Performance for periods over one year are annualized. Please refer to the appendix for other important disclosures.



# Benefits of Active Management

Selecting the right manager can lead to higher growth of capital

**Proposed Cumulative Growth of \$10 Million Investment as of December 31, 2020**



Data as of December 31, 2020. This is a hypothetical illustration of the net of fees growth of \$10 million had it been invested in the Boston Partners Small Cap Value composite since inception on July 1, 1995. The results of this illustration may be changed depending on investment guidelines and cash flow. This illustration is net of investment management fees and includes the reinvestment of dividends and other income. A GIPS® complaint report is contained herein. Past performance is not an indication of future results. Please refer to the appendix for other important disclosures.

7% is a representative actuarial rate. Use of 7% is an arbitrary assumption. Results will be different with a different assumption. 7% is based on a study by Milliman Consulting in 2015 of approximately 1,300 multi-employer plans based on form 5500 filings. Based on the conclusions of the study, 7% is a reasonable assumption for this comparison.

# Boston Partners At a Glance

As of December 31, 2020

## Firm Profile

- Founded in 1995; offices in Boston, New York, Los Angeles, Greenbrae and London
- A focus on security selection driven by fundamental research, and guided by quantitative analysis
- One investment philosophy and process across all strategies
- Boston Partners strategies have outperformed their benchmarks 83% of the time by an average of 1.2% on a rolling 3-year basis\*

## \$77.1 Billion Assets Under Management – Summary

Asset Class	Assets (\$ Millions)
Domestic Equity	\$68,008
Global & International	\$7,490
Long/Short	\$1,622

## \$77.1 Billion Assets Under Management – Detail

Investment Strategies	Assets (\$ Millions)
Large Cap Value, Concentrated Large Cap Value	\$27,869
Premium Equity (U.S. All-Cap Value)	\$10,471
Mid Cap Value	\$22,107
Small/Mid Cap Value	\$2,080
Small Cap Value	\$2,189
Small Cap Value II	\$782
U.S. Long/Short	\$1,170
Global, International, Concentrated International	\$7,470
Global Long/Short, International Long/Short	\$234
Emerging Markets Dynamic Equity, Emerging Markets	\$224
WPG Small Cap Value, Micro Cap Value	\$2,523

\* Boston Partners' portfolios are Large Cap Value, Premium Equity, Mid Cap Value, Small Cap Value, Global Equity and International Equity. Data as of December 1, 2013 through December 31, 2020. Past performance is not an indication of future results. Returns reflect composite results gross of fees and individual portfolio results may vary. A GIPS® compliant report is contained herein.

Organizational information can be found in the appendix.

# Boston Partners

## *Representative institutional client list*

### **Public**

Arkansas Judicial Retirement System  
Battle Creek Police and Fire Retirement System  
California Department of Human Resources  
Charlotte Firefighters' Retirement System  
City of Clearwater Employees' Pension Fund  
City of Miami Firefighters' & Police Officers' Retirement Trust  
City of North Miami Beach General Employees, Police Officers & Firefighters  
Dallas Police & Fire Pension System  
Government of Guam Retirement Fund  
Joint Investment Committee as Trustees of the Wichita Retirement Systems  
Los Angeles City Department of Fire & Police Pensions  
Massachusetts Bay Transportation Authority Retirement Fund  
Miami Fire Fighters' Relief & Pension Fund  
Milwaukee County Employees' Retirement System  
MWRA Employees Retirement System  
Oklahoma Police Pension and Retirement System  
Phoenix City Employees Retirement System  
Sacramento Regional Transit District  
San Luis Obispo County  
Santa Clara Valley Transportation Authority  
Taunton Contributory Retirement System  
Texas Emergency Services Retirement System  
The Army & Air Force Exchange Service  
Town of Darien Pension Funds  
Tulare County Employees' Retirement Association

### **Taft-Hartley**

Carpenter's Pension Fund of West Virginia  
Electrical Workers Pension Plan, Local 103, IBEW  
Georgia Stevedore Association - ILA  
Heavy & General Laborers Locals 172 & 472  
IBEW Local 769 Management Pension Trust Fund  
IUOE Local 4 - Pension Fund  
IUOE Local 30 Pension Trust Fund  
IUOE Local 132 Pension Fund  
Iron Workers District Council New England  
Iron Workers Locals 40, 361 & 417  
Ironworkers National Pension Plan  
Mason Tenders' District Council Trust Funds  
Metal Trades Pension Fund  
N.R.A. – I.A.T.S.E. Local 720 Retirement Plan  
National Roofing Industry Pension Fund  
North Central States Council of Carpenters'  
PAMCAH-UA Local 675 Trust Funds  
Pipefitters Local Union 537 Annuity & Pension Funds  
Plumbers and Steamfitters Local 7  
Producer-Writers Guild of America Pension Plan  
Radio, Television & Recording Arts Pension Fund  
Steamfitters' Industry Security Benefit & Pension Funds  
Teamsters Pension Trust Funds of Philadelphia and Vicinity  
UA Local Union 373  
UFCW - So. CA Drug Fund  
UFCW Unions & Employers Pension Plan  
Western Pennsylvania Laborers District Council

### **Corporate**

Alyeska Pipeline Service Company  
Ameren Services Company  
American Family Insurance  
Boehringer Ingelheim Corp.  
Caleres, Inc.  
Clorox Company  
General Mills, Inc.  
John Hancock Financial Services  
Mutual of Enumclaw  
Rotary International  
Stichting Nedlloyd Pensioenfonds  
Texas Mutual Insurance Company  
Toyota Motor Sales USA, Inc.  
Verizon

### **Endowment/Foundation**

Covenant Pension Trust  
Highland Street Foundation  
Kemper & Ethel Marley Foundation  
Nicklaus Children's Hospital  
Sisters of St. Joseph of Carondelet  
UniHealth Foundation  
University of Southern California  
YMCA of Metropolitan Los Angeles

As of February 10, 2021, this list is made up of clients who have consented to disclosing their name. It is not known whether all the listed clients approve or disapprove of Boston Partners or the advisory services provided.

# Equity Investment Team

Long tenured investment team employing the same process across all strategies

## Portfolio Management and Portfolio Research

**Joseph Feeney, Jr., CFA**  
CEO, CIO, Long/Short Research  
35 years experience

**David Cohen, CFA**  
Large Cap Value  
16 years experience

**Mark Donovan, CFA**  
Large Cap Value  
39 years experience

**Stephanie McGirr**  
Large Cap Value  
18 years experience

**David Pyle, CFA**  
Large Cap Value  
25 years experience

**Joshua White, CFA**  
Large Cap Value  
14 years experience

**Duilio Ramallo, CFA**  
Premium Equity  
25 years experience

**David Dabora, CFA**  
Small/SMID Value  
33 years experience

**George Gumpert, CFA**  
Small/SMID Value  
21 years experience

**Steven Pollack, CFA**  
Mid Cap Value  
36 years experience

**Christopher Hart, CFA**  
Global, International,  
Global Long/Short  
29 years experience

**Joshua Jones, CFA**  
Global, International,  
Global Long/Short  
16 years experience

**Paul Korngiebel, CFA**  
Emerging Markets,  
Emerging Markets Dynamic  
20 years experience

**Robert Jones, CFA**  
Long/Short Equity  
32 years experience

**Patrick Regan, CFA**  
Long/Short Equity  
25 years experience

**Harry Rosenbluth, CFA**  
Senior Advisor  
39 years experience

**John Forelli, CFA**  
Director of Portfolio Research  
36 years experience

**Carolyn Margiotti, CFA**  
Global, International  
26 years experience

**Michael McCune, CFA**  
Portfolio Research  
26 years experience

**Brandon Smith, CFA, CAIA**  
Portfolio Research  
14 years experience

**Michael Mullaney**  
Director of Global  
Markets Research  
39 years experience

**Christopher Eagan**  
Global Markets Analyst  
35 years experience

## Fundamental and Quantitative Research

**Todd Knightly**  
Director of Fundamental Research  
31 years experience

**Jack Anton**  
Long/Short Equity Generalist  
3 years experience

**Brian Boyden, CFA**  
Emerging Markets Industry Analyst  
22 years experience

**Scott Burgess, CFA**  
Technology, Electronics  
21 years experience

**Lawrence Chan, CFA**  
Internet Services, Payment Services,  
Recreational Products  
21 years experience

**Charles Clapp**  
Non-U.S. Industry Analyst  
5 years experience

**Tim Collard**  
Aerospace & Defense, Transportation,  
Housing & Autos  
15 years experience

**Aaron DeCoste**  
Energy, Engineering & Construction,  
Metals & Mining  
15 years experience

**Paul Donovan, CFA**  
Paper & Packaging, Cable & Telecom,  
Gaming & Lodging, Chemicals  
9 years experience

**Kevin Duggan, CFA**  
Banks, Money Center  
25 years experience

**Colin Egan**  
Non-U.S. Industry Analyst  
5 years experience

**Trevor Frankel, CFA**  
Emerging Markets Industry Analyst  
10 years experience

**Volkan Gulen, CFA**  
Consumer Products, Business  
Services, Tobacco, Agriculture,  
Media & Advertising  
14 years experience

**Jacklyn Y. Hall**  
Retail, Restaurants, Property  
& Casualty Insurance, REITs  
12 years experience

**Andrew Hatem, CFA**  
Healthcare  
25 years experience

**David Hinton, CFA**  
Small Cap Generalist  
18 years experience

**Tim Horan**  
Industrials & Manufacturing,  
Home & Office Furnishings, Utilities  
23 years experience

**David Kim**  
Emerging Markets Industry Analyst  
5 years experience

**Jennifer Mace**  
Equity Generalist  
2 years experience

**Edward Odre, CFA**  
Financial Services,  
Life Insurance  
11 years experience

**Soyoun Song**  
Non-U.S. Industry Analyst  
15 years experience

**Eric Connerly, CFA**  
Director of Quantitative  
Research  
27 years experience

**Carissa Wong, CFA**  
Director of Portfolio Risk  
Quantitative Strategies  
19 years experience

**Jason Bartlett, CFA**  
Quantitative Strategies  
18 years experience

**Pete Cady, CFA**  
Quantitative Strategies  
5 years experience

**Leo Fochtman**  
Quantitative Strategies  
34 years experience

**Martin MacDonnell, CFA**  
Quantitative Strategies  
29 years experience

**Rubina Moin**  
Quantitative Strategies  
20 years experience

**Maggy Pietropaolo, CFA**  
Quantitative Strategies  
30 years experience

**Joseph Urick**  
Quantitative Strategies  
31 years experience

## Trading

**Mark Kuzminskas**  
Chief Operating Officer  
30 years experience

**Matthew Ender**  
Equity Trader  
11 years experience

**Christopher Bowker**  
Director of Equity Trading  
21 years experience

**Ian Sylvetsky**  
Equity Trader  
11 years experience

**Thomas Walsh**  
Senior Equity Trader  
26 years experience

**Christopher Spaziani, CFA**  
Equity Trading Assistant  
7 years experience

## Sustainability and Engagement Research

**Volkan Gulen, CFA**  
Portfolio Manager  
14 years experience

**William Butterly, Esq.**  
Director of Sustainability  
and Engagement  
36 years experience

**Marissa Marandola, Esq.**  
Sustainability and Engagement  
Research Analyst  
6 years experience

**Haley Shaw**  
Sustainability and Engagement  
Research Analyst  
5 years experience

# Three Circle Stock Selection Process

*In our experience, portfolios with all three characteristics tend to outperform over time*

**We buy stocks where we find the intersection of the three circles**

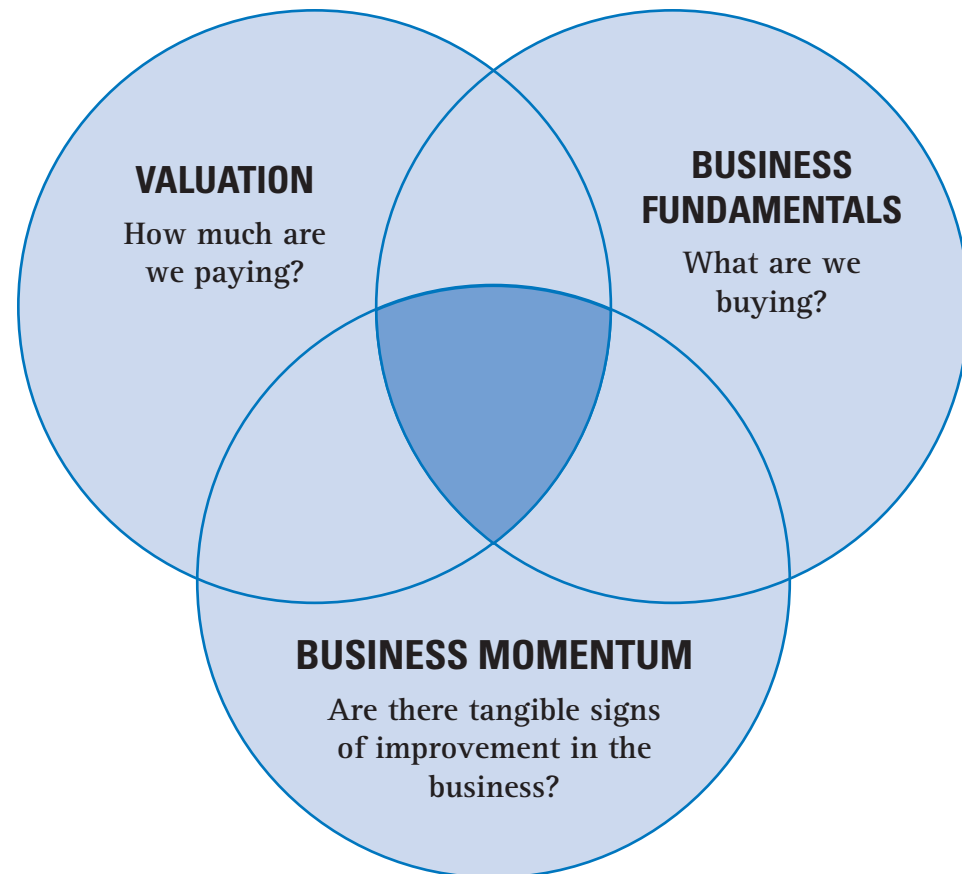


**We sell stocks due to:**

- Appreciation to target price
- Weakening business fundamentals
- A deterioration in business momentum

**Risk management begins with:**

- A value driven approach
- A well-defined sell discipline
- Portfolio diversification



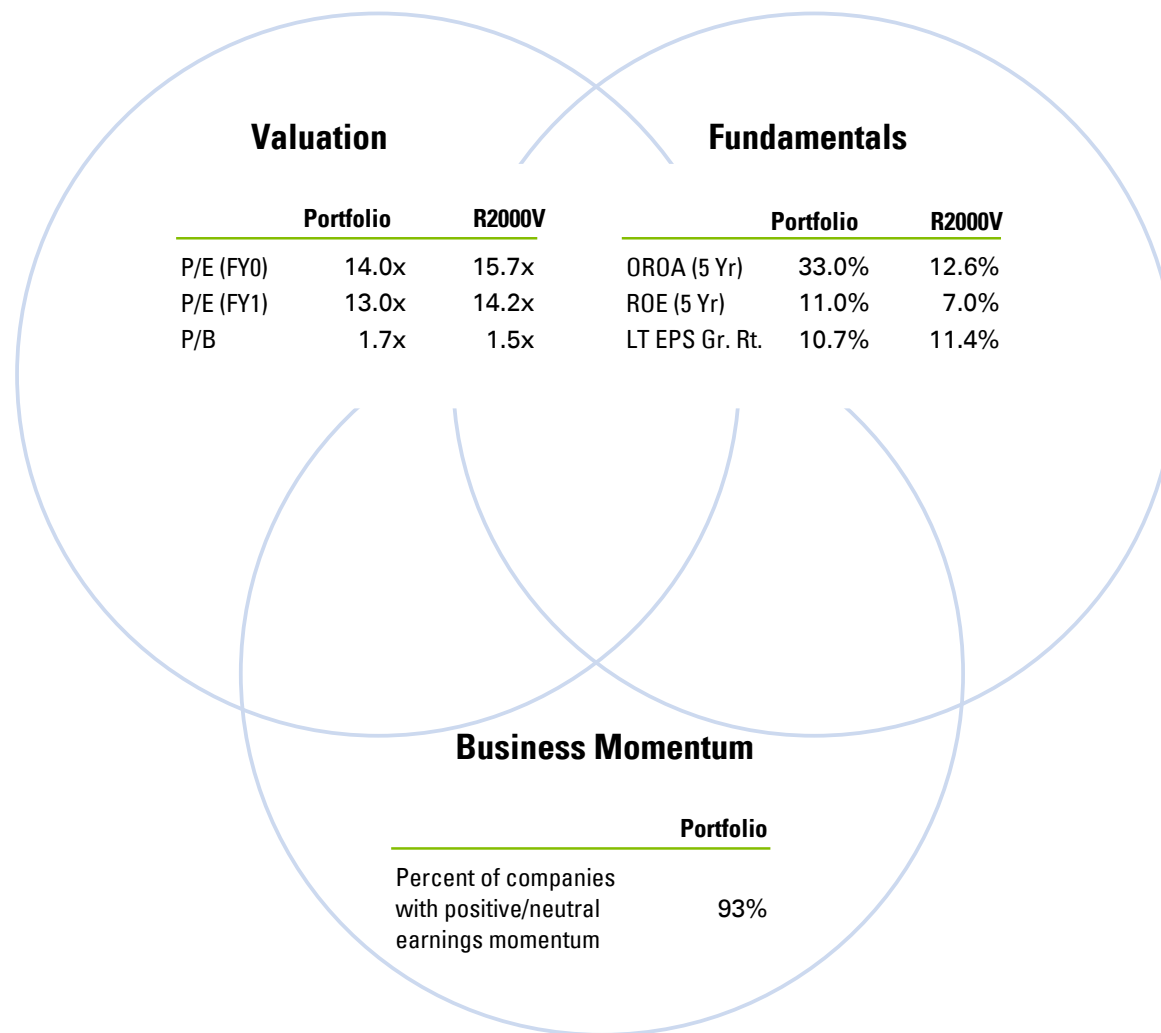
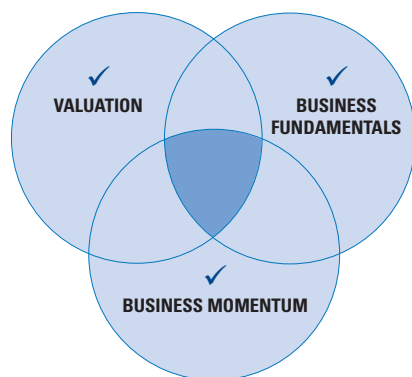
Past performance is not an indication of future results.

# Portfolio Characteristics

*A proof statement that the stock selection process results in a "three circles" portfolio*

## "Three Circles"

An attractive valuation, strong business fundamentals, and positive business momentum. In our experience, portfolios with all three characteristics tend to outperform over time.



As of December 31, 2020.

P/E FY0 is reported as current year; P/E FY1 is reported as projected 12 months.

FCF Yield is reported as median excluding financials of the underlying securities.

LT EPS Gr. Rt. is reported as projected 3-5 year estimate of growth. Earnings growth is not a measure of future performance.

Portfolio characteristics are for Massachusetts Water Resources Authority Retirement System and are subject to change. Please refer to the appendix for other important disclosures.

# Portfolio Positioning

*Our assessment of where the opportunities exist*

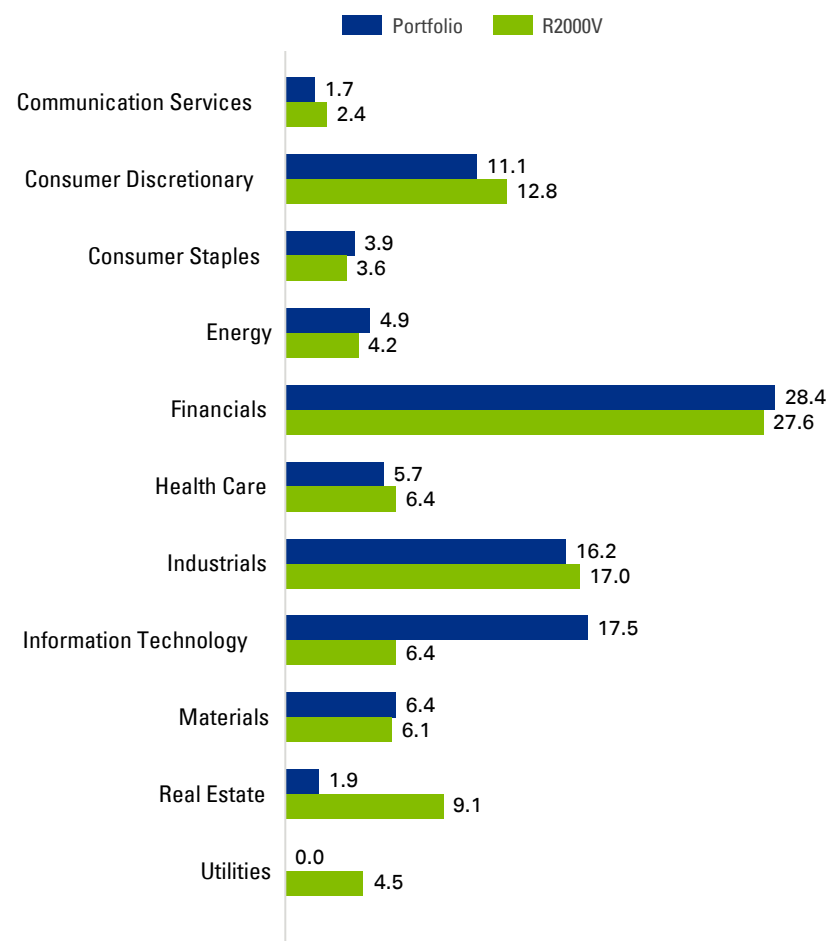
## Largest Holdings (%)

Graphic Packaging Holding Co	2.9
Change Healthcare Inc	2.2
SLM Corp	2.1
WESCO International Inc	2.0
Insight Enterprises Inc	2.0
Lithia Motors Inc	1.9
World Fuel Services Corp	1.7
Valvoline Inc	1.7
Assured Guaranty Ltd	1.5
Energizer Holdings Inc	1.5
<b>Total</b>	<b>19.5</b>

## Portfolio Statistics

	Portfolio	R2000V
Number of Securities	112	1,485
Wtd. Avg. Mkt. Cap (\$M)	\$3,828	\$2,477
Dividend Yield	1.4%	1.7%
Turnover (Trailing 1 Year)	59.6%	-

## Sector Weightings (% of Portfolio)

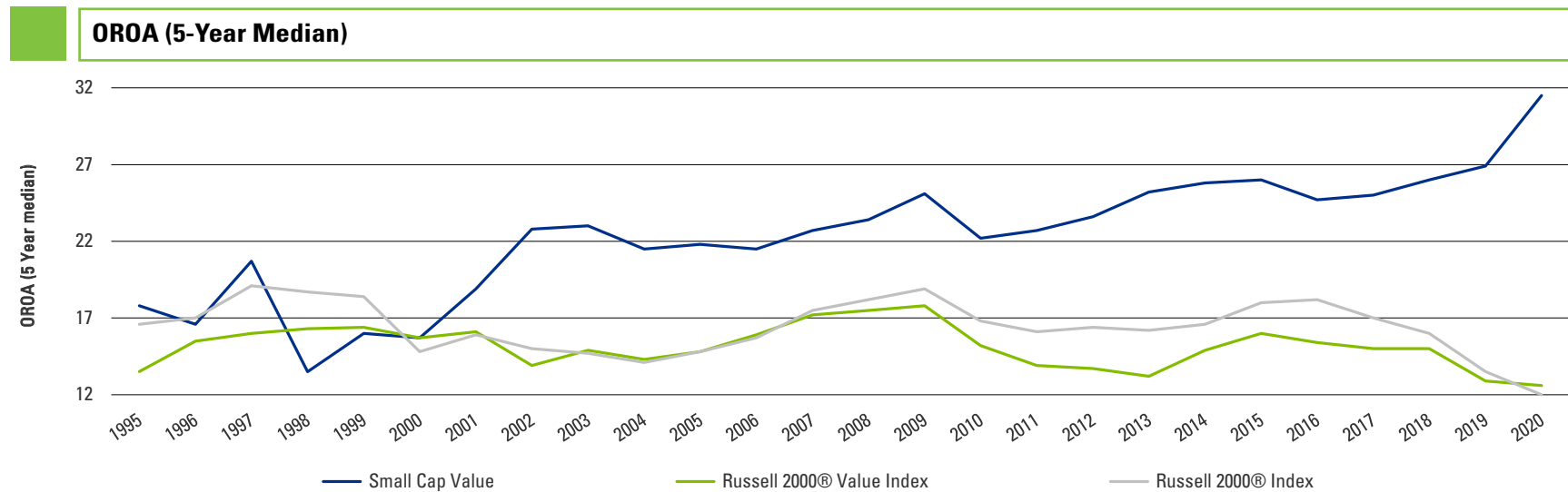
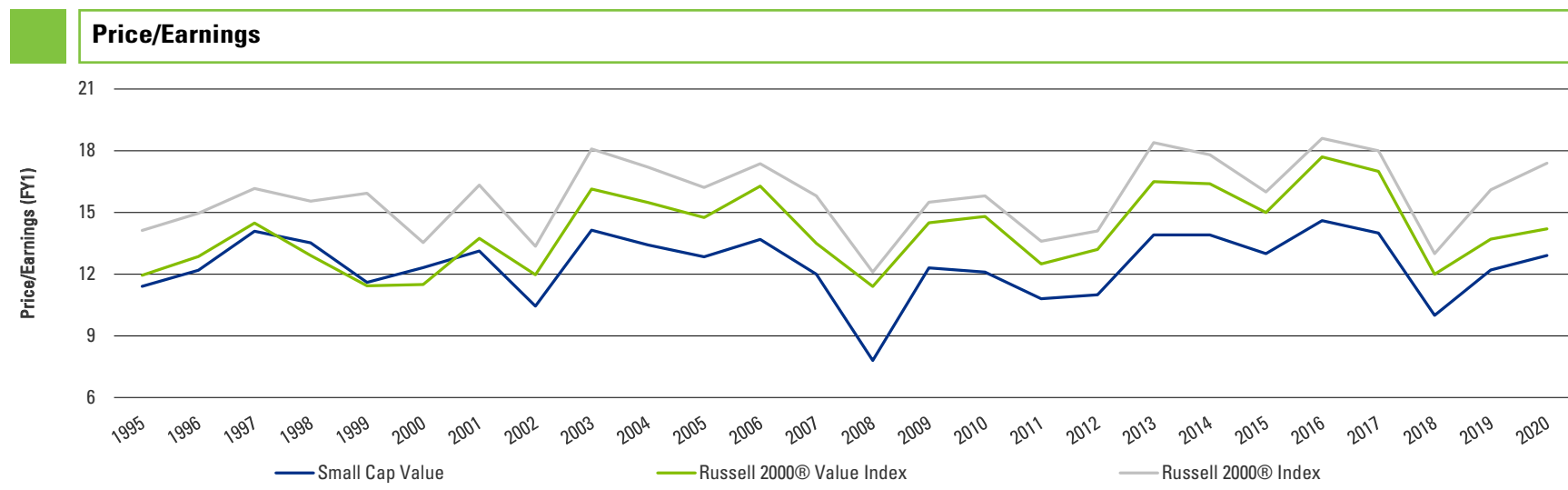


As of December 31, 2020.

Portfolio characteristics and sector weightings are for Massachusetts Water Resources Authority Retirement System and are subject to change. The specific securities identified and described do not represent all of the securities purchased, sold or recommended for advisory clients. It should not be assumed that investments in these sectors or securities were or will be profitable. Please refer to the appendix for other important disclosures.

# Historical Value and Profitability Characteristics – Small Cap Value

*A consistently attractive combination of value, profitability and growth characteristics*



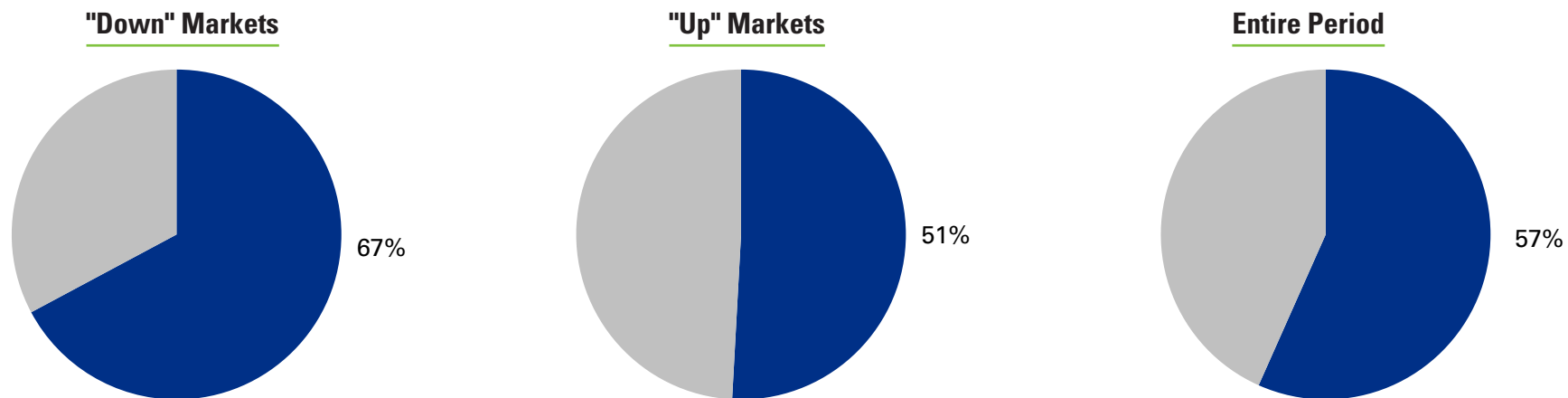
Data from December 1995 through December 31, 2020.

OROA: Operating Return on Operating Assets. Portfolio characteristics are from a representative account in the Boston Partners Small Cap Value composite. Individual portfolio characteristics may vary. A GIPS® compliant report is contained herein. Please refer to the appendix for other important disclosures.



# Performance Through Market Cycles

Preserved capital and compounded returns for favorable long-term performance



■ Percentage of the time that Small Cap Value Composite has outperformed the Russell 2000® Value Index

- There have been 64 months in which the market has produced a negative return.
- Composite has outperformed the Index 67% of the time.

- There have been 116 months in which the market has produced a positive return.
- Composite has outperformed the Index 51% of the time.

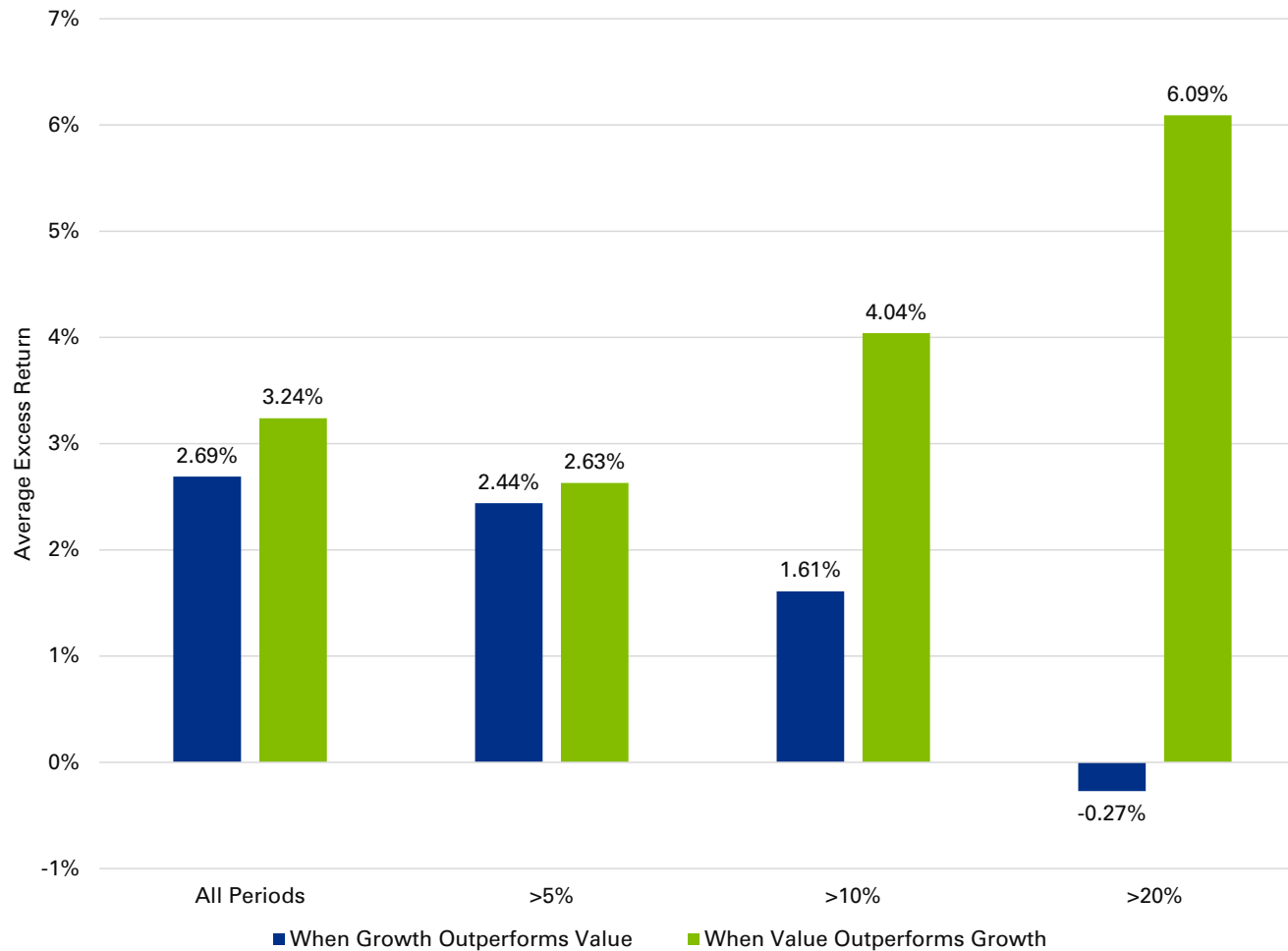
- The entire period is 180 months.
- Composite has outperformed the Index 57% of the time.

Data as of December 31, 2020 for 15-year period, 180 months.

Returns reflect composite results gross of fees and individual portfolio results may vary. Past performance is not an indication of future results. A GIPS® compliant report is contained herein. Please refer to the appendix for other important disclosures.

# Does Boston Partners Offer Genuine Value?

Average Annual Excess Returns of Boston Partners Small Cap Value vs. Russell 2000® Value Index  
July 1995 – December 2020



Data as of December 31, 2020.

Source: Morningstar Direct, Boston Partners.

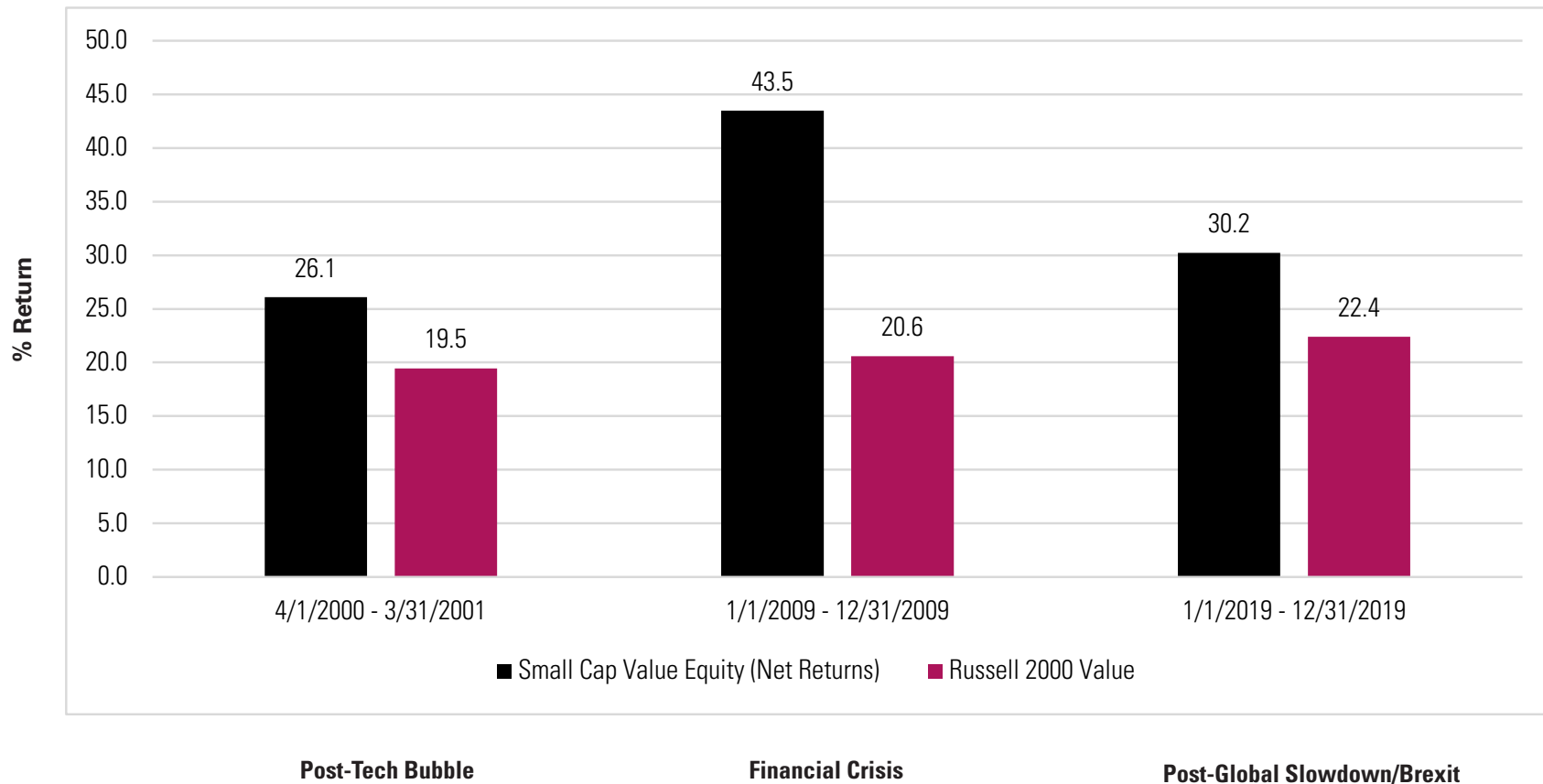
Russell 2000® Growth Index and Russell 2000® Value Index were used to measure growth versus value in the chart above.

The data above includes all monthly rolling 1-year periods from July 1, 1995 through December 31, 2020. Timeline returns, other than those noted, reflect composite results, gross of fees and individual portfolio results will vary. A GIPS® compliant report is contained herein. Past performance is not an indication of future results. Performance for periods over one year are annualized. Please refer to the following pages for other important information and disclosures.

030821 SC PR-001

# Sticking to our Process has Paid Off After Extreme Market Environments

**Boston Partners Small Cap Value Equity Composite (Net of Fee) and Russell 2000® Value Index**



Source: Boston Partners and FactSet.

Returns reflect composite results. Past performance is not an indication of future results. A GIPS® compliant report is contained herein. Please refer to the appendix for other important disclosures.

093020 SC PR-010



---

# **Boston Partners**

## *Appendix*

# Investment Guidelines and Objectives

## Massachusetts Water Resources Authority Retirement System

<b>Performance Objectives</b>	<ul style="list-style-type: none"><li>• Exceed Russell 2000® Value Index over a full market cycle</li></ul>
<b>Guidelines</b>	<ul style="list-style-type: none"><li>• Account holdings shall generally have market capitalizations at the time of purchase in the same market capitalization range as the Russell 2000® Index</li><li>• Individual account positions shall not represent more than 5% of the account at market value determined at time of purchase</li><li>• No individual economic sector (as defined for purposes of the Benchmark) shall represent more than the greater of 1.25x the weight in such Benchmark or 35% of the Account determined at time of purchase</li><li>• Individual account positions shall not represent more than 5% of the outstanding shares of any issuer on a fully diluted basis at time of purchase</li><li>• Non U.S. equity securities and ADRs will not comprise more than 15% of the market value of the account</li><li>• Cash will not represent more than 10% of the market value of the account</li><li>• Companies deriving greater than 15% of revenue from tobacco-related activities are prohibited</li></ul>

# Risk Management

*A clear definition with tools designed to measure intended and unintended risks*

## **"True investment risk" is a permanent impairment or loss of capital**

- True investment risk is not a statistical measure of volatility, variance or estimated tracking error
- Minimize capital losses because it takes a 100% capital gain to fully recoup a 50% loss

## **Capital impairments stem from three sources, all of which are best evaluated bottom-up, stock by stock**

- Valuation Risk – overpaying for an investment
- Balance Sheet Risk – solvency risk of the business
- Earnings Risk – earnings ultimately drive stock prices

## **We employ a multi-layered set of checks & balances designed to buffer against capital losses**

- Quantitative ranking codes of all securities resulted in portfolios with better-than-benchmark valuation, momentum and quality attributes
- Target prices for all owned stocks (upside vs. downside risk)
- Fundamental research creates a layer of objectivity for portfolio management Buy/Hold/Sell decisions
- Portfolio analysts provide monthly attribution feedback loop to portfolio managers
- Independent risk manager conducts quarterly portfolio review
- Northfield analytics utilized to monitor common factor risks
- Quantitative codes capture subtle changes in portfolio characteristics

## **There are no substitutes for Diversification and a Sell Discipline**

- The very best fundamental research and analysis will be wrong on occasion so you must *diversify*
- Keep your winners until valuation, momentum or fundamentals breakdown; when this happens cut losses quickly and *sell*

# Small Cap Value - Market Observations

*As of December 31, 2020*

Strong equity markets in Q4: S&P 500 Index Return: 12.2%; Russell 2000® Index Return: 31.4%

- Equal-weighted S&P 500 Index returned 18.5% as leadership of the largest Index names waned
- Small cap stocks outperformed mid cap which outperformed large cap stocks. The Russell 2000® Index had its best quarter (+31%) in its 42-year history. Value indexes beat growth indexes across the cap spectrum\*
- Developments that supported the equity markets:
  - Approval of additional government stimulus programs for businesses and individuals
  - Approval of the Pfizer vaccine on November 9th
  - Increased earnings expectations for 2021

## Market Performance Analysis

- High growth remained a strong positive factor driving stock returns, as well as higher volatility names doing well, while buying on low valuation factors was mixed
- Following the approval of the Pfizer vaccine, there was a rotation to pro-cyclical sectors and, in particular, industries expected to benefit from an upswing in consumer and business activity
- Post November 9, 2020, more speculative stocks performed the best – both cheap, low quality stocks and expensive, high growth stocks (e.g., software, metals & mining, interactive media & services)

Positioning: the strategy maintains a valuation discount to the Russell 2000® Value Index with solid fundamentals and positive business momentum – a diversified combination of factors that have outperformed over the long-term

Data as of December 31, 2020. Source: Boston Partners; FactSet; Bloomberg.

\* As represented by the Russell 3000®/3000® Growth/3000® Value indices, Russell 1000®/1000® Growth/1000® Value Indices, Russell Midcap®/Midcap® Growth/Midcap® Value Indices and Russell 2000®/2000® Growth/2000® Value Indices.

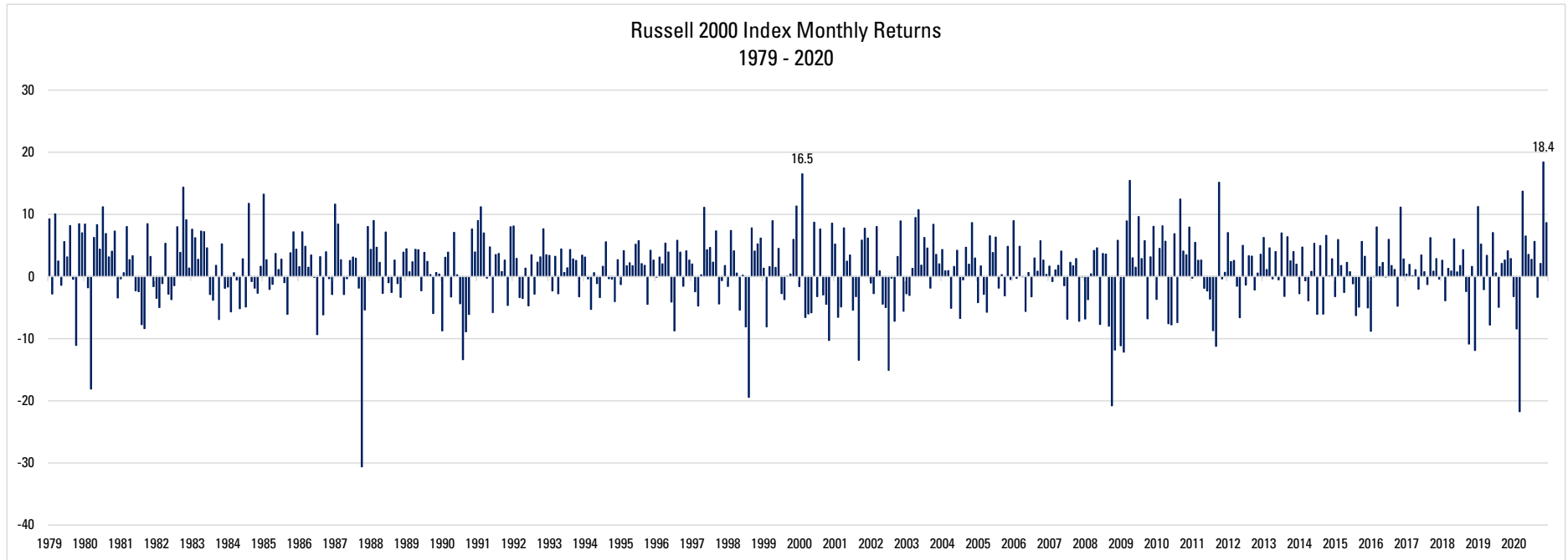
Discussions of securities returns and trends are not intended to be a forecast of future events or returns. Past performance is not an indication of future results. Please refer to the appendix for other important disclosures.

123120 SC PR-001

# Fourth Quarter 2020 - Small Cap Stocks Outperform

*November 2020 was the best month ever for small caps*

## February 2000 Was the Previous Best Month Ever



Data as of December 31, 2020.

Source: The Leuthold Group, Bloomberg, Boston Partners, FactSet.

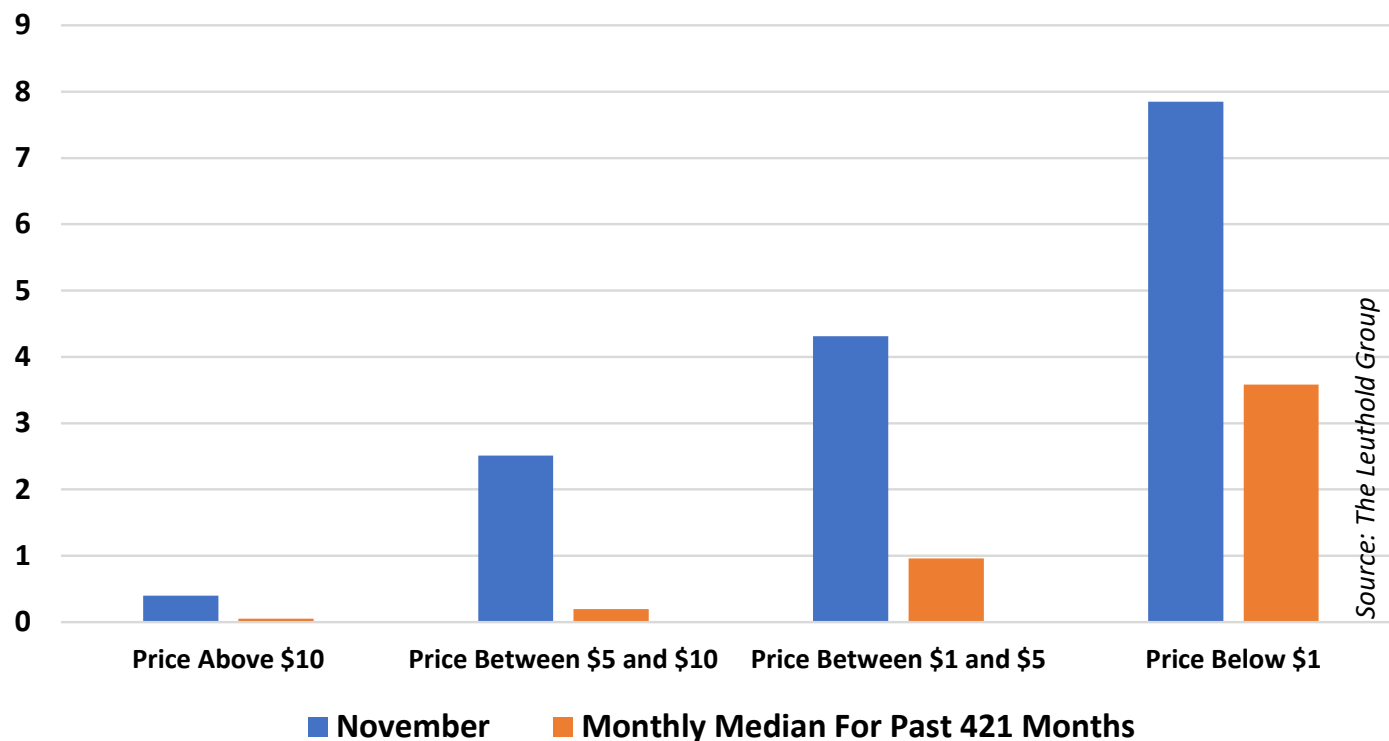
Past performance is not an indication of future results. Please refer to the appendix for other important disclosures.

123120 SC PR-002



# Breadth of the Low Quality Rally?

% of Stocks That Doubled In Price In November



- Stocks perceived as extremely risky bets, such as penny stocks trading below \$1, had the highest percentage of names doubling in price
- Since 1985, the median percentage for this group has been 3.6%
- Stocks priced from \$1-\$5 also saw a much higher than normal amount that doubled in price in November

Data as of November 30, 2020.

Source: The Leuthold Group

Data is for the broad market. All publicly-traded stocks assembled into four groups based on average trading prices of the previous year. Past performance is not an indication of future results. Please refer to the appendix for other important disclosures.

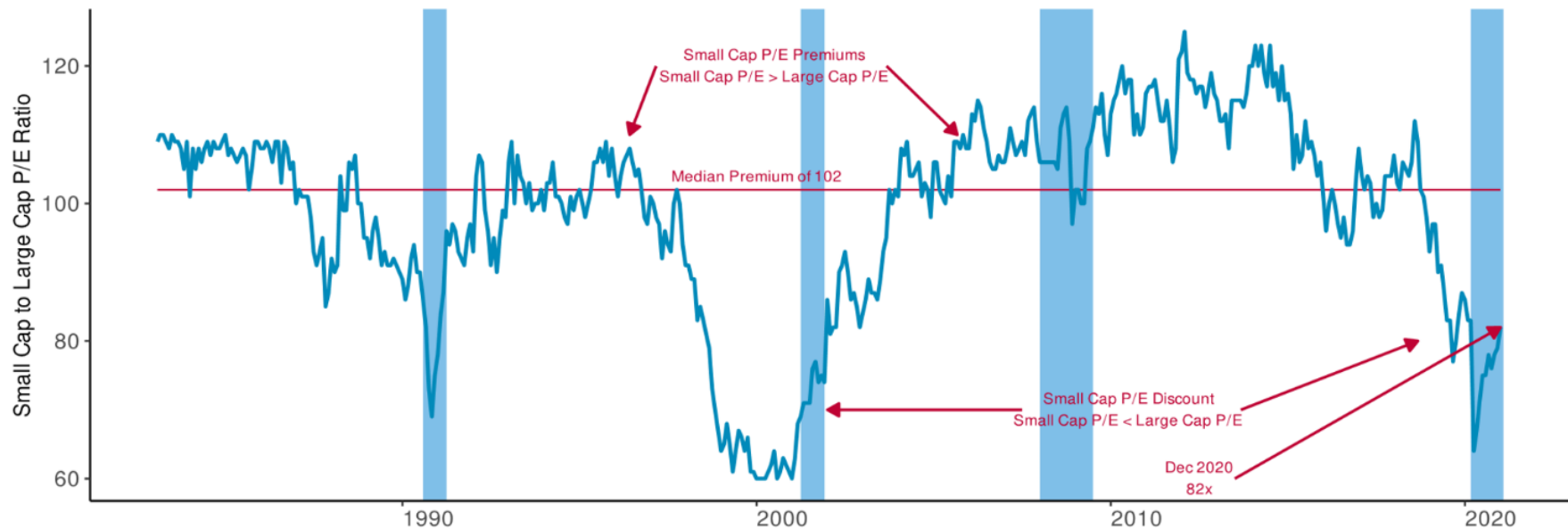
123120 SC PR-011

# Smaller Caps Remain Compelling

Small caps are selling at an 18% valuation discount to large caps

## Small Cap to Large Cap Historical P/E Ratio (x100)

Based on Non-normalized trailing operating earnings  
Small Cap: Leuthold 3000 Small Cap: 23.38x  
Large Cap: Leuthold 3000 Large Cap: 28.44x  
Vertical bars represent recessions.



- After reaching an extreme valuation discount of 36% at the end of March, small caps are selling at an 18% valuation discount to large caps
- Small caps (Russell 2000® Index, +71%) have outperformed large (S&P 500 Index, +45%) from the end of March 2020
- Based on 2021 earnings estimates, small caps are at a 16% discount to large caps

Data as of December 31, 2020.

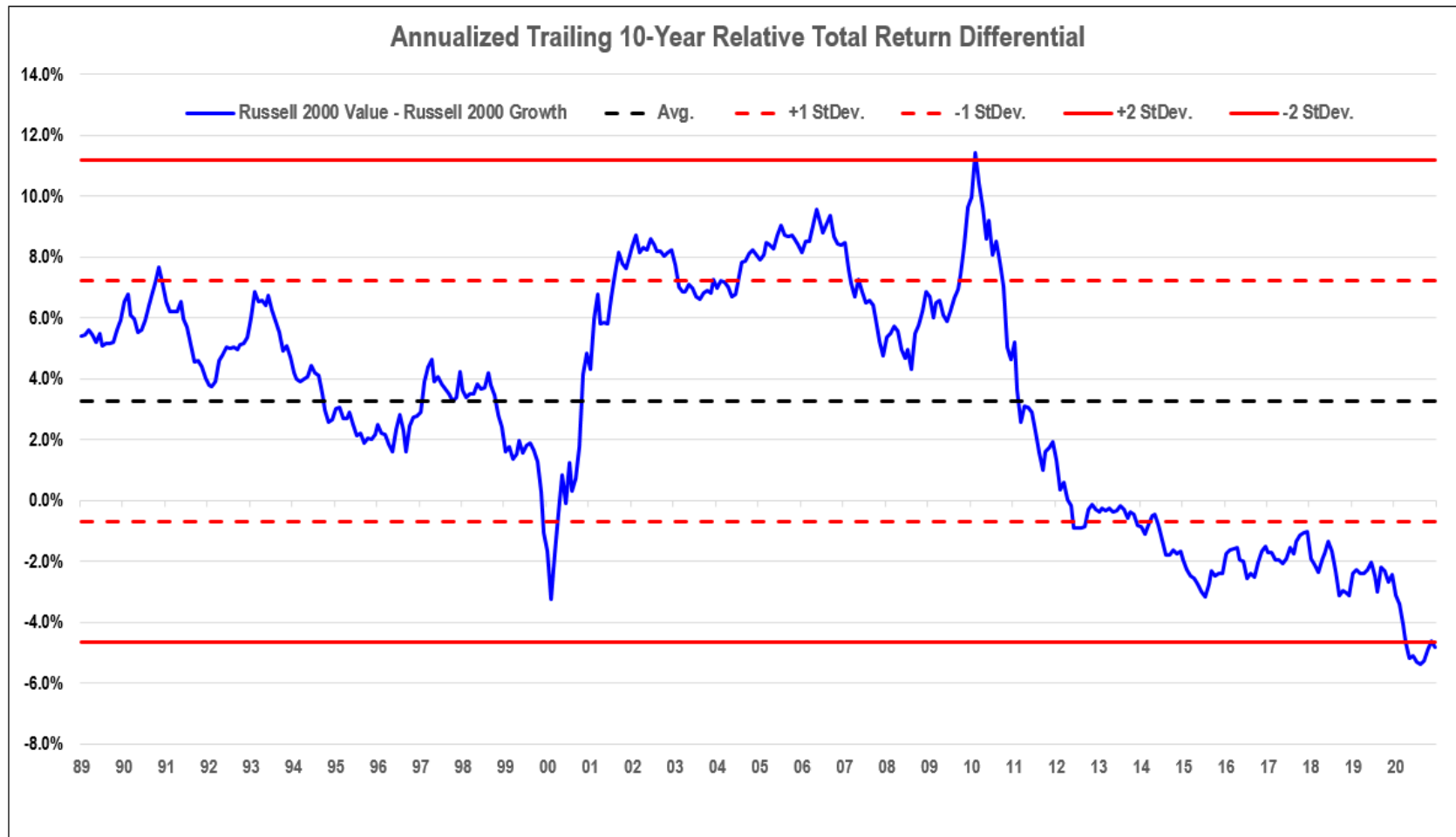
Source: The Leuthold Group.

Past performance is not an indication of future results. Please refer to the appendix for other important disclosures.

123120 SC PR-003

# Small Cap Value Stocks are Compelling versus Small Cap Growth Stocks

## Record return differential between Small Cap Value & Small Cap Growth



Data as of December 31, 2020.

Source: Bloomberg; Boston Partners.

Past performance is not an indication of future results. Please refer to the appendix for other important disclosures.

123120 SC PR-004

Performance (%)																	
	4Q 2020	1 Year	3 Year	5 Year	10 Year	15 Year	Since Inception*	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
<b>Large Cap Value - Gross of Fees</b>	<b>18.96</b>	<b>2.59</b>	<b>5.16</b>	<b>9.89</b>	<b>11.22</b>	<b>8.77</b>	<b>10.53</b>	<b>2.59</b>	<b>24.18</b>	<b>-8.70</b>	<b>20.07</b>	<b>14.74</b>	<b>-4.08</b>	<b>11.85</b>	<b>37.14</b>	<b>21.27</b>	<b>1.29</b>
<b>Large Cap Value - Net of Fees</b>	<b>18.87</b>	<b>2.27</b>	<b>4.84</b>	<b>9.55</b>	<b>10.83</b>	<b>8.40</b>	<b>10.15</b>	<b>2.27</b>	<b>23.79</b>	<b>-8.99</b>	<b>19.71</b>	<b>14.40</b>	<b>-4.37</b>	<b>11.49</b>	<b>36.64</b>	<b>20.66</b>	<b>0.82</b>
Russell 1000® Value Index	16.25	2.80	6.07	9.74	10.50	7.34	9.24	2.80	26.54	-8.27	13.66	17.34	-3.83	13.45	32.53	17.51	0.39
S&P 500® Index	12.15	18.40	14.18	15.22	13.88	9.88	10.01	18.40	31.49	-4.38	21.83	11.96	1.38	13.69	32.39	16.00	2.11
<b>Concentrated Large Cap Value - Gross of Fees</b>	<b>16.13</b>	<b>2.74</b>	<b>5.69</b>	-	-	-	<b>8.78</b>	<b>2.74</b>	<b>26.11</b>	<b>-8.86</b>	<b>13.71*</b>	-	-	-	-	-	-
<b>Concentrated Large Cap Value - Net of Fees</b>	<b>15.97</b>	<b>2.03</b>	<b>4.96</b>	-	-	-	<b>8.03</b>	<b>2.03</b>	<b>25.23</b>	<b>-9.51</b>	<b>13.32*</b>	-	-	-	-	-	-
Russell 1000® Value Index	16.25	2.80	6.07	-	-	-	7.69	2.80	26.54	-8.27	8.61*	-	-	-	-	-	-
<b>Premium Equity - Gross of Fees</b>	<b>20.27</b>	<b>5.38</b>	<b>6.50</b>	<b>10.70</b>	<b>11.90</b>	<b>10.04</b>	<b>12.64</b>	<b>5.38</b>	<b>28.88</b>	<b>-11.06</b>	<b>18.91</b>	<b>15.73</b>	<b>1.71</b>	<b>13.22</b>	<b>39.73</b>	<b>16.27</b>	<b>-1.01</b>
<b>Premium Equity - Net of Fees</b>	<b>20.09</b>	<b>4.78</b>	<b>5.87</b>	<b>10.05</b>	<b>11.29</b>	<b>9.45</b>	<b>12.07</b>	<b>4.78</b>	<b>28.12</b>	<b>-11.60</b>	<b>18.22</b>	<b>15.08</b>	<b>1.15</b>	<b>12.65</b>	<b>39.04</b>	<b>15.72</b>	<b>-1.55</b>
Russell 3000® Value Index	17.21	2.87	5.89	9.74	10.36	7.30	9.26	2.87	26.26	-8.58	13.19	18.40	-4.13	12.70	32.69	17.55	-0.10
S&P 500® Index	12.15	18.40	14.18	15.22	13.88	9.88	10.01	18.40	31.49	-4.38	21.83	11.96	1.38	13.69	32.39	16.00	2.11
<b>Mid Cap Value - Gross of Fees</b>	<b>22.05</b>	<b>6.55</b>	<b>6.34</b>	<b>10.26</b>	<b>12.66</b>	<b>11.36</b>	<b>13.02</b>	<b>6.55</b>	<b>31.26</b>	<b>-14.03</b>	<b>16.55</b>	<b>16.29</b>	<b>2.84</b>	<b>14.37</b>	<b>41.04</b>	<b>19.78</b>	<b>1.68</b>
<b>Mid Cap Value - Net of Fees</b>	<b>21.94</b>	<b>6.18</b>	<b>5.97</b>	<b>9.88</b>	<b>12.17</b>	<b>10.79</b>	<b>12.37</b>	<b>6.18</b>	<b>30.80</b>	<b>-14.33</b>	<b>16.16</b>	<b>15.90</b>	<b>2.49</b>	<b>14.00</b>	<b>40.48</b>	<b>18.90</b>	<b>0.88</b>
Russell Midcap® Value Index	20.43	4.96	5.37	9.73	10.49	8.31	10.92	4.96	27.06	-12.29	13.34	20.00	-4.78	14.75	33.46	18.51	-1.38

\* Inception dates are as follows: Large Cap Value is June 1, 1995; Concentrated Large Cap Value is July 1, 2017; Premium Equity is June 1, 1995; and Mid Cap Value is May 1, 1995. Boston Partners has prepared and presented this report in compliance with the GIPS®. Returns reflect composite results and individual portfolio results will vary. Performance for periods over one year are annualized. Past performance is not an indication of future results. Please refer to the back for other important disclosures.

# Boston Partners

Investment performance through December 31, 2020 (continued)

Performance (%)																	
	4Q 2020	1 Year	3 Year	5 Year	10 Year	15 Year	Since Inception*	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
<b>Small/Mid Cap Value - Gross of Fees</b>	<b>29.95</b>	<b>4.49</b>	<b>3.89</b>	<b>9.82</b>	<b>10.42</b>	<b>8.55</b>	<b>10.79</b>	<b>4.49</b>	<b>31.79</b>	<b>-18.56</b>	<b>13.64</b>	<b>25.35</b>	<b>-3.06</b>	<b>5.34</b>	<b>35.33</b>	<b>23.97</b>	<b>-1.57</b>
<b>Small/Mid Cap Value - Net of Fees</b>	<b>29.76</b>	<b>3.87</b>	<b>3.27</b>	<b>9.13</b>	<b>9.68</b>	<b>7.75</b>	<b>10.00</b>	<b>3.87</b>	<b>31.01</b>	<b>-19.08</b>	<b>12.90</b>	<b>24.51</b>	<b>-3.71</b>	<b>4.65</b>	<b>34.37</b>	<b>23.08</b>	<b>-2.31</b>
Russell 2500® Value Index	28.51	4.88	4.34	9.43	9.33	7.47	9.62	4.88	23.56	-12.36	10.36	25.20	-5.49	7.11	33.32	19.21	-3.36
Russell 2500™ Index	27.41	19.99	11.33	13.64	11.97	9.55	10.19	19.99	27.77	-10.00	16.81	17.59	-2.90	7.07	36.80	17.88	-2.51
<b>Small Cap Value - Gross of Fees</b>	<b>30.75</b>	<b>3.12</b>	<b>4.47</b>	<b>9.78</b>	<b>10.08</b>	<b>8.71</b>	<b>12.48</b>	<b>3.12</b>	<b>31.15</b>	<b>-15.69</b>	<b>11.29</b>	<b>25.63</b>	<b>-3.77</b>	<b>4.76</b>	<b>35.27</b>	<b>22.85</b>	<b>-2.13</b>
<b>Small Cap Value - Net of Fees</b>	<b>30.52</b>	<b>2.41</b>	<b>3.74</b>	<b>8.99</b>	<b>9.25</b>	<b>7.84</b>	<b>11.59</b>	<b>2.41</b>	<b>30.22</b>	<b>-16.27</b>	<b>10.49</b>	<b>24.69</b>	<b>-4.53</b>	<b>3.93</b>	<b>34.21</b>	<b>21.85</b>	<b>-2.93</b>
Russell 2000® Value Index	33.36	4.63	3.72	9.65	8.66	6.92	9.61	4.63	22.39	-12.86	7.84	31.74	-7.47	4.22	34.52	18.05	-5.50
Russell 2000® Index	31.37	19.96	10.25	13.26	11.20	8.91	9.36	19.96	25.52	-11.01	14.65	21.31	-4.41	4.89	38.82	16.35	-4.18
<b>Small Cap Value II - Gross of Fees</b>	<b>30.24</b>	<b>2.37</b>	<b>3.89</b>	<b>9.66</b>	<b>10.38</b>	<b>8.83</b>	<b>11.73</b>	<b>2.37</b>	<b>29.43</b>	<b>-15.38</b>	<b>11.05</b>	<b>27.35</b>	<b>-3.27</b>	<b>5.35</b>	<b>36.53</b>	<b>24.54</b>	<b>-2.29</b>
<b>Small Cap Value II - Net of Fees</b>	<b>29.96</b>	<b>1.45</b>	<b>2.91</b>	<b>8.64</b>	<b>9.33</b>	<b>7.75</b>	<b>10.59</b>	<b>1.45</b>	<b>28.18</b>	<b>-16.19</b>	<b>10.05</b>	<b>26.21</b>	<b>-4.19</b>	<b>4.37</b>	<b>35.28</b>	<b>23.42</b>	<b>-3.45</b>
Russell 2000® Value Index	33.36	4.63	3.72	9.65	8.66	6.92	7.94	4.63	22.39	-12.86	7.84	31.74	-7.47	4.22	34.52	18.05	-5.50
<b>Long/Short Equity - Gross of Fees</b>	<b>10.70</b>	<b>-4.03</b>	<b>-2.41</b>	<b>4.25</b>	<b>6.33</b>	<b>9.99</b>	<b>11.42</b>	<b>-4.03</b>	<b>11.75</b>	<b>-13.34</b>	<b>5.41</b>	<b>25.71</b>	<b>1.15</b>	<b>7.16</b>	<b>10.37</b>	<b>15.40</b>	<b>8.68</b>
<b>Long/Short Equity - Net of Fees</b>	<b>10.44</b>	<b>-4.94</b>	<b>-3.36</b>	<b>3.15</b>	<b>5.19</b>	<b>8.33</b>	<b>9.04</b>	<b>-4.94</b>	<b>10.70</b>	<b>-14.22</b>	<b>4.30</b>	<b>24.03</b>	<b>0.17</b>	<b>6.04</b>	<b>9.17</b>	<b>14.06</b>	<b>7.39</b>
S&P 500® Index	12.15	18.40	14.18	15.22	13.88	9.88	8.04	18.40	31.49	-4.38	21.83	11.96	1.38	13.69	32.39	16.00	2.11
<b>Long/Short Research - Gross of Fees</b>	<b>12.40</b>	<b>-6.79</b>	<b>-1.20</b>	<b>2.52</b>	<b>6.26</b>	<b>6.47</b>	<b>6.70</b>	<b>-6.79</b>	<b>14.16</b>	<b>-9.37</b>	<b>11.63</b>	<b>5.21</b>	<b>3.02</b>	<b>8.68</b>	<b>19.70</b>	<b>14.73</b>	<b>5.35</b>
<b>Long/Short Research - Net of Fees</b>	<b>12.05</b>	<b>-7.92</b>	<b>-2.42</b>	<b>1.26</b>	<b>4.95</b>	<b>5.16</b>	<b>5.38</b>	<b>-7.92</b>	<b>12.75</b>	<b>-10.50</b>	<b>10.27</b>	<b>3.91</b>	<b>1.74</b>	<b>7.34</b>	<b>18.23</b>	<b>13.32</b>	<b>4.05</b>
S&P 500® Index	12.15	18.40	14.18	15.22	13.88	9.88	8.70	18.40	31.49	-4.38	21.83	11.96	1.38	13.69	32.39	16.00	2.11
HFRI Equity Hedge Total Index	14.49	17.50	7.45	8.19	5.33	5.05	5.70	17.50	13.69	-7.14	13.29	5.47	-0.97	1.81	14.27	7.41	-8.38

\* Inception dates are as follows: Small/Mid Cap Value is April 1, 1999; Small Cap Value is July 1, 1995; Small Cap Value II is July 1, 1998; Long/Short Equity is August 1, 1997; and Long/Short Research is April 1, 2002.

Boston Partners has prepared and presented this report in compliance with the GIPS®. Returns reflect composite results and individual portfolio results will vary. Performance for periods over one year are annualized. Past performance is not an indication of future results. Please refer to the back for other important disclosures.

Performance (%)																
	4Q 2020	1 Year	3 Year	5 Year	10 Year	Since Inception*	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
<b>Global Equity - Gross of Fees</b>	<b>22.34</b>	<b>5.88</b>	<b>3.62</b>	<b>8.16</b>	<b>9.49</b>	<b>7.71</b>	<b>5.88</b>	<b>20.07</b>	<b>-12.50</b>	<b>21.53</b>	<b>9.47</b>	<b>1.89</b>	<b>5.54</b>	<b>35.12</b>	<b>17.26</b>	<b>-1.77</b>
<b>Global Equity - Net of Fees</b>	<b>22.17</b>	<b>5.23</b>	<b>2.93</b>	<b>7.41</b>	<b>8.70</b>	<b>6.91</b>	<b>5.23</b>	<b>19.27</b>	<b>-13.10</b>	<b>20.67</b>	<b>8.65</b>	<b>1.11</b>	<b>4.74</b>	<b>34.11</b>	<b>16.37</b>	<b>-2.56</b>
MSCI World Index - Net	13.96	15.90	10.54	12.19	9.87	7.50	15.90	27.67	-8.71	22.40	7.51	-0.87	4.94	26.68	15.83	-5.54
MSCI World Value Index - Net	15.73	-1.16	2.39	7.15	6.76	5.02	-1.16	21.75	-10.78	17.10	12.33	-4.82	3.69	26.62	15.51	-5.62
<b>International Equity - Gross of Fees</b>	<b>19.79</b>	<b>5.46</b>	<b>0.27</b>	<b>5.12</b>	<b>6.48</b>	<b>4.25</b>	<b>5.46</b>	<b>16.69</b>	<b>-18.07</b>	<b>26.38</b>	<b>0.76</b>	<b>3.54</b>	<b>-3.65</b>	<b>31.47</b>	<b>18.67</b>	<b>-6.20</b>
<b>International Equity - Net of Fees</b>	<b>19.58</b>	<b>4.74</b>	<b>-0.44</b>	<b>4.37</b>	<b>5.71</b>	<b>3.48</b>	<b>4.74</b>	<b>15.86</b>	<b>-18.67</b>	<b>25.48</b>	<b>0.01</b>	<b>2.77</b>	<b>-4.37</b>	<b>30.51</b>	<b>17.79</b>	<b>-6.89</b>
MSCI EAFE Index - Net	16.05	7.82	4.28	7.45	5.51	3.53	7.82	22.01	-13.79	25.03	1.00	-0.81	-4.90	22.78	17.32	-12.14
MSCI EAFE Value Index - Net	19.20	-2.63	-1.24	4.20	3.37	1.81	-2.63	16.09	-14.78	21.44	5.02	-5.68	-5.39	22.95	17.69	-12.17
<b>Global Long/Short - Gross of Fees</b>	<b>14.08</b>	<b>1.75</b>	<b>-0.05</b>	<b>2.69</b>	-	<b>4.70</b>	<b>1.75</b>	<b>6.29</b>	<b>-7.68</b>	<b>9.60</b>	<b>4.34</b>	<b>8.73</b>	<b>4.36</b>	<b>8.96*</b>	-	-
<b>Global Long/Short - Net of Fees</b>	<b>13.51</b>	<b>-0.25</b>	<b>-2.03</b>	<b>0.66</b>	-	<b>2.69</b>	<b>-0.25</b>	<b>4.19</b>	<b>-9.53</b>	<b>7.44</b>	<b>2.28</b>	<b>6.59</b>	<b>2.55</b>	<b>8.02*</b>	-	-
MSCI World Index - Net	13.96	15.90	10.54	12.19	-	10.82	15.90	27.67	-8.71	22.40	7.51	-0.87	4.94	16.83*	-	-
MSCI World Value Index - Net	15.73	-1.16	2.39	7.15	-	6.58	-1.16	21.75	-10.78	17.10	12.33	-4.82	3.69	15.74*	-	-
HFRI Equity Hedge Total Index	14.49	17.50	7.45	8.19	-	6.72	17.50	13.69	-7.14	13.29	5.47	-0.97	1.81	8.98*	-	-

\* Inception dates are as follows: Global Equity is July 1, 2008; International Equity is July 1, 2008; and Global Long/Short is July 1, 2013.

Boston Partners has prepared and presented this report in compliance with the GIPS®. Returns reflect composite results and individual portfolio results will vary. Performance for periods over one year are annualized. Past performance is not an indication of future results. Please refer to the back for other important disclosures.

Performance (%)												
	4Q 2020	1 Year	3 Year	5 Year	7 Year	Since Inception*	2020	2019	2018	2017	2016	
<b>Emerging Markets Dynamic Equity - Gross of Fees</b>	11.14	13.43	4.17	9.33	-	7.26	13.43	19.53	-16.64	27.89	-3.67	
<b>Emerging Markets Dynamic Equity - Net of Fees</b>	10.84	12.08	2.74	7.58	-	5.44	12.08	17.82	-17.87	25.69	-5.47	
MSCI Emerging Markets Index - Net	19.70	18.31	6.17	12.81	-	7.18	18.31	18.42	-14.57	37.28	-17.97	
HFRI Equity Hedge Total Index	14.49	17.50	7.45	8.19	-	6.49	17.50	13.69	-7.14	13.29	-2.60	
<b>Emerging Markets - Gross of Fees</b>	19.98	15.69	6.19	-	-	9.42	15.69	29.91	14.45*	-	-	
<b>Emerging Markets - Net of Fees</b>	19.76	14.73	5.22	-	-	8.42	14.73	28.69	13.33*	-	-	
MSCI Emerging Markets Index - Net	19.70	18.31	6.17	-	-	9.81	18.31	18.42	15.92*	-	-	

\* Inception dates are as follows: Emerging Markets Dynamic Equity is March 1, 2015; Emerging Markets Equity is July 1, 2017.

Boston Partners has prepared and presented this report in compliance with the GIPS®. Returns reflect composite results and individual portfolio results will vary. Performance for periods over one year are annualized. Past performance is not an indication of future results. Please refer to the back for other important disclosures.

Boston Partners Global Investors, Inc. ("Boston Partners") is an Investment Adviser registered with the Securities and Exchange Commission under the Investment Advisers Act of 1940. Registration does not imply a certain level of skill or training. Boston Partners is an indirect, wholly owned subsidiary of ORIX Corporation of Japan ("ORIX"). Boston Partners updated its firm description as of November 2018 to reflect changes in its divisional structure. Boston Partners is comprised of two divisions, Boston Partners and Weiss, Peck & Greer Partners ("WPG").

Boston Partners claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS® standards. Boston Partners has been independently verified for the periods 2007 through 2019. Before then, Boston Partners Asset Management ("BPAM"), the previous entity name, and WPG were independently verified on an annual basis from 1995 through 2006 and 1993 through 2006, respectively. A firm that claims compliance with the GIPS must establish policies and procedures for complying with all the applicable requirements of the GIPS. Verification provides assurance on whether a 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 and have been implemented on a firm-wide basis. Verification does not provide assurance on the accuracy of any specific performance report.

The composites have had a performance examination for the following periods: Boston Partners Large Cap Value Equity, 1995 to 2019; Boston Partners Premium Equity, 1995 to 2019; Boston Partners Mid Cap Value Equity, 1995 to 2006 and 2010 to 2019; Boston Partners Small/Mid Cap Value Equity, 1999 to 2019; Boston Partners Small Cap Value Equity, 1995 to 2019; Boston Partners Small Cap Value II Equity, 1998 to 2019; Boston Partners Long/Short Research, 2011 to 2019; Boston Partners Global Equity II, 2012 to 2019; Boston Partners International Equity II, 2008 to 2019; Boston Partners Global Long/Short, 2013 to 2019; and Boston Partners Emerging Markets Dynamic Equity, 2016 to 2019. The verification and performance examination reports are available upon request. A list of composite descriptions is available upon request. GIPS® is a registered trademark of the CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy of quality of the content contained herein.

Past performance is not indicative of future results. This document is not an offering of securities nor is it intended to provide investment advice. It is intended for informational purposes only.

### Composite Construction(s)

Performance results attained at Boston Partners are linked to the results achieved at BPAM beginning on January 1, 2007 in compliance with the GIPS® standards on performance record portability. Composites include all separately managed and commingled vehicles, fully discretionary, fee-paying accounts under management with a similar investment mandate. Prior to January 1, 2007 the minimum account size for inclusion in all the composites in existence noted above was \$5 million. After January 1, 2007, the minimum account size for composite inclusion was lowered to \$1million for all composites, except for the Boston Partners Small Cap Value Equity and Small Cap Value II Equity Composites; the account minimum for inclusion remained at \$5 million for those composites. No composites have a minimum account size for inclusion as of June 1, 2019. Some composites contain proprietary assets.

The inception and creation date of the **Boston Partners Large Cap Value Equity** composite is June 1, 1995. The strategy is composed of securities with market capitalizations primarily greater than \$3 billion and is benchmarked against Russell 1000® Value Index and the S&P 500 Index (secondary). Prior to December 1, 1995, there was no minimum market value requirement for inclusion in the Boston Partners Large Cap Value Equity composite. Accounts that did not meet the established minimum balance requirement on that date were removed.

The inception and creation date of the **Boston Partners Large Cap Concentrated Equity** composite is July 1, 2017. Under normal market conditions, the strategy is composed of 35 – 40 securities with market capitalizations primarily in the same capitalization range as the Russell 1000® Value Index. The composite is benchmarked against the Russell 1000® Value Index.

The inception and creation date of the **Boston Partners Premium Equity** composite is June 1, 1995. The strategy is a hybrid of Boston Partners' other equity products. It has the flexibility to invest across the capitalization spectrum and to invest in securities with equity-like return and risk profiles. Boston Partners Premium Equity is benchmarked against the Russell 3000® Value Index and the S&P 500 Index (secondary).

The inception and creation date of the **Boston Partners Mid Cap Value Equity** composite is May 1, 1995. Effective March 1, 2006, the Mid Cap Value Equity strategy is composed of securities primarily in the same market capitalization range, at time of purchase, as the Russell Midcap® Value Index. Effective January 1, 2005 the Boston Partners Mid Cap Value composite revised its benchmark from the Russell 2500™ Value Index to the Russell Midcap® Value Index. The Russell Midcap® Value Index has less of a bias toward smaller capitalization stocks and thus more accurately reflects the composition of Boston Partners holdings.

The inception and creation date of the **Boston Partners Small/Mid Cap Value Equity** composite is April 1, 1999. The strategy is generally composed of securities with market capitalizations, at the time of purchase, in the same market capitalization range as the Russell 2500™ Index. The composite is benchmarked against the Russell 2500™ Value Index. The Russell 2500™ Index is presented as supplemental information.

The inception and creation date of the **Boston Partners Small Cap Value Equity** composite is July 1, 1995. The strategy is generally composed of securities with market capitalizations, at the time of purchase, in the same market capitalization range as the Russell 2000® Index. The composite is benchmarked against the Russell 2000® Value Index. The Russell 2000® Index is presented as supplemental information. The inception date of the Boston Partners Small Cap Value II Equity composite is July 1, 1998. The composite was created in 2000. The strategy is generally composed of securities with market capitalizations, at the time of purchase, in the same market capitalization range as the Russell 2000® Index and in accordance with the product's selective investment in micro cap companies. The composite is benchmarked against the Russell 2000® Value Index.

The inception date and creation date of the **Boston Partners Long/Short Equity** composite is August 1, 1997. The strategy is an absolute return product that balances long and short portfolio strategies and seeks to achieve stable absolute returns with approximately half the risk of the S&P 500. However, this product is not risk neutral. It is exposed to style, capitalization, sector and short-implementation risks. Prior to October 1, 1998, the composite was managed on a non-fee paying basis. Participant results would have been substantially different if fee waivers were not applied. The composite is benchmarked against the S&P 500 Index and the Russell 3000® Value/Russell 3000® Growth for comparative



purposes only since the strategy is not correlated to equity market returns.

The inception and creation date of the **Boston Partners Long/Short Research Equity** composite is April 1, 2002. This strategy is an absolute return product that balances long and short portfolio strategies and seeks to achieve stable absolute returns with approximately half the risk of the S&P 500 Index. The strategy is benchmarked against the S&P 500 Index. The HFRI Equity Hedge (Total) Index is presented as supplemental information.

The inception and creation date of the **Boston Partners Global Equity II** composite is July 1, 2008. This strategy is unconstrained and primarily invests in equity securities in the global market without using hedges on currency. The strategy is benchmarked against the MSCI World Index-Net. Prior to August 1, 2017, the strategy was benchmarked to the MSCI World Index. Non-performance related statistics are measured against the MSCI World Index. The MSCI World Value Index-Net and the MSCI ACWI Index-Net are presented as supplemental information.

The inception date and creation date of the **Boston Partners International Equity II** composite is July 1, 2008. This strategy is unconstrained and primarily invests in non-us markets without using currency hedges. The strategy is benchmarked against the MSCI EAFE Index-Net as of August 1, 2017. From July 1, 2008 to June 30, 2010 the primary benchmark was MSCI EAFE Value Index and on July 1, 2010 the primary benchmark changed to the MSCI EAFE Index. This change to the MSCI EAFE Index was made retroactively to July 1, 2008. Non-performance related statistics are measured against the MSCI EAFE Index. The MSCI EAFE Value Index-Net and the MSCI ACWI ex U.S. Index-Net are presented as supplemental information.

The inception and creation date of the **Boston Partners Global Long/Short Equity** composite is July 1, 2013. The strategy is composed of securities with market capitalizations primarily greater than \$50 million and is benchmarked against the MSCI World Index-Net. Non-performance related statistics are measured against the MSCI World Index. Prior to August 1, 2017, the strategy was benchmarked to the MSCI World Index. The MSCI World Value Index-Net and the HFRI Equity Hedge (Total) Index are presented as supplemental information.

The inception and creation of the **Boston Partners Emerging Markets Dynamic Equity** composite is March 1, 2015. The strategy is composed of securities with market capitalizations

primarily greater than \$250 million and is benchmarked against the MSCI Emerging Markets Index-Net. Non-performance related statistics are measured against the MSCI Emerging Markets Index. Prior to August 1, 2017, the strategy was benchmarked to the MSCI Emerging Markets Index. The HFRI Equity Hedge (Total) Index is presented as supplemental information. Prior to July 1, 2020, the Boston Partners Emerging Markets Dynamic Equity Composite was named the Boston Partners Emerging Markets Long/Short Composite.

The inception and creation of the **Boston Partners Emerging Markets Equity** composite is July 1, 2017. The strategy is composed of securities with market capitalizations primarily greater than \$250 million and is benchmarked against the MSCI Emerging Markets Index-Net. Prior to August 1, 2017, the strategy was benchmarked to the MSCI Emerging Markets Index. Non-performance related statistics are measured against the MSCI Emerging Markets Index.

### Benchmarks

Index returns are provided for comparison purposes only to show how the composite's returns compare to a broad-based index of securities, as the indices do not have costs, fees, or other expenses associated with their performance. In addition, securities held in indices may not be similar to securities held in the composite's accounts.

The S&P 500® Index is an unmanaged index of the common stocks of 500 widely held U.S. companies.

All Russell® Indices are registered trademarks of the Frank Russell Company. The Russell® Value Indices typically measure the performance of universes of stocks displaying low price-to-book ratios and low forecasted growth values. The Russell® Growth Indices typically measure the performance of universes of stocks displaying high price-to-book ratios and high forecasted growth values. The Russell 1000® Index measures the performance of the large-cap segment of the U.S. equity universe. It includes the 1,000 largest companies in the Russell 3000® Index. The Russell 3000® Index measures performance of the 3,000 largest U.S. companies based on total market capitalization. The Russell 2500™ and 2000® Indices measure performance of the 2,500 and 2,000 smallest companies in the Russell 3000® Index respectively. The Russell Midcap® Index measures the performance of the 800 smallest companies in the Russell 1000® Index.

The MSCI Indices cover the full range of developed, emerging and All Country MSCI International Equity Indices across all size segmentations. MSCI style indices use a multi-factor

approach, which uses three variables (book value to price, 12-month forward earnings to price and dividend yield) to define the value investment style characteristics and five variables (long-term forward earnings per share ("EPS") growth rate, short-term forward EPS growth rate, current internal growth rate and long-term historical EPS growth trend and long-term historical sales per share growth trend) to define the growth investment style characteristics. The MSCI EAFE Index captures large and mid-cap equities across developed markets in Europe, Australasia and the Far East, excluding the U.S. and Canada. The MSCI World Index represents large and mid-cap equity performance across 23 developed markets countries, covering approximately 85% of the free float-adjusted market capitalization in each. The MSCI Emerging Markets Index captures large and mid cap representation across 26 emerging market countries covering approximately 85% of the free float-adjusted market capitalization in each country. The MSCI ACWI (All Country World Index) captures both the MSCI World and MSCI Emerging Markets Index covering approximately 85% of the global investable equity opportunity set. The MSCI ACWI ex-U.S. Index excludes the equity opportunity set within the U.S.

The HFRI Equity Hedge (Total) Index constituent funds typically maintain at least 50% exposure to, and may in some cases be entirely invested in, equities or equity derivative securities, both long and short. Constituents use a wide variety of investment processes and techniques, net exposure levels, leverage employed, holding periods, market capitalizations concentrations, and valuation ranges. Data cannot be shared or distributed without written consent.

Net total return indexes reinvest dividends after the deduction of withholding taxes, using (for international indexes) a tax rate applicable to non-resident institutional investors who do not benefit from double taxation treaties.

### Calculation Methodology

Composite account returns are asset value weighted using beginning of month asset values and composite account returns are calculated on a total return, time-weighted basis using trade date valuations. Composite returns are geometrically linked on a monthly basis. Effective January 1, 2011, Boston Partners adopted a significant cash flow policy. Accounts are temporarily removed from the composite when a significant external cash flow occurs, which is typically defined as a flow that is greater than or equal to 10% of the beginning market value of an account on the day of the flow; and greater than or equal to 10% of the beginning

# Boston Partners

## Performance disclosures (continued)

market value of the composite for that month. An account is generally added back to the composite as of the first full month following the significant cash flow. Returns reflect the reinvestment of dividends and other earnings and are expressed in U.S. Dollars unless otherwise noted. Additional information regarding policies for valuing accounts, calculating performance, and preparing compliant reports is available upon request.

### Fees and Expenses

Composite returns are provided on a gross and net of fee basis. Composite account returns will be reduced by any fees and expenses incurred in the management of the account. Net of fee composite returns are asset weighted and reflect the deduction of management fees, which may include performance-based fees, commissions and transaction costs, and are calculated by deducting actual fees charged to the accounts in a composite. Net of fee returns for commingled vehicles that are members of a composite are calculated using a model advisory fee equal to the highest applicable fee for the product; that fee is deducted from a composite's gross monthly return. Gross composite returns are calculated by deducting commissions and transaction costs charged to accounts in a composite. Fees are applied to gross returns at month end. Actual fees may vary depending on the applicable fee schedule and account size. Additional information regarding policies for valuing accounts, calculating performance, and preparing compliant reports is available upon request. Investment advisory fees are listed herein and are fully described in Boston Partners' Form ADV, Part 2.

### Composite Dispersion

The measurement of composite dispersion is calculated by the weighted average standard deviation of the annual account gross-of-fee returns within the composite. Dispersion in composites with less than five accounts included for the entire year is not considered meaningful and is denoted with "N/A". Prior to January 1, 2007, the measurement of composite dispersion was calculated by determining the difference between the highest and lowest annual account returns within the composite. The three-year annualized standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. This calculation has been adopted effective with the period ended December 31, 2011.

### Large Cap Value Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev. <sup>1</sup>	Bench. 3-Yr. Std. Dev. <sup>2</sup>	% of Firm AUM
2019:	133	\$ 25.3 bn	0.29%	12.48%	11.85%	11.94%	28%
2018:	142	\$22.4 bn	0.19%	12.16%	10.82%	10.80%	27%
2017:	141	\$25.4 bn	0.33%	11.57%	10.20%	9.92%	26%
2016:	156	\$25.3 bn	0.23%	11.95%	10.77%	10.59%	29%
2015:	167	\$24.6 bn	0.16%	11.28%	10.68%	10.47%	31%
2014:	151	\$25.2 bn	0.11%	9.83%	9.20%	8.98%	34%
2013:	129	\$16.5 bn	0.62%	13.77%	12.70%	11.94%	32%
2012:	105	\$8.6 bn	0.24%	16.50%	15.51%	15.09%	30%
2011:	99	\$5.1 bn	0.23%	20.03%	20.69%	18.71%	24%
2010:	89	\$4.8 bn	0.15%	n/a	n/a	n/a	26%

<sup>1</sup>Russell 1000® Value Index <sup>2</sup>S&P 500 Index

### Concentrated Large Cap Value Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	1	\$8 mm	n/a	n/a	n/a	0%
2018:	1	\$4 mm	n/a	n/a	n/a	0%
2017*:	1	\$3 mm	n/a	n/a	n/a	0%

\* 2017 performance period is from July 1.

### Premium Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev. <sup>1</sup>	Bench. 3-Yr. Std. Dev. <sup>2</sup>	% of Firm AUM
2019:	37	\$4.1 bn	0.12%	13.35%	12.01%	11.94%	5%
2018:	36	\$3.7 bn	0.11%	12.58%	11.06%	10.80%	5%
2017:	35	\$4.3 bn	0.17%	11.47%	10.33%	9.92%	4%
2016:	35	\$3.4 bn	0.10%	12.30%	10.97%	10.59%	4%
2015:	35	\$3.3 bn	0.09%	11.46%	10.74%	10.47%	4%
2014:	29	\$3.1 bn	0.14%	9.92%	9.36%	8.98%	4%
2013:	29	\$2.7 bn	0.53%	13.76%	12.90%	11.94%	5%
2012:	26	\$2.2 bn	0.17%	16.17%	15.81%	15.09%	7%
2011:	24	\$2.0 bn	0.19%	19.37%	21.04%	18.71%	9%
2010:	27	\$2.1 bn	0.43%	n/a	n/a	n/a	12%

<sup>1</sup>Russell 3000® Value Index <sup>2</sup>S&P 500 Index

### Mid Cap Value Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	40	\$20.1 bn	0.04%	13.25%	12.79%	22%
2018:	41	\$16.0 bn	0.16%	13.26%	11.96%	20%
2017:	36	\$20.9 bn	0.09%	11.56%	10.33%	21%
2016:	35	\$18.5 bn	0.09%	12.45%	11.30%	21%
2015:	37	\$15.3 bn	0.01%	10.97%	10.71%	20%
2014:	29	\$11.6 bn	0.12%	10.27%	9.81%	16%
2013:	16	\$7.6 bn	0.24%	14.83%	13.69%	15%
2012:	9	\$2.9 bn	0.01%	17.76%	16.76%	10%
2011:	4	\$1.0 bn	n/a	21.35%	22.78%	5%
2010:	3	\$306 mm	n/a	n/a	n/a	2%

### Small/Mid Cap Value Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	19	\$1.5 bn	0.08%	15.66%	14.23%	2%
2018:	20	\$1.1 bn	0.19%	14.64%	13.58%	1%
2017:	18	\$1.3 bn	0.30%	12.72%	11.81%	1%
2016:	18	\$1.0 bn	0.14%	13.90%	13.17%	1%
2015:	13	\$814 mm	0.14%	12.21%	12.02%	1%
2014:	10	\$499 mm	0.08%	11.65%	11.25%	1%
2013:	7	\$481 mm	0.13%	15.30%	15.07%	1%
2012:	7	\$367 mm	0.08%	18.30%	18.41%	1%
2011:	7	\$327 mm	0.10%	23.85%	24.23%	2%
2010:	7	\$384 mm	0.04%	n/a	n/a	2%

### Small Cap Value Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	20	\$1.6 bn	0.34%	15.31%	15.68%	2%
2018:	20	\$1.3 bn	0.24%	14.79%	15.76%	2%
2017:	20	\$1.4 bn	0.14%	13.46%	13.97%	1%
2016:	19	\$1.2 bn	0.21%	14.71%	15.50%	1%
2015:	19	\$1.0 bn	0.19%	13.03%	13.45%	1%
2014:	18	\$1.1 bn	0.26%	12.36%	12.79%	2%
2013:	16	\$1.1 bn	0.56%	15.69%	15.82%	2%
2012:	16	\$957 mm	0.20%	18.66%	19.89%	3%
2011:	17	\$923 mm	0.08%	24.94%	26.05%	4%
2010:	16	\$682 mm	0.16%	n/a	n/a	4%

### Small Cap Value Equity II:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	3	\$720 mm	n/a	15.37%	15.68%	1%
2018:	3	\$597 mm	n/a	14.78%	15.76%	1%
2017:	4	\$935 mm	n/a	13.21%	13.97%	1%
2016:	4	\$878 mm	n/a	14.36%	15.50%	1%
2015:	3	\$478 mm	n/a	12.78%	13.45%	1%
2014:	4	\$444 mm	n/a	12.11%	12.79%	1%
2013:	4	\$370 mm	n/a	15.63%	15.82%	1%
2012:	4	\$304 mm	n/a	18.46%	19.89%	1%
2011:	5	\$272 mm	0.10%	25.12%	26.05%	1%
2010:	6	\$300 mm	0.24%	n/a	n/a	2%

### Long/Short Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	2	\$311 mm	n/a	9.53%	11.93%	0%
2018:	2	\$515 mm	n/a	9.81%	10.80%	1%
2017:	2	\$1.1 bn	n/a	9.09%	9.92%	1%
2016:	2	\$1.1 bn	n/a	9.68%	10.77%	1%
2015:	2	\$687 mm	n/a	8.41%	10.47%	1%
2014:	2	\$958 mm	n/a	6.77%	8.98%	1%
2013:	2	\$965 mm	n/a	5.46%	11.94%	2%
2012:	2	\$829 mm	n/a	11.93%	15.09%	3%
2011:	2	\$626 mm	n/a	19.85%	18.71%	3%
2010:	2	\$440 mm	n/a	n/a	n/a	2%

### Long/Short Research:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	2	\$3.1 bn	n/a	7.57%	11.94%	4%
2018:	2	\$4.9 bn	n/a	7.11%	10.80%	6%
2017:	2	\$7.4 bn	n/a	6.40%	9.92%	7%
2016:	2	\$6.9 bn	n/a	6.64%	10.59%	8%
2015:	1	\$7.2 bn	n/a	6.13%	10.47%	9%
2014:	1	\$6.0 bn	n/a	5.52%	8.98%	8%
2013:	1	\$2.9 bn	n/a	7.95%	11.94%	6%
2012:	1	\$492 mm	n/a	9.86%	15.09%	2%
2011:	1	\$97 mm	n/a	10.70%	18.71%	0%
2010:	1	\$9 mm	n/a	n/a	n/a	0%

### Global Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	9	\$1.7 bn	0.15%	11.28%	11.14%	2%
2018:	9	\$1.5 bn	0.09%	11.02%	10.38%	2%
2017:	8	\$1.5 bn	0.11%	10.49%	10.23%	2%
2016:	4	\$699 mm	n/a	11.28%	10.94%	1%
2015:	3	\$438 mm	n/a	10.76%	10.80%	1%
2014:	1	\$27 mm	n/a	10.48%	10.22%	0%
2013:	2	\$66 mm	n/a	13.73%	13.52%	0%
2012:	2	\$18 mm	n/a	17.23%	16.72%	0%
2011:	1	\$8 mm	n/a	20.11%	20.15%	0%
2010:	1	\$9 mm	n/a	n/a	n/a	0%

### International Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	n/a	\$1.8 bn	0.13%	11.41%	10.81%	2%
2018:	6	\$1.4 bn	0.05%	11.98%	11.24%	2%
2017:	5	\$1.2 bn	0.10%	11.31%	11.83%	1%
2016:	3	\$603 mm	n/a	11.81%	12.48%	1%
2015:	1	\$261 mm	n/a	11.07%	12.47%	0%
2014:	2	\$33 mm	n/a	11.77%	12.99%	0%
2013:	2	\$20 mm	n/a	14.28%	16.21%	0%
2012:	2	\$18 mm	n/a	18.16%	19.34%	0%
2011:	1	\$6 mm	n/a	21.73%	22.40%	0%
2010:	1	\$6 mm	n/a	n/a	n/a	0%

### Global Long/Short Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	1	\$558 mm	n/a	5.24%	11.14%	1%
2018:	1	\$861 mm	n/a	5.09%	10.38%	1%
2017:	1	\$1.0 bn	n/a	4.92%	10.23%	1%
2016:	1	\$868 mm	n/a	5.33%	10.94%	1%
2015:	1	\$629 mm	n/a	n/a	n/a	1%
2014:	1	\$125 mm	n/a	n/a	n/a	0%
2013*:	1	\$3 mm	n/a	n/a	n/a	0%

\* 2013 performance period is from July 1.

### Emerging Markets Dynamic Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	2	\$210 mm	n/a	10.80%	14.17%	0%
2018:	1	\$177 mm	n/a	9.48%	14.60%	0%
2017:	1	\$211 mm	n/a	n/a	n/a	0%
2016:	1	\$11 mm	n/a	n/a	n/a	0%
2015*:	1	\$3 mm	n/a	n/a	n/a	0%

\* 2015 performance period is from March 1.

### Emerging Markets Equity:

	# of Accts. in Comp.	Total Assets in Comp.	Comp. Dispersion	Comp. 3-Yr. Std. Dev.	Bench. 3-Yr. Std. Dev.	% of Firm AUM
2019:	1	\$10 mm	n/a	n/a	n/a	0%
2018:	1	\$4 mm	n/a	n/a	n/a	0%
2017*:	1	\$3 mm	n/a	n/a	n/a	0%

\* 2017 performance period is from July 1.

### Firm Assets:

Year	Assets (mm)	Year	Assets (mm)
2019:	\$89,368	2014:	\$73,250
2018:	\$81,550	2013:	\$52,334
2017:	\$99,241	2012:	\$29,023
2016:	\$87,222	2011:	\$21,098
2015:	\$78,363	2010:	\$18,419

### Other Disclosures

GICS (Global Industry Classification Standard) sector classification is used. All product characteristics and sector weightings are calculated using a representative account. Risk statistics are calculated using composite data. Account composition is subject to change and information contained in this publication may not be representative of the current account. Foreign investors may have taxes withheld. Investing involves risk including the risk of loss of principal. Value investing involves buying the stocks of companies that are out of favor or are undervalued. This may adversely affect an account's value and return. Stock values fluctuate in response to issuer, political, regulatory, market or economic developments. The value of small and mid-capitalization securities may be more volatile than those of larger issuers, but larger issuers could fall out of favor. Investments in foreign issuers may be more volatile than in the U.S. market, and international investing is subject to special risks including, but not limited to, currency risk associated with non - U.S. dollar denominated securities, which may be affected by fluctuations in currency exchange rates, political, social or economic instability, and differences in taxation, auditing and other financial practices. Investments in emerging markets may increase risks.

For those composites that utilize short selling, short sales theoretically involve unlimited loss potential since the market price of securities sold short may continuously increase. This may have the effect of increased leverage and constitutes the use of leverage. For those composites that utilize derivatives, derivative investments may involve risks such as potential illiquid markets and additional risk of loss of principal.

Boston Partners participates in Initial Public Offerings (IPOs) as described in its Form ADV, Part 2. IPO contributions to performance vary from year to year depending on availability and prevailing market conditions. IPO contributions may have a significant positive effect on performance when initially purchased. Such positive performance should not be expected for future performance periods.

### Performance Restatement

Due to the retroactive application of our Tax Loss Harvesting Policy, an account with tax restrictions was temporarily removed from the Boston Partners Large Cap Value Composite in Q4 2019. The 2019 annualized gross and net composite returns have been restated: 4th Quarter from 7.80% and 7.71% to 8.10% and 8.01%; 1 Year from 23.83% and 23.46%

to 24.18% and 23.79%; 3 Year from 10.72% and 10.39% to 10.83% and 10.49%; 5 Year from 8.36% and 8.03% to 8.42% and 8.09%; 7 Year from 12.58% and 12.22% to 12.62% and 12.27%; 10 Year from 12.34% and 11.95% to 12.37% and 11.98%; 15 Year from 9.38% and 9.01% to 9.40% and 9.03%; 20 Year from 9.22% and 8.84% to 9.23% and 8.85%; and since inception from 10.85% and 10.48% to 10.87% and 10.49%, respectively.

### Annual Fee Schedules

**Large Cap:** 70 basis points ("bp") on the first \$10 million in assets; 50 bp on the next \$40 million; 40 bp on the next \$50 million; 30 bp thereafter. **Concentrated Large Cap:** 70 basis points ("bp") on the first \$10 million in assets; 50 bp on the next \$40 million; 40 bp on the next \$50 million; 30 bp thereafter. **Premium Equity:** 80 bp on the first \$25 million of assets; 60 bp on the next \$25 million; 50 bp on the next \$50 million; 40 bp thereafter. **Mid Cap:** 80 bp on the first \$25 million of assets; 60 bp thereafter. **Small/Mid Cap, Small Cap, and Small Cap II:** 100 bp on the first \$25 million of assets; 80 bp thereafter. **Long/Short:** 100 bp on total assets under management; plus 20% profit participation. **Long/Short Research:** 150 basis points. **Global Equity and International Equity:** 75 basis points ("bp") on the first \$25 million in assets; 65 bp on the next \$25 million; 55 bp on the next \$50 million; 50 bp thereafter. **Global Long/Short:** 200 bp on total assets under management. **Emerging Markets Dynamic Equity:** 150 bp on total assets under management. **Emerging Markets Equity:** 95 basis points ("bp") on the first \$25 million in assets; 85 bp on the next \$25 million; 75 bp on the next \$50 million; 70 bp thereafter.

### Corporate Information

Boston Partners is affiliated with listed corporations through common ownership. ORIX Corporation Europe N.V. services may be offered in the U.S. through Robeco Institutional Asset Management, U.S., an SEC Registered Investment Adviser registered under the Investment Advisers Act of 1940. Transtrend products may be offered in the U.S. through Boston Partners Securities, LLC, member FINRA, SIPC. Boston Partners is authorized to transact as an Investment Adviser and maintains a Securities License by the Government of Guam Department of Revenue and Taxation. It also maintains a Certificate of Authority to transact business on Guam as a Foreign Corporation. In addition, Boston Partners is registered in Korea with the Financial Services Commission (FSC).



NEPC, LLC

**Firm: CarVal Investors, LP (“CarVal” or the “Firm”)**

**Strategy/Product: CVI Credit Value Fund IV (“CVF IV” or the “Fund”)**

**Client: MWRA Retirement System**

### **NEPC Manager Due Diligence Questionnaire - Update**

#### **Instructions**

In support of our upcoming meeting we ask that you please complete this due diligence questionnaire. Please provide your responses in the form of brief descriptions, lists or tables added directly to this Word document.

Thank you for taking the time to complete this questionnaire. Please note that your response will be part of the NEPC Research Database.

#### **Firm/Organization**

1. Have there been any changes in ownership or management in the past year?

Tom Bauwens, principal, resigned from the Firm in July 2020. The Firm is now beneficially owned by 15 partners, comprised of the three managing principals, all 10 principals, the chief financial officer and the general counsel and chief compliance officer.

2. List firm AUM, net flows and accounts gained/lost for the past 5 years.

The current funds under management are as follows. AUM figures provided in the below table are as of January 31, 2021, unless otherwise noted.



Investment Offering	Vintage	Structure	Stage	Total Commitments (\$ millions)	Total Called-to-Date (%)	AUM (\$ millions)
<b>Commingled Closed-End Credit Funds</b>						
CVI Credit Value Fund V*	2021-2024	Drawdown	Open/Investing	3,320	10%	332
CVI Credit Value Fund IV	2018-2022	Drawdown	Closed/Investing	3,010	97%	3,035
CVI Credit Value Fund III	2015-2018	Drawdown	Closed/Harvesting	3,021	95%	1,280
CVI Credit Value Fund II	2013-2016	Drawdown	Closed/Harvesting	2,305	95%	165
CVI Credit Value Fund	2011-2013	Drawdown	Closed/Harvesting	844	95%	17
CVI Global Value Fund II	2008-2011	Drawdown	Closed/Harvesting	1,956	95%	2
CVI Global Value Fund	2007-2011	Drawdown	Closed/Harvesting	5,777	95%	8
CVI Aviation Income Fund	2020-2023	Drawdown	Closed/Investing	234	5%	11
CVI Clean Energy Fund*	2020-2022	Drawdown	Open/Investing	288	35%	94
CVI Emerging Markets Credit Opportunities Fund	2020-2022	Drawdown	Closed/Investing	168	45%	91
CVI Shipping Opportunities Fund	2015-2017	Drawdown	Closed/Harvesting	256	92%	95
<b>Commingled Evergreen Credit Funds</b>						
CarVal Global Credit Fund	N/A	Evergreen	Open/Investing	N/A	N/A	357
CVI Emerging Markets Credit Value Fund	N/A	Evergreen	Closed/Distributing	N/A	N/A	68
<b>Single-Investor Funds</b>						
Collective Single-Investor Funds	N/A	Various	Open/Investing	N/A	N/A	2,467
Cargill Managed Account**	1987-2007	Drawdown	Closed/Harvesting	N/A	N/A	5
<b>Corporate Loans Platform</b>						
CarVal CLO I	2018	CLO-B5L	Reinvestment Period	N/A	N/A	450
CarVal CLO II	2019	CLO-B5L	Reinvestment Period	N/A	N/A	648
CarVal CLO III	2019	CLO-B5L	Reinvestment Period	N/A	N/A	450
<b>Commingled Closed-End Real Estate Funds***</b>						
Collective Real Estate Funds	2004-2017	Drawdown	Closed/Harvesting	433	N/A	25
<b>Total Assets Under Management</b>				<b>21,613</b>		<b>9,601</b>

\*Pending final close; AUM represents capital called-to-date

\*\*As of November 30, 2020

\*\*\*As of September 30, 2020

**CVI Credit Value Fund V (CVF V)** – A fund formed to invest primarily in 2021-2024 vintage liquidations, whole loan portfolios, leveraged credit, corporate restructurings and structured credit, primarily in developed markets.

**CVI Credit Value Fund IV (CVF IV)** – A fund formed to invest primarily in 2018-2022 vintage liquidations, whole loan portfolios, leveraged credit, corporate restructurings and structured credit, primarily in developed markets.

**CVI Credit Value Fund III (CVF III)** – A fund formed to invest primarily in 2015-2018 vintage liquidations, whole loan portfolios, leveraged credit, corporate restructurings and structured credit, primarily in developed markets.

**CVI Credit Value Fund II (CVF II)** – A fund formed to invest primarily in 2013-2016 vintage liquidations, whole loan portfolios, leveraged credit, corporate restructurings and structured credit, primarily in developed markets.

**CVI Credit Value Fund (CVF)** – A fund formed to invest primarily in 2011-2013 vintage liquidations, whole loan portfolios, leveraged credit, corporate restructurings and structured credit, primarily in developed markets.

**CVI Global Value Fund (GVF I and GVF II)<sup>1</sup>** – A fund formed to invest primarily in 2007-2011 vintage liquidations, whole loan portfolios, corporate securities, structured credit, commercial real estate and hard assets globally.

<sup>1</sup> GVF II comprises the interests held by investors that were admitted to GVF from the first top-off closing on April 30, 2008 through November 2008, and GVF I comprises the interests held by investors that were admitted to GVF from January 2007 through, but not including, the first top-off closing in April 30, 2008.



**CVI Aviation Income Fund (AIF)** – A fund formed to invest primarily in 2020-2023 leased commercial aircraft and aviation-related securities, focusing on new and early life aircraft, longer-term leases and good credit-quality lessees.

**CVI Clean Energy Fund (CEF)** – A fund formed to invest primarily in 2020-2022 investment opportunities in or with a nexus to clean energy, renewable energy or energy usage efficiencies.

**CVI Emerging Markets Credit Opportunities Fund (EMCOF)** – A fund formed to invest primarily in 2020-2021 vintage whole loan portfolios, leveraged credit and corporate restructurings across Asia and Latin America.

**CVI Shipping Opportunities Fund (SOF)** – A fund formed to acquire a portfolio of dry bulk vessels, partnering with GoodBulk Ltd. for sourcing, due diligence and operational expertise.

**CarVal Global Credit Fund (GCF)** – An evergreen fund formed to invest in liquidations, whole loan portfolios, leveraged credit, corporate restructurings and structured credit globally.

**CVI Emerging Markets Credit Value Fund (EMCVF)** – An evergreen fund formed to invest in opportunities such as public and private corporate securities, corporate restructurings and other credit opportunities in the Emerging Markets.

**Collective Single-Investor Funds** – Funds-of-one formed for investors to invest primarily in liquidations, whole loan portfolios, leveraged credit, corporate restructurings and structured credit globally.

**Cargill Managed Account (CMA)** – A separate account managed on behalf of Cargill to invest in 1987-2007 vintage liquidations, whole loan portfolios, corporate securities, structured credit, commercial real estate and hard assets globally.

**CarVal CLO I, CarVal CLO II and CarVal CLO III** – Open market collateralized loan securitization vehicles that closed between 2018-2019, that are managed by a wholly-owned, relying adviser affiliate of CarVal.

**Collective Real Estate Funds** – Funds formed to pursue value-added real estate investments across vintages spanning 2004-2017.

### 3. Have there been any new or discontinued products in the past year?

Funds liquidated in the past year include:

- Single-Investor Fund (closed August 2020)
- Single-Investor Fund (closed October 2020)

New products include the following:

- CarVal is in the market raising a new flagship closed-end credit value fund approximately every two years. These funds tend to be \$2.5 to \$3.5 billion in size. Following the raise of CVF V, we would expect to be back to market with CVF VI in 2022.
- CarVal is fundraising for a clean energy focused closed-end fund (CVI Clean Energy Fund or “CEF”), which held its first close in December 2019 and has now closed on \$406 million in capital commitments (through February 2021). The Fund will focus on investment opportunities in or with a nexus to clean energy, renewable energy or energy usage efficiencies. Following the raise of CEF, we would expect to be back to market with CEF II in H2 2021.
- CarVal issued its third CLO in third quarter of 2019 and expects to raise more CLOs in the coming years. We currently have a warehouse facility open for a fourth CLO and anticipate the launch of CLO IV in H1 2021.
- CarVal is in the early stages of fundraising for our second emerging markets focused closed-end fund (CVI Emerging Markets Credit Opportunities Fund II or “EMCOF II”). The Fund will focus on opportunistic credit investments in Latin America and Asia, and we anticipate the first close occurring in H2 2021.



4. Are any products capacity constrained?

Yes; generally CarVal-managed funds are capacity constrained. The anticipated new products above have the following maximum capacities: CEF II (\$1.0 billion), EMCOF II (\$750 million).

5. Describe any current or pending regulatory, compliance or litigation issues and the expected business impact.

Because CarVal invests in distressed and credit-intensive assets, many transactions throughout our history have resulted in litigation/arbitration. The litigation/arbitration is generally part of the investment strategy and does not have a material impact on the performance of any prior fund.

CarVal's general counsel and CCO is available to discuss further, if so desired.

### Portfolio Management Team

1. Have there been any changes in the portfolio management team in the past year?

Since December 31, 2019, there have been two senior credit investment professional departures (at the MD level and above). Please see details below.

Departure Date	Name	Position	Asset Class	Region
Nov-2020	Ayaz Asaf	Managing Director	Corporate Securities	Europe
July-2020	Tom Bauwens	Principal	Corporate Securities	Europe

Investment professional promotions (at the MD level and above) during the past year included:

- M'hamed Chahir was promoted to Managing Director, Corporate Securities
- Arpan Dusad was promoted to Managing Director, Loan Portfolios
- Jess Dvorak was promoted to Managing Director, Loan Portfolios
- Alex Flamm was promoted to Managing Director, Corporate Securities
- Jonathan Hunt was promoted to Managing Director, Loan Portfolios
- Ryan Morrell was promoted to Managing Director, Corporate Securities
- Gabriel Szerda was promoted to Managing Director, High Yield

2. Are there any expected changes to the team in the future (planned additions or departures)?

CarVal continuously reviews the needs of the business and the skills of the team and seeks to add new team members as opportunities warrant. As such, expansion will be organic and opportunistic.

### Process

1. Have there been significant changes in any of the areas below in the past year?





- Identification of investment ideas
- Process for exploring and vetting ideas
- Portfolio trading practices including buy/sell rules
- Approach to portfolio monitoring and risk management

There have been no significant changes to the above.

### Philosophy

1. Describe recent changes in investment philosophy, if any.

There have been no recent material changes in our investment philosophy.

### Portfolio

1. If not included in your meeting presentation, provide portfolio holdings, sector exposure, geographic exposure and common characteristics (yield, duration, market cap, P/E, etc.).

Please refer to the enclosure entitled, *CVI Credit Value Fund IV Fourth Quarter Report December 31, 2020*.

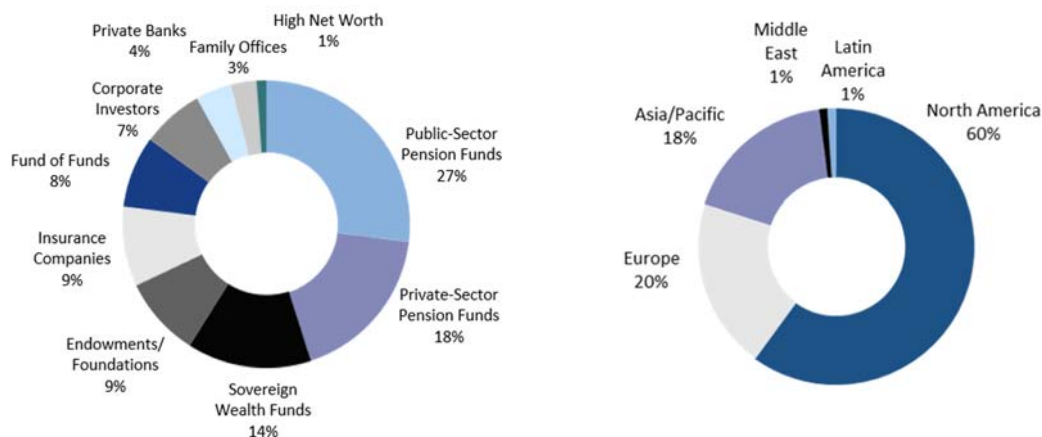
2. List strategy AUM, net flows and accounts gained/lost for the past 5 years.

In September 2020, consent was received to extend the Fund's investment period by 12 months, therefore, the Investment period will now end April 30, 2022.

As of January 31, 2021, the Fund was 97% called and the AUM was \$3,035 million. In January 2021, the Fund made its first distribution of \$211 million which is fully recallable.

3. Describe investor concentration for the strategy and note the percent of AUM attributable to the top five investors.

There are 86 external investors within the Fund, which are diversified across the following investor types and geographies as of December 31, 2020:



The top five investors represent 39% of Fund AUM as of December 31, 2020.

**Performance / Market Outlook**

1. If not included in your meeting presentation, provide trailing returns as of the most recent quarter-end and calendar year returns for the past 10 years, both relative to benchmark.

Trailing net returns for the Fund are below as of December 31, 2020.

Period	Return
Q4 2020	5.5%
YTD 2020	-0.2%
YTD 2019	11.0%
Since Inception <sup>2</sup>	5.5%

2. Briefly discuss recent performance trends and identify environments in which the strategy is likely to be in or out of favor.

One of CarVal’s strengths is the breadth of the credit platform, targeting strategies across the investment spectrum and in multiple geographies. While much listed credit appears fully priced, many private market strategies remain compelling and are the focus of our investment activity. CarVal’s Portfolio Investment Committee has reviewed and approved a long list of opportunities in sectors such as aviation, commercial real estate debt, consumer and sub-performing loan portfolios, and renewable energy. Not every one of these situations will ultimately lead to a transaction, but there is no shortage of opportunities and target returns generally remain high.

3. Describe your market outlook and how strategy positioning is impacted by your views.

Throughout our history, CarVal has used its broad capabilities to target strategies across the investment spectrum. This cycle and 2021 are no exception. Today, we are balancing the solid, principal-protected, credit-remote opportunities on the left (below) with the severely impacted, deeply discounted opportunities on the right.

<sup>2</sup> Since inception performance is annualized.



In the credit-remote part of the spectrum, we're investing in safer assets. For example, clean energy is an area to invest in high credit quality, long-duration contracted cash flows. Moving across the spectrum, we are also investing in classic value trades created by the capital vacuums as banks tighten credit. CarVal is well-placed to step in and provide CRE loans and asset-backed structured financings. Finally, on the right, we are excited about the opportunity the 2020 crisis brought us to invest in classic distressed (impaired) opportunities which are at the heart of CarVal's DNA.

4. Could you please include a slide in your presentation that shows the MWRA's account history, initial contribution, cumulative subsequent contributions, cumulative subsequent distributions, gain/loss and current value.

Yes, this information has been included in the presentation.



## **Disclaimers**

**Confidentiality and distribution.** The information set forth in these materials (the "Materials") is strictly confidential and intended solely for the benefit of the recipient, and may not be reproduced, re-transmitted, shared and/or disseminated.

**Reliability of information.** CarVal Investors, L.P. ("CarVal") believes that the information which forms the basis of the statements and calculations contained herein to be reliable but makes no representation or warranty as to such information or the Materials. Nor does CarVal make any representation or warranty as to the accuracy and completeness of any translation based on the original English version of the Materials.

**Date.** All time sensitive information in the Materials is provided as of the date indicated, unless stated otherwise. CarVal does not intend to update or otherwise revise the Materials to reflect circumstances existing or events occurring after this date.

**Complete disclosures.** More complete disclosures and the terms and conditions relating to investments in any CarVal-managed investment vehicle are contained in the governing agreements for such CarVal-managed investment vehicle.

**No offer to purchase or sell securities.** The information contained in the Materials is not, and should not be construed as, a solicitation to buy, an offer to sell, or advice or recommendation regarding the any CarVal-managed investment vehicle or any security or product. No offering of securities is made by or pursuant to the Materials. This summary is only being provided to "Qualified Purchasers" (within the meaning of the Investment Company Act of 1940, as amended) or similarly sophisticated potential investors in other jurisdictions.

**Third parties.** Certain information contained herein may have been provided by third-party sources, and, although believed to be reliable, has not been independently verified and cannot be guaranteed.

**No reliance, no update and use of information.** You may not rely on the Materials as the basis upon which to make an investment decision. To the extent that you rely on the Materials in connection with any investment decision, you do so at your own risk. The Materials do not purport to be complete on any topic addressed. The information in the Materials is provided to you as of the dates indicated and CarVal does not intend to update the information after its distribution, even in the event that the information becomes materially inaccurate. Certain information contained in the Materials includes calculations or figures which have been prepared internally and have not been audited or verified by a third party. Use of different methods for preparing, calculating or presenting information may lead to different results and such differences may be material. Moreover, the information provided herein has been adapted in a good faith effort to satisfy the requirements of the requested format, which differs in some respects from CarVal's standard reporting processes.

**No tax, legal, accounting or investment advice.** The Materials are not intended to provide and should not be relied upon for tax, legal, accounting or investment advice. Any statements of federal tax consequences in the Materials were not intended to be used and cannot be used to avoid penalties under the Internal Revenue Code.

**Investment objectives.** No representation is made that any CarVal-managed investment vehicle, presented strategy, or any investment will or is likely to achieve its objectives, that any Investor will or is likely to achieve results comparable to the actual or derived (projected) performance shown, will make any profit at all or will be able to avoid incurring substantial losses.

**Past performance.** Past performance is not indicative of future results and should not be relied upon as the basis for making an investment decision.

**Factors affecting performance.** Certain performance figures described herein may be based on, among other things, certain market or economic conditions in existence at the time the investments were made and/or held, the availability of particular financing arrangements, and the ability of CarVal to reinvest fund earnings, all of which may not apply or be available to future periods of investment or future CarVal-managed investment vehicles. The lack of similar market or economic conditions and/or the inability of any such CarVal-managed investment vehicles to achieve similar financing or



reinvestment arrangements could have a material effect on their performance. Moreover, CarVal funds commonly use a revolving subscription line facility to provide funds in anticipation of calling capital from limited partners. Net IRR differs from what it would have been had such subscription line facility not been used for such purpose. The relevant contribution date for purposes of computing Net IRR is the date of the capital contribution by limited partners.

**Risk of loss.** CarVal's investment strategies are highly speculative and there can be no assurance that any of the strategies' investment objectives will be achieved. Investors in any CarVal-managed investment vehicle must be prepared to bear the risk of a total loss of their investment.

# CARVAL INVESTORS



CARVAL  
INVESTORS®

# PRESENTING TODAY



**Jody Gunderson** - Ms. Gunderson is a managing principal and member of the Investment Committee for CarVal Investors, responsible for leading the firm's investment strategy and management, as well as its global loan portfolios and clean energy businesses. In addition, Ms. Gunderson manages investments in asset-backed securities globally, including residential mortgage-backed securities, commercial mortgage-backed securities and collateralized loan obligations. Prior to joining CarVal in 1994, Ms. Gunderson was a manager in the financial services practice of PricewaterhouseCoopers where she served investment fund, commercial banking and thrift clients. Ms. Gunderson earned her B.S. degree in Business from the University of Minnesota and is a Certified Public Accountant (inactive).



**Ryan Savell** - Mr. Savell is a managing director for CarVal Investors, responsible for global fundraising and investor relations. Prior to joining CarVal in 2007, Mr. Savell was a product specialist with Dresdner RCM in San Francisco working with the small cap equity and international equity investment teams, and was an associate with Dresdner RCM in the institutional sales and client service group. Mr. Savell has a B.A. in economics and political science from Bucknell University.

# CARVAL INVESTORS: FIRM OVERVIEW

As of December 31, 2020

## Global Alternative Investment Manager

- 100% employee-owned firm with approximately 185 employees
- \$10 billion in assets under management
- 33-year global track record in opportunistic and distressed credit
- Invested \$126 billion in 5,510 transactions in 82 countries
- Responsible Investing Policy, UNPRI signatory

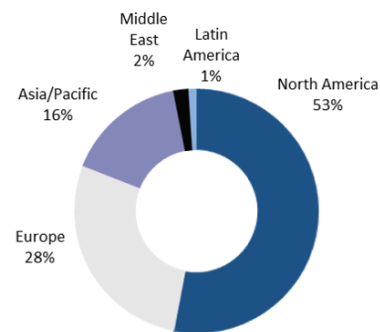
## Specialists in Complex Credit

- Approximately 70 investment professionals in the U.S., Europe and Asia
- Ability to capitalize on traded and private market opportunities across the full credit spectrum – performing, stressed, distressed
- Sourcing and origination – We estimate that approximately 80% of deals are completed on a negotiated or lightly competitive basis\*

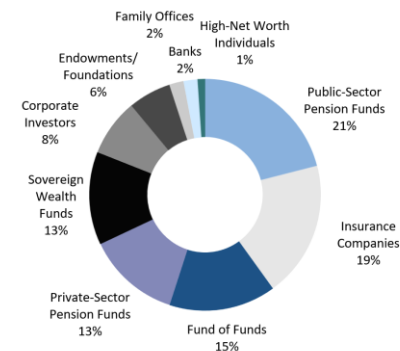
## Diverse and Stable Investor Base

- Over 300 institutional investors
- Most recent three flagship funds oversubscribed; returning investors represented more than 80% of capital in CVF IV

Investors by Geography



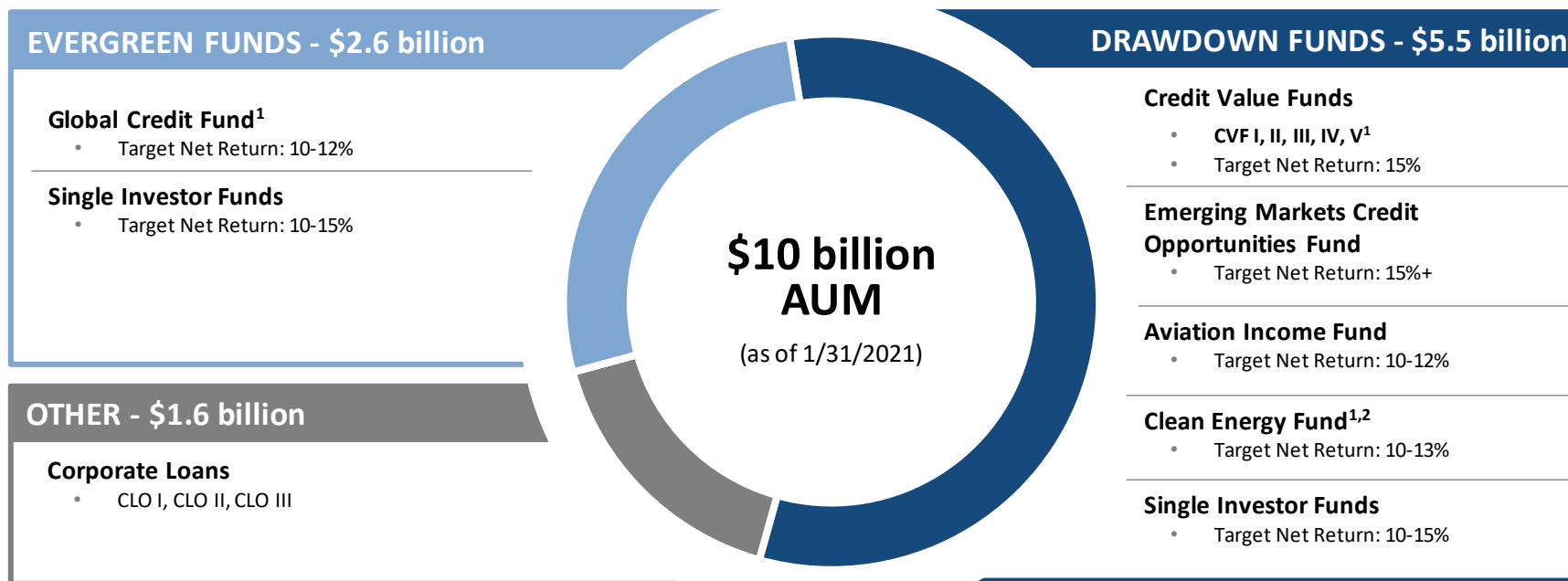
Investors by Type



\*Measured during the period from January 2020–December 2020. Includes invested equity for hard asset, loan portfolios, and renewable deals.



# CARVAL INVESTORS PLATFORM



<sup>1</sup>Open for investment

<sup>2</sup>This Fund is not being offered in the United Kingdom or any country of the European Economic Area. Other open funds are offered in select EEA jurisdictions only.

CarVal's diverse base of funds allows access to the firm's proprietary global credit platform

*In addition to the funds specified above, CarVal's AUM includes the residual value of the Global Value Fund, Shipping Opportunities Fund, Emerging Markets Credit Value Fund, Real Estate funds and the Cargill Managed Account. See disclaimers regarding Risk of Loss and Targeted Returns.*

# 34-YEAR HISTORY OF STABLE RETURNS ACROSS MARKET CYCLES

Fund data as of February 28, 2021 (estimate)

STAGE	INVESTING	DISTRIBUTING	MATURED				
<i>Fund-Level Net IRR<sup>1</sup></i>							
	7.5%	8.0%	8.2%	19.4%	17.5%	6.9%	21.2%
	CVI Credit Value Fund IV	CVI Credit Value Fund III	CVI Credit Value Fund II	CVI Credit Value Fund I	CVI Global Value Fund II	CVI Global Value Fund I	Cargill Managed Account <sup>2</sup>
Vintage	2018	2015	2013	2011	2008	2007	1987-2007
Committed Capital (\$bn)	\$3.0	\$3.0	\$2.3	\$0.8	\$2.0	\$5.8	-
IRR (ITD) <sup>1</sup>	7.5%	8.0%	8.2%	19.4%	17.5%	6.9%	21.2%
TVPI (ITD)	1.13x	1.28x	1.40x	2.26x	2.01x	1.44x	-
DPI (ITD)	0.07x	0.88x	1.39x	2.24x	2.01x	1.44x	-
Preqin Quartile Ranking	-	First	Second	First	First	Second	-
2021 (YTD) <sup>1</sup>	4.9%	1.6%	n.m. <sup>3</sup>	n.m. <sup>3</sup>	n.m. <sup>3</sup>	n.m. <sup>3</sup>	-

The Preqin Quartile Ranking is sourced from Preqin data as of February 2021. The data is comprised of various sources and various "as of dates." Completeness and accuracy is not guaranteed. Preqin's Quartile Ranking Methodology: The net IRR and multiple of each constituent fund is used to determine the fund's overall quartile rank, with equal weighting. The ranking applies to funds that have reported data within the past two years. Eight funds must report in order to constitute a benchmark. Each vintage must season for three years before quartile rankings are assigned.

<sup>1</sup>2021 figures are YTD (not annualized) net time-weighted returns of CVF III-IV for stated time periods, inclusive of realized and unrealized results. IRRs: CVF I-IV= actual Net IRRs for those investment vehicles. GVF I-II = actual Net IRRs for those investment vehicles, exclusive of those investors that elected to redeem, performance for hedge-fund style (H Class) investors, Cargill's investment performance and employee coinvestment. Employees do not pay management or performance fees to CarVal, and Cargill, as both investor and former owner of the Management Company, bears certain taxes that are not borne by third party investors. Consequently, showing the Fund return exclusive of these investors is more representative of the performance of third-party investors in the Fund. In addition, limiting the return to private-equity style (P Class) investors more accurately portrays the return experience for a private equity investor within the hybrid fund structure. CMA = a modeled Net IRR, excluding direct real estate investment.

<sup>2</sup>Separate account managed for Cargill; track record does not include real estate (see disclaimer regarding CMA track record).  
<sup>3</sup>n.m. YTD return information is not provided for funds after the end of the initial harvest period (not including any extensions), as only a small proportion of a Fund's assets generally remain at this stage.

Additional information is available upon request.  
 Note: CarVal also manages multiple single investor funds, open-ended funds and single-strategy focused funds. The track records for those funds are not included here but are available upon request.  
 Past performance is not indicative of future results.

# OPPORTUNISTIC CREDIT INVESTORS FOCUSED ON FOUR CORE ASSET CLASSES

## OPPORTUNISTIC CREDIT INVESTING



- Distressed Securities
- Bankruptcies and liquidations
- Leveraged Loans
- High Yield Bonds
- CLOs



- Residential Mortgages
- Consumer
- Small Business
- CRE-backed Mezzanine Debt



- Issuer of Mortgage-Backed Securities
- Buyer of Asset-Backed Securities



- Aviation
- Shipping
- Renewable Energy
- Other hard assets

Active management of investments across our four boxes allows us the opportunity to achieve a balanced portfolio and targeted returns with less risk

# DEEP-SECTOR EXPERTISE AMONG SENIOR INVESTMENT TEAM

CORPORATE LOANS, EMERGING MARKETS, HARD ASSETS, REAL ESTATE					U.S. AND EUROPE CORPORATE SECURITIES		LOAN PORTFOLIOS, STRUCTURED CREDIT, CLEAN ENERGY		
<b>LUCAS DETOR</b> Managing Principal 25 years					<b>JAMES GANLEY</b> Managing Principal 30 years		<b>JODY GUNDERSON</b> Managing Principal 27 years		
AVIATION	SHIPPING & WORKOUT	CORPORATE LOAN BUSINESS	EMERGING MARKETS CORPORATE SECURITIES	U.S. CRE CREDIT	U.S. CORPORATE SECURITIES	EUROPE CORPORATE SECURITIES	LOAN PORTFOLIOS	STRUCTURED CREDIT	CLEAN ENERGY
<b>Justin Bradburn</b> Principal 24 years	<b>Greg Belonogoff</b> Principal 23 years	<b>Chris Mawn</b> Managing Director 20 years	<b>Gerardo Bernáldez</b> Principal 31 years	<b>Seth Cohen</b> Principal 21 years  <b>Dave Pelka</b> Principal 18 years  <b>Paul Mullaney</b> Managing Director 34 years	<b>Jerry Keefe</b> Principal 31 years  <b>John Withrow</b> Principal 20 years	<b>Bryan Simpson</b> Managing Director 21 years	<b>Seth Cohen</b> Principal 21 years  <b>Stuart Lammin</b> Principal 33 years  <b>Dave Pelka</b> Principal 18 years  <b>James Sackett</b> Principal 26 years  <b>Angie Fenske</b> Managing Director 20 years	<b>Neil Hepworth</b> Managing Director 18 years  <b>Shane Huether</b> Executive Adviser 26 years	<b>Jerry Keefe</b> Principal 31 years  <b>Stuart Lammin</b> Principal 33 years  <b>Angie Fenske</b> Managing Director 20 years
					<b>RISK</b>				
					<b>David Fry</b> Chief Risk Officer 30 years				

The senior credit investment team averages 25 years investment experience and 12 years with CarVal

*Note: Years denote industry experience. This slide does not represent an official CarVal organizational chart.*

# CARVAL BUSINESS UPDATE

CarVal's diverse  
platform has served  
the firm well in this  
new cycle

## Performance and Fund Management

- Strong YTD performance across our flagship credit funds and single investor funds
- Distributed over \$11 billion to investors since 2016; harvested legacy assets into strength of market
- Final close of Aviation Income Fund in November 2020
- Final close of Clean Energy Fund to occur by March 2021
- Final close of CVI Credit Value Fund V to occur by May 2021

## Active Market Participant in this Cycle

- Invested over \$4 billion in 2020
- Invested over \$2 billion in renewable energy ITD
- Launched third CLO; \$1.5 billion AUM across CLO platform
- Active issuer of securitizations in U.S. and European commercial, residential and consumer loans
- Building Asia business
  - Developed a joint venture with Wensheng in Shanghai
  - Completed large investment in Indian steel company

## Socially Responsible Investing

- Joined Sustainability Accounting Standards Board (SASB) in 2019
- Became a UNPRI Signatory in 2021

# RESPONSIBLE INVESTING

## CarVal's Responsible Investing Policy in brief:

- We will incorporate ESG issues into investment analysis and decision-making process
- CarVal is a signatory of the United Nations Principles for Responsible Investment
- Except where the UN Principles are in conflict with CarVal's broader fiduciary responsibilities, they form the basis of CarVal's commitment to RI
- CarVal has established a Responsible Investing Committee headed by the Chief Financial Officer and a managing principal to monitor the effectiveness and implementation of this policy

**CarVal is a member of SASB, Sustainability Accounting Standards Board and a Signatory of UNPRI**

## CarVal's Responsible Investing Policy

- Since 1987, CarVal has adhered to strict investment discipline and strong ethics and compliance. In 2017, CarVal built on this discipline by adopting a formal Responsible Investing Policy based on the United Nations Principles for Responsible Investment.
- The investment team and the Portfolio Investment Committee will incorporate Environmental, Social and Governance (ESG) issues into all investment analysis and decision making. While ESG issues may not be the determinant of an investment decision, they will be incorporated into investment analysis and will be considered by the Portfolio Investment Committee on every investment.
- CarVal screens and excludes a limited set of industries, including certain types of weapons manufacturing – e.g., nuclear weapons, landmines and cluster munitions

### CARVAL INVESTORS Responsible Investing Policy

Last Reviewed: 2/11/2019  
Responsible For Content: Chris Hedberg

#### POLICY

#### COMMITMENT STATEMENT

CarVal Investors, LP and its affiliates ("CarVal" or the "Company") believe environmental, social and governance factors have the potential to influence investment outcomes. CarVal is therefore committed to incorporate these factors into investment decision-making whenever CarVal believes they have a significant impact on risk or returns.

CarVal looks to the United Nations Principles for Responsible Investment ("UNPRI") for guidance and is committed to adhering to them where they are consistent with CarVal's broader fiduciary responsibilities.

#### A. General

##### 1. Responsible Investing Background

Responsible Investment is an approach to investing that aims to incorporate environmental, social and governance (ESG) factors into investment decisions, to better manage risk and generate sustainable, long-term returns. Generally, the factors include issues such as:

- Environmental - Climate change and greenhouse gas emissions; resource depletion; water quality; waste and pollution; deforestation.
- Social - Working conditions & child labour; local communities including indigenous communities; conflict; health and safety; employee relations and diversity.

#### POLICY OBJECTIVES

The aim of this Policy is to establish a framework for the inclusion of environmental, social & governance factors into investment decision-making, to describe the means by which this Policy will be reviewed and by which the outcomes will be reported.

#### POLICY OVERVIEW

The Policy addresses the key aspects of CarVal's commitment to Responsible Investing. These include:

- CarVal is committed to adhering to the United Nations Principles for Responsible Investment ("UNPRI" and "the Principles"). See the Appendix for details of UNPRI.
- Except where the Principles are in conflict, CarVal's broader fiduciary responsibilities they form the basis of CarVal's commitment to Responsible Investing.
- Nothing in this policy constitutes a commitment that ESG factors will be utilized in every situation; discretion is retained by the investment team.
- Nothing in this policy is a commitment that ESG factors will be the primary determinant of any investment decision, simply that they may be considered, where appropriate.
- CarVal has established a Responsible Investing Committee headed by the Chief Financial Officer to monitor the effectiveness and implementation of this policy.



ALLIANCE

ORGANIZATIONAL  
MEMBER

Signatory of:



# MARKET OPPORTUNITY

# INVESTMENT STRATEGY IN A CRISIS: CARVAL'S LESSONS FROM OVER THREE DECADES INVESTING

## Stage 1: TRADING

- Extreme volatility as fund flows overwhelm dealer capital
- Margin calls lead to rapid deleveraging
- Good assets sold to generate cash

**Bank and Insurance Tier Capital**

AV:LN. Capital & dividend - nothing to fear but fear itself

Bond Yield 15%+

**TDF**

- **Overview**
  - Owner and operator of TV, radio and mobile broadcasting towers mainly in France
  - Dominant market position in France (former monopolist)
- **Opportunity**
  - Bank debt: Technical sell off after Lehman pushing prices from 90s to 50s
  - Fundamentally sound business with stable cash flows during the crisis
- **Trade**
  - Investment peak: \$48 million

CARVAL INVESTORS

## Stage 2: DISTRESSED ASSETS

- Financial restructuring of impaired balance sheets
- Focus on COVID-sensitive sectors – transportation, leisure, entertainment, retail

**Heidelberg Cement**

CVI Global Value Fund - Corporate Securities

- **Overview**
  - #4 global producer of heavy building materials (cement, aggregates, building materials)
  - 65,000 employees in more than 27 countries globally
  - Listed in Germany

**UPC**

CVI Global Value Fund - Corporate Securities

- **Overview**
  - Biggest operator of cable networks in Europe, 17 million homes passed, 12 million customers
  - Present in 10 countries among which: Netherlands, Switzerland, Austria, Ireland and Chile
  - Owned by Liberty Global (Listed on NASDAQ)
- **Opportunity**
  - Bank debt: Technical sell off after Lehman pushing prices from 90s to 60s
  - Highly diversified business with stable cash flows during the crisis
- **Trade**
  - Investment peak: \$96 million

CARVAL INVESTORS

## Stage 3: CAPITAL VACUUMS/ORPHANED ASSETS

- New capital structures required by viable assets
- Strategic disposals/repositioning
- Capital returns to recovering asset classes

**Education Media**

HOUGHTON MIFFLIN HARCOURT

CVI Global Value Fund - Corporate Securities

- **Overview**
  - Combination of Houghton Mifflin and Harcourt Education's K-12 educational book publishing businesses
  - Products include textbooks, workbooks, tests, software, assessment materials and other educational products

**Corporate Securities Market Opportunity: EETC**

CVI Global Value Fund - Opportunities

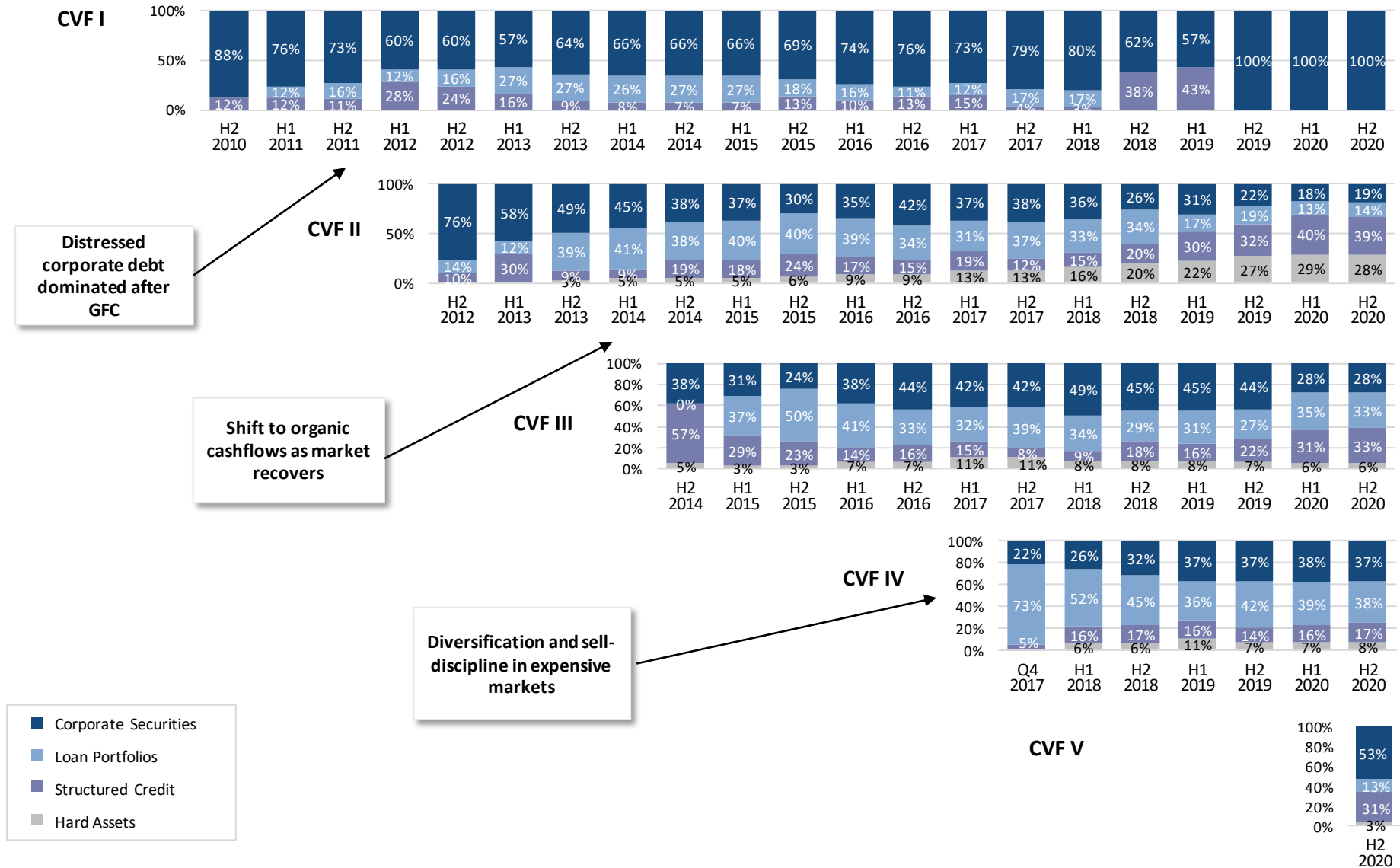
- \$150 million+ investment in U.S. Airways carrier securitized debt transaction (EETC) in August 2009
- Orphaned asset - Block trade of multiple tranches at a significant discount from a liquidating portfolio within a major financial institution
- Collateralized by 48 new generation aircraft
  - 18% loan to value through senior tranche, 44% loan to value through junior tranche (values are from AVITAS \$980 million)
  - Implied purchase price of \$10 million per aircraft is supported by the value in the engines alone
- Equity in transaction is represented by the operator and significant stakeholder in the airline
- MBIA-insured transaction, not priced in base case
- Underlying aircraft are critical to the lessee's domestic route structure and fleet

CARVAL INVESTORS

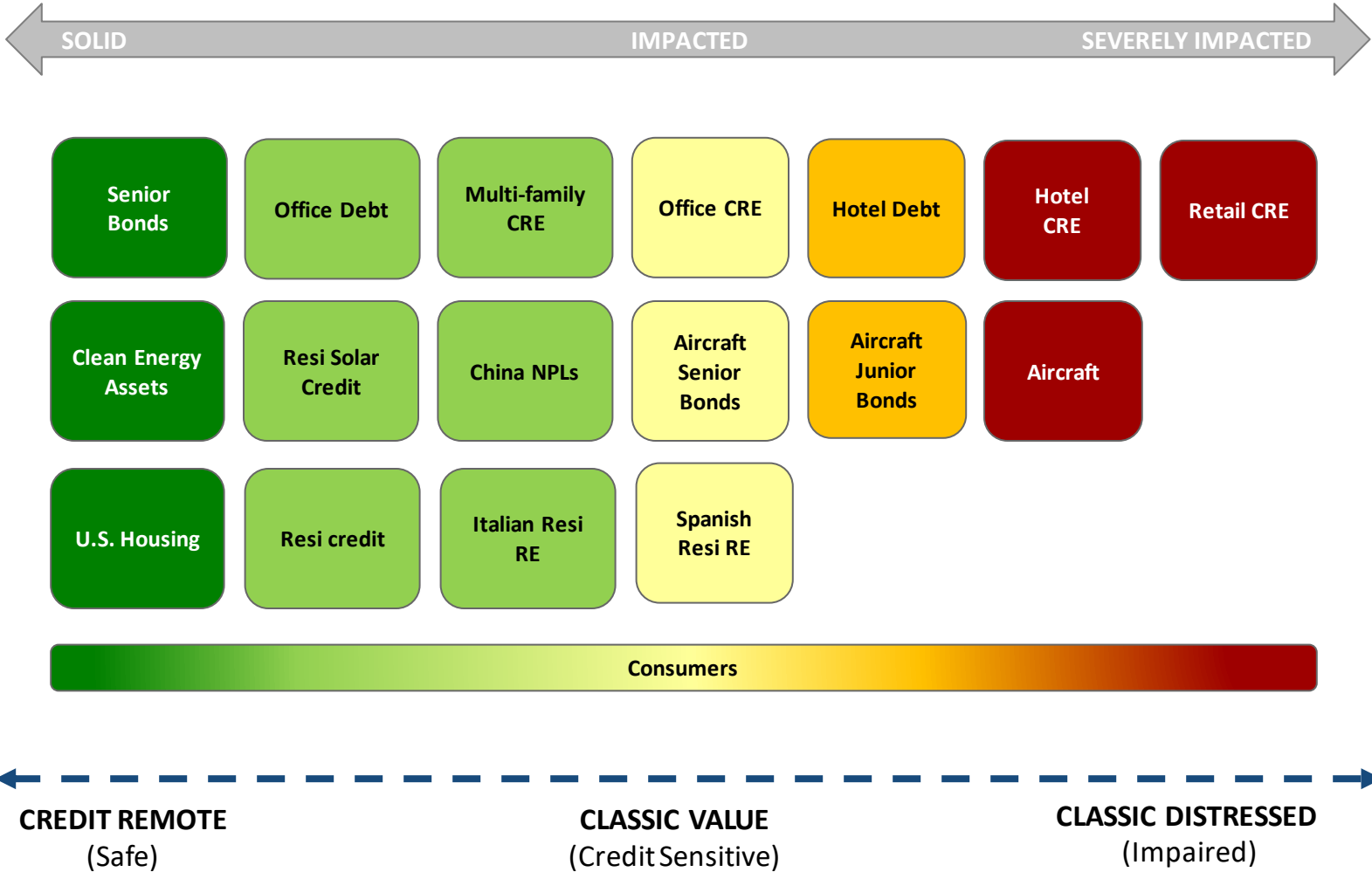


# PORTFOLIO EVOLUTION: MOVING CAPITAL TO THE OPPORTUNITIES

As of December 31, 2020

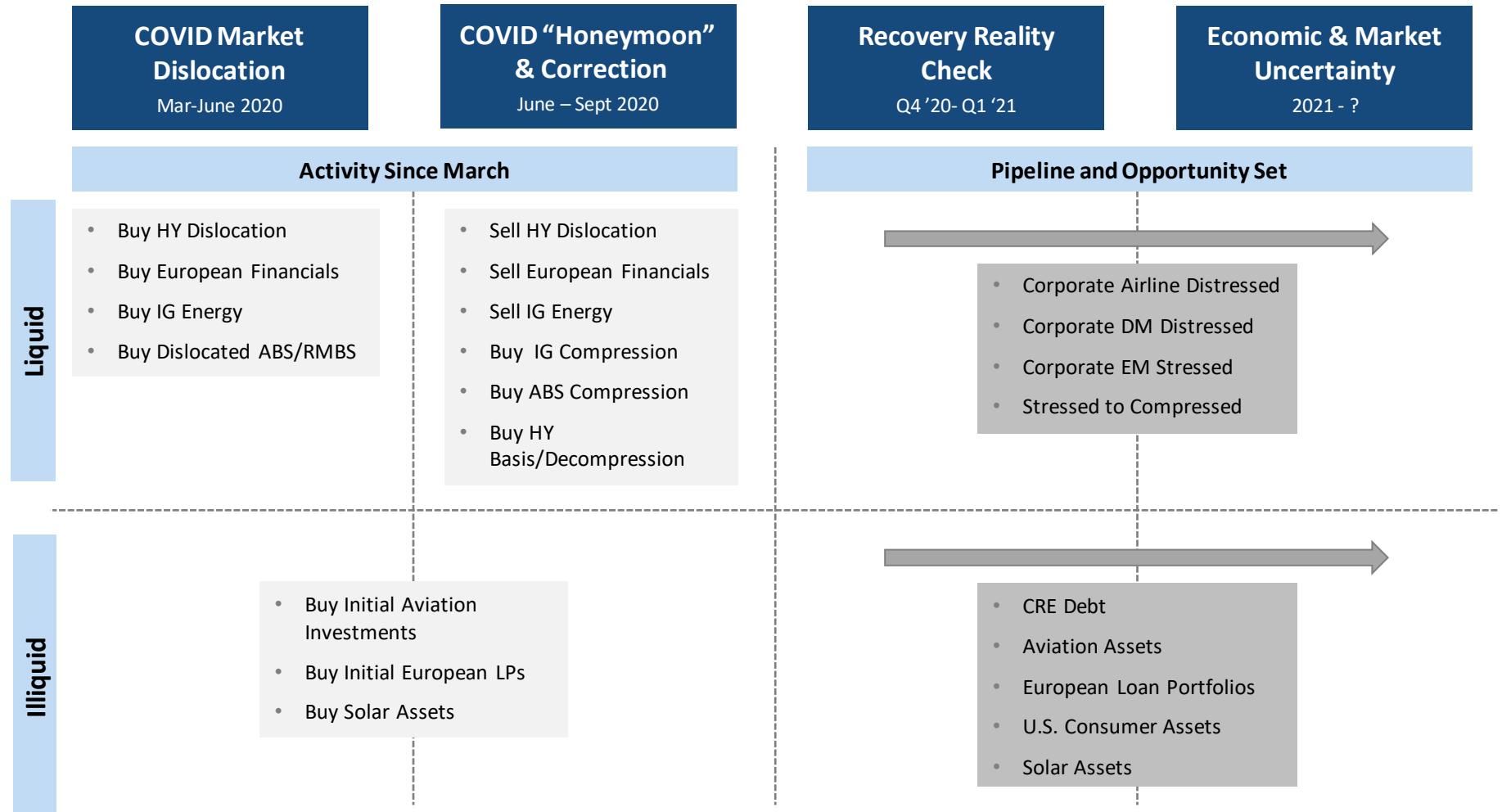


# CRISIS CREATES OPPORTUNITIES TO BUY VALUE AS WELL AS A PIPELINE OF DISTRESS



*Based on CarVal's general view of the market and subject to change.*

# USING THE FULL TOOLBOX THROUGH CYCLE



*The investment opportunities are for illustrative purposes only. The pipeline changes frequently. CarVal makes no representation that any CarVal-managed investment vehicle has or will participate in these investment opportunities. See disclaimer regarding risk of loss and investment objectives.*

# INVESTMENT FOCUS TODAY ACROSS FOUR BOXES



- Financials
- Restructurings
- Energy and Renewables
- Bankruptcies and liquidations
- High yield bonds
- Retail



- Aircraft ABS
- U.S. and European CMBS
- U.S. reperforming mortgage loan securitizations



- \$68 billion Illiquid annual opportunity set<sup>1</sup>
- Newer, higher quality aircraft
- EETCs
- Bankruptcies and liquidations



- European loan portfolios (estimated €1.22 trillion in NPLs<sup>2</sup>)
- U.S. commercial real estate debt with focus on hospitality (hospitality debt outstanding estimated to be \$300 billion today<sup>3</sup>)
- Secondary debt on REITs (large universe of CUSIPS, with \$68 billion of issuance in 2019 and \$20 billion in 2020 YTD<sup>3</sup>)
- Renewable energy
- U.S. consumer
- Re-performing loans
- Chinese NPLs (approximately \$0.4 trillion of NPLs in banking system<sup>4</sup>)

<sup>1</sup>Source: Ascend and CarVal Investors data; as of January 2019

<sup>2</sup>Source: Morgan Stanley, SNL Financial, FitchConnect, ESM calculations, Deutsche Bank

<sup>3</sup>Sources: Mortgage Bankers Association Q2 2020; Trepp October 2020 Delinquency Report

<sup>4</sup>Source: Pepper China NPL – Market Report; 2020 H1

# CVF IV PERFORMANCE

# CVF IV: PERFORMANCE SUMMARY

As of February 28, 2021 (estimate)  
(\$ millions)

Fund	Vintage	Fund Size	Called %	Contributions	Distributions	NAV	Net IRR	Net Multiple
CVF IV	2018-2022	\$3,010.2	97%	\$2,922.9	\$213.9	\$3,102.8	7.5%	1.13x

*CVI Credit Value Fund IV (CVF IV) – A fund formed to invest primarily in 2018-2022 vintage liquidations, whole loan portfolios, leveraged credit, corporate restructurings and structured credit, primarily in developed markets.*

## Calendar Year Net Returns\*

2021 YTD	2020	2019	2018
4.9%	-0.2%	11.0%	4.7%

\*Calendar Year Net Returns: represent net time-weighted returns for stated time periods, inclusive of realized and unrealized results. 2021 figures are YTD (not annualized).

# MWRA: PERFORMANCE SUMMARY

As of February 28, 2021 (estimate)  
(\$ millions)

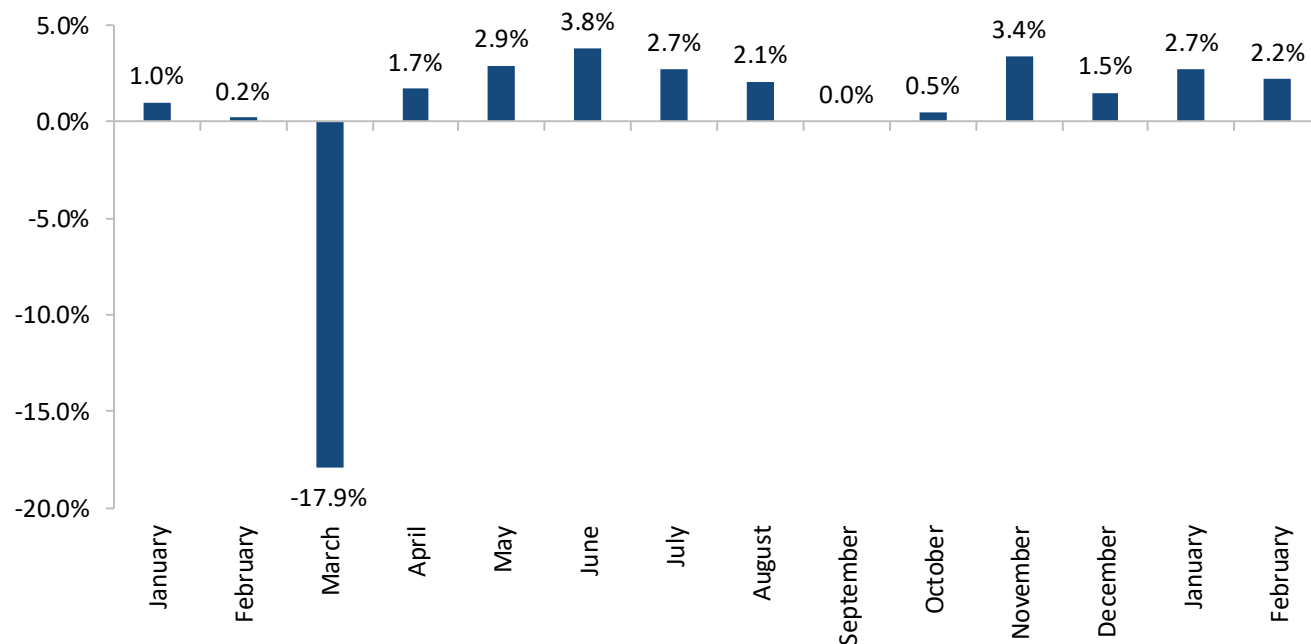
Fund	Capital Commitment	Called %	Invested Capital	ITD Distributions*	NAV	2021 YTD Net Return <sup>1</sup>	Current Net IRR
CVF IV	\$6.0	97%	\$5.8	\$0.4	\$6.2	5.0%	7.7%

\* Includes January 2021 distribution of capital available to recall.

<sup>1</sup> Calendar Year Net Returns: represent net time-weighted returns for stated time periods, inclusive of realized and unrealized results. 2021 figures are YTD (not annualized).

# CVF IV: MONTHLY FUND PERFORMANCE

As of February 28, 2021 (estimate)



CVF IV Calendar Year Net Returns\*

Year	Net Return
2018	4.7%
2019	11.0%
2020	-0.2%
2021 YTD	4.9%

- Top positive contributors for the year are energy (\$43 million), RMBS (\$24 million), and leisure and entertainment (\$17 million)\*\*

\*Calendar Year Net Returns: represent net time-weighted returns for stated time periods, inclusive of realized and unrealized results. 2021 figures are YTD (not annualized).

\*\*Profit does not include a deduction for fund-level costs, expenses or performance or management fees.

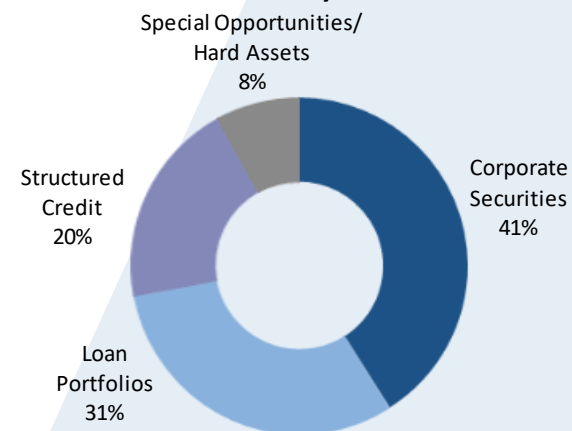


# CVF IV PORTFOLIO COMPOSITION

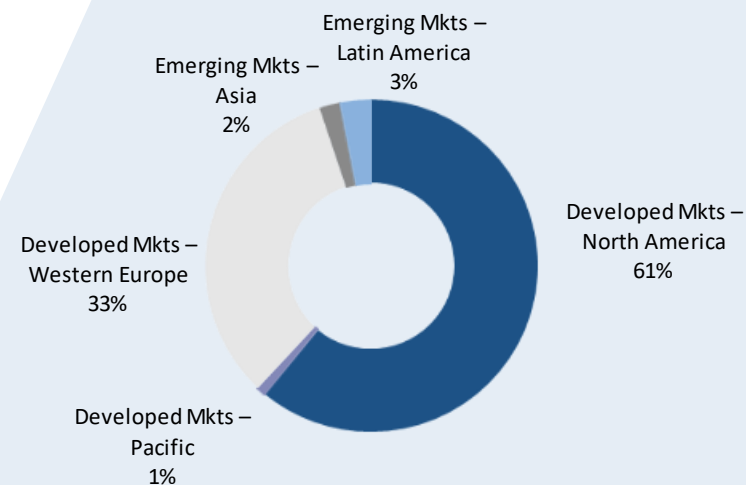
As of February 28, 2021 (estimate)  
(\$ millions)

Investment Strategy	Portfolio Composition*	
	\$	%
Structured Credit - RMBS	\$383.1	12.0%
U.S. Corporate Credit - Communications	306.5	9.6%
U.S. Loan Portfolios - Consumer	229.0	7.1%
U.S. Loan Portfolios - Residential	221.9	6.9%
Hard Assets - Aircraft Leasing	205.6	6.4%
U.S. Corporate Credit - Alternative Energy	197.0	6.1%
European Loan Portfolios - Commercial	194.1	6.1%
Commercial Real Estate Debt	126.0	3.9%
European Corporate Credit - Financial Services	112.4	3.5%
Structured Credit - CLO	107.6	3.4%
<b>Top 10 Strategies</b>	<b>\$2,083.2</b>	<b>65.0%</b>
Other Strategies	1,122.5	35.0%
<b>CVF IV Grand Total</b>	<b>\$3,205.7</b>	<b>100.0%</b>

CVF IV Portfolio by Asset Class\*



CVF IV Portfolio by Region\*



\*Figures based on Portfolio Composition which includes carrying value and recourse third-party debt.

# DISCLAIMER

---

- 1. Confidentiality and distribution.** The information set forth in these materials (the "Materials") is strictly confidential and intended solely for the benefit of the recipient, and may not be reproduced, re-transmitted, shared and/or disseminated.
- 2. Reliability of information.** CarVal Investors, L.P. ("CarVal") believes that the information which forms the basis of the statements and calculations contained herein to be reliable but makes no representation or warranty as to such information or the Materials. Nor does CarVal make any representation or warranty as to the accuracy and completeness of any translation based on the original English version of the Materials.
- 3. Date.** All time sensitive information in the Materials is provided as of the date indicated, unless stated otherwise. CarVal does not intend to update or otherwise revise the Materials to reflect circumstances existing or events occurring after this date.
- 4. Complete disclosures.** More complete disclosures and the terms and conditions relating to investments in any CarVal-managed investment vehicle are contained in the governing agreements for such CarVal-managed investment vehicle.
- 5. No offer to purchase or sell securities.** The information contained in the Materials is not, and should not be construed as, a solicitation to buy, an offer to sell, or advice or recommendation regarding the any CarVal-managed investment vehicle or any security or product. No offering of securities is made by or pursuant to the Materials. This summary is only being provided to "Qualified Purchasers" (within the meaning of the Investment Company Act of 1940, as amended) or similarly sophisticated potential investors in other jurisdictions.
- 6. Third parties.** Certain information contained herein may have been provided by third-party sources, and, although believed to be reliable, has not been independently verified and cannot be guaranteed.
- 7. Investment objectives.** No representation is made that any CarVal-managed investment vehicle, presented strategy, or any investment will or is likely to achieve its objectives, that any Investor will or is likely to achieve results comparable to the actual or derived (projected) performance shown, will make any profit at all or will be able to avoid incurring substantial losses.
- 8. Past performance.** Past performance is not indicative of future results and should not be relied upon as the basis for making an investment decision.
- 9. Risk of loss.** CarVal's investment strategies are highly speculative and there can be no assurance that any of the strategies' investment objectives will be achieved. Investors in any CarVal-managed investment vehicle must be prepared to bear the risk of a total loss of their investment.
- 10. Projections.** "Projections" (including targeted returns, opinions, predictions or expectations about any future event) contained in the Materials are based on a variety of estimates and assumptions by CarVal including, but not limited to, estimates of future operating results, the value of assets and market conditions at the time of disposition and the timing and manner of disposition or other realization events. These estimates and assumptions are inherently uncertain and are subject to business, industry, market, regulatory, geo-political, competitive and financial risks which are outside of the control of CarVal. There can be no assurance that the assumptions made will prove accurate and actual results may differ materially, including the possibility that an investor may lose some or all of invested capital. The inclusion of the Projections herein should not be regarded as an indication that CarVal considers the Projections to be a reliable prediction of future events and the Projections should not be relied upon as such. CarVal has not made any representation to any person regarding the Projections and does not intend to update or otherwise revise the Projections to reflect circumstances existing after the date when made or to reflect the occurrence of future events, even in the event that any or all of the assumptions underlying the Projections are later shown to be in error.
- 11. No tax, legal, accounting or investment advice.** The Materials are not intended to provide and should not be relied upon for tax, legal, accounting or investment advice. Any statements of federal tax consequences in the Materials were not intended to be used and cannot be used to avoid penalties under the Internal Revenue Code.
- 12. Factors Affecting Performance.** Certain performance figures described herein may be based on, among other things, certain market or economic conditions in existence at the time the investments were made and/or held, the availability of particular financing arrangements, and the ability of CarVal to reinvest fund earnings, all of which may not apply or be available to future periods of investment or future CarVal-managed investment vehicles. The lack of similar market or economic conditions and/or the inability of any such CarVal-managed investment vehicles to achieve similar financing or reinvestment arrangements could have a material effect on their performance.
- 13. No reliance, no update and use of information.** You may not rely on the Materials as the basis upon which to make an investment decision. To the extent that you rely on the Materials in connection with any investment decision, you do so at your own risk. The Materials do not purport to be complete on any topic addressed. The information in the Materials is provided to you as of the dates indicated and CarVal does not intend to update the information after its distribution, even in the event that the information becomes materially inaccurate. Certain information contained in the Materials includes calculations or figures which have been prepared internally and have not been audited or verified by a third party. Use of different methods for preparing, calculating or presenting information may lead to different results and such differences may be material.

# CARVAL INVESTORS®

## CVI CREDIT VALUE FUND IV

Fourth Quarter Report - December 31, 2020

### HIGHLIGHTS

The CVI Credit Value Fund IV ("the Fund") produced net returns of 5.52% for the quarter and -0.22% for the year. Net profits of \$165.3 million were driven by financial services, CMBS and residential loan portfolios.

New investment activity in the Fund totaled \$493.2 million, with proceeds of \$723.5 million from trading activity and collections. Included in this activity, we funded \$23.5 million for the acquisition of new loan portfolio deals during the quarter.

The Fund ended the quarter with 203 investments in 556 instruments and a total net asset value of \$3.2 billion. North American assets represented 60% of portfolio value with the majority of the remaining assets in Western Europe (33%). The largest position was in North American residential loan portfolios. The Fund ended the quarter with a debt-to-assets ratio of 23% and approximately \$493.4 million in cash and cash equivalents.

### FUND PERFORMANCE

#### Fourth Quarter Net Returns by Month†:

October 2020	0.53%
November 2020	3.44%
December 2020	1.46%
<b>Quarter-to-Date</b>	<b>5.52%</b>
<b>Fiscal Year</b>	<b>-0.22%</b>
<b>Net IRR</b>	<b>5.20%</b>

† Returns include accrual for performance fees

#### Return Metrics

<b>Net TVPI</b>	<b>1.08</b>
<b>Net RVPI</b>	<b>1.08</b>
<b>Net DPI</b>	<b>0.00</b>

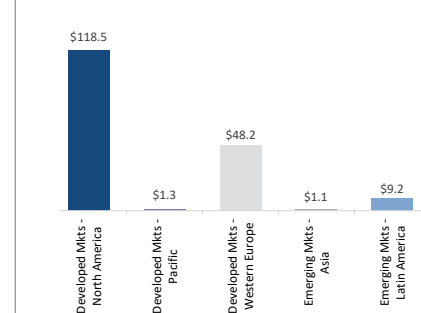
#### TOTAL FUND CAPITALIZATION

Fund Size	\$3.0 billion
<b>Funded-to-Date</b>	<b>\$2.9 billion (97%)</b>
Unfunded	\$0.1 billion (3%)

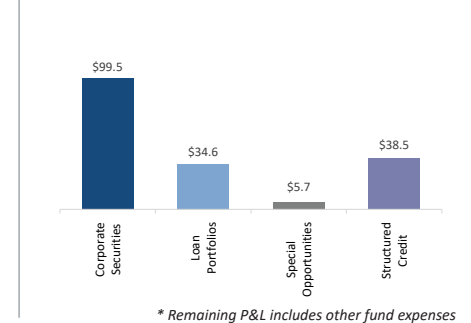
### PROFIT & LOSS

- \$246.2 million of net profits since the Fund's inception
- \$165.3 million of net profits during the quarter
- Top positive contributors for the quarter were financial services, CMBS and residential loan portfolios
- Top negative contributor for the quarter was transportation (non-auto)

QTD P&L\* by Region  
(in millions)



QTD P&L\* by Asset Class  
(in millions)



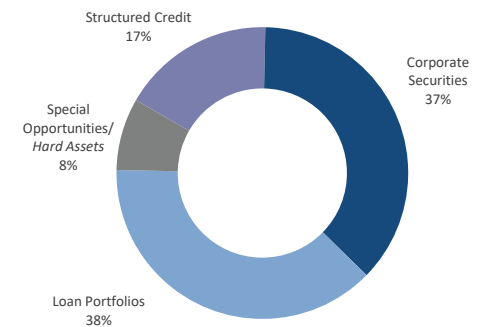
### PORTFOLIO COMPOSITION

- \$3.2 billion portfolio value
- Invested in 21 countries
- 95% of investments held in developed markets
- Assets concentrated in North America (60%) and Western Europe (33%)
- 203 investments representing 556 instruments

#### Investment activity for the quarter:

- Invested \$493.2 million on behalf of the Fund and had proceeds from trading activity and collections of \$723.5 million

#### Portfolio\* by Asset Class



\*Portfolio composition includes carrying value and recourse third-party debt

The information set forth in these materials (the "Materials") is strictly confidential and intended solely for the benefit of existing investors (each an "Investor") in CVI Credit Value Fund IV (the "Fund"), and may not be reproduced, re-transmitted, shared and/or disseminated. All fund-level P&L noted in the materials is net (after fund expenses and all asset class and investment P&L is gross (before fund expenses, management fees, and performance fees).

## CORPORATE SECURITIES

- Corporate Securities gross profits totaled \$99.5 million
  - \$1.2 billion portfolio value
    - Assets concentrated in North America (63%) and Western Europe (23%)
  - Largest positions were in communications and alternative energy
  - Purchased approximately \$409.1 million in new securities and received approximately \$471.6 million from dispositions and other activity
- 

## LOAN PORTFOLIOS

- Loan Portfolios produced \$34.6 million of gross profits
  - Profits were driven by residential (\$20.9 million), consumer (\$9.9 million) and real estate (\$2.2 million) loan portfolios
  - 118 investments in the portfolio with a value of \$1.2 billion
  - Invested approximately \$51.6 million in loan portfolio transactions and fundings under existing facilities
  - Received approximately \$140.6 million from portfolio collections and other activity
- 

## SPECIAL OPPORTUNITIES

- Special Opportunities gross profits totaled \$5.7 million
  - \$254.6 million portfolio value consisting of aviation and alternative energy investments
  - Invested \$16.4 million in aviation investments
  - Approximately \$14.2 million of distributions from alternative energy and aviation positions
- 

## STRUCTURED CREDIT

- Structured Credit gross profits totaled \$38.5 million
- \$555.4 million portfolio value
- Purchased \$16.1 million in new securities and received approximately \$97.2 million from dispositions and other activity

## CONTACT

+1 952 444 4780 (U.S.)

+44 20 7292 7700 (U.K.)

[carval.reporting@carval.com](mailto:carval.reporting@carval.com)



PRESENTATION TO THE  
**MASSACHUSETTS WATER  
RESOURCES AUTHORITY  
RETIREMENT BOARD**

PRESENTED BY

Paul W. Todisco, Senior Client Services Officer

Francesco Daniele, Senior Client Services Officer

Emily Green, Client Services Analyst

Bill Li, CFA, CAIA, Director of Portfolio Completion Strategies

MARCH 25, 2021

**Deborah B. Goldberg**, Treasurer and Receiver General, Chair

**Michael G. Trotsky**, CFA, Executive Director and Chief Investment Officer

# PRIT Fund Snapshot

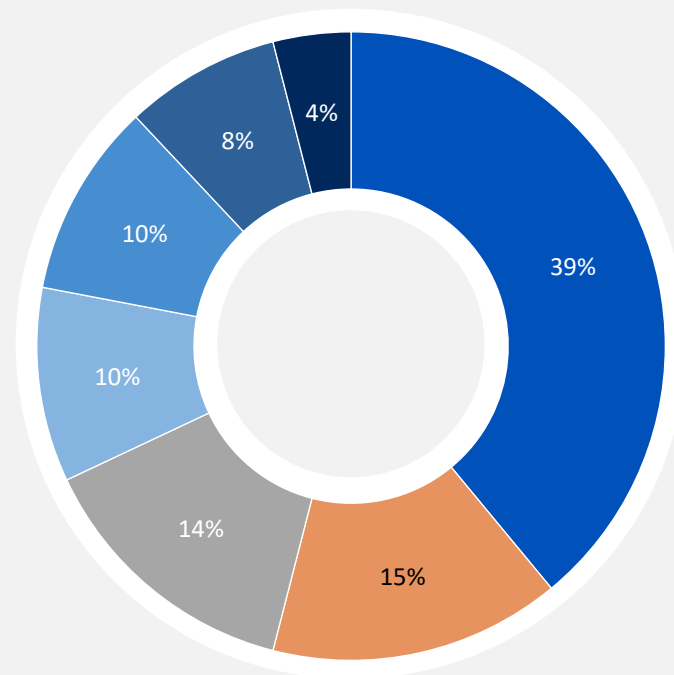
## PRIT FUND FACTS

- \$86.7 billion AUM
- 50 public markets portfolios
- 16 real estate, timber and REIT portfolios
- 100+ private equity managers;  
200+ partnerships
- 32 portfolio completion strategies managers

## OVERSIGHT AND STAFFING

- 9 appointed and elected trustees
- 4 advisory committees, consisting of 34 industry professionals and Board members
- Staff of 50 professionals
  - 2 PhDs
  - 11 CFAs
  - 6 CPAs
  - 2 CAIAs
  - 20 CFA Investment Foundations Program Certificate Holders

## ASSET ALLOCATION



## TARGET ASSET ALLOCATION

(as of 2/24/21)

- Global Equities 34% - 44%
- Core Fixed Income 12% - 18%
- Private Equity 11% - 17%
- Portfolio Completion Strategies 7% - 13%
- Real Estate 7% - 13%
- Value-Added Fixed Income 5% - 11%
- Timberland 1% - 7%

# About PRIM



**\$86.7 billion investment fund that invests public employee pension benefits**

- PRIM has a professional, experienced and focused investment staff.
- PRIM does not administer benefits.

**PRIM's mission is to relieve the pension funding burden on the taxpayer**

- Self-funded agency which generates asset returns for the Massachusetts pension system.
- PRIM's Project SAVE initiative is approaching \$200 million annualized value enhancing activities for the fund annually.

**PRIM is independent and governed by a nine-member Board of Trustees**

- Massachusetts State Treasurer is the Chair of the PRIM Board.
- A robust committee structure lends investment and operational expertise to the decision-making process.



## PRIM Core Beliefs

We believe that any investment must be evaluated on three equally important parameters: return, risk and cost.

We don't make tactical asset allocation decisions or investment decisions based on market or economic predictions. Instead, we engineer a strategic, long-term asset allocation strategy that we hope will stand the test of a long-time horizon.

We value a basis point of cost reduction more than a basis point of return. Because we can count on cost savings every year, but nobody ever really knows what the markets will deliver.



# PRIM Top 10 Accomplishments

1

Stable organization: Exceptional staff with low turnover supported by a strong, stable Board and Committee structure

2

National recognition for PRIM and its staff

3

Strong relative and absolute investment performance

4

Sophisticated risk management platform and framework

5

Methodical asset allocation decisions

6

Project SAVE

7

Re-engineered Hedge Fund program – Portfolio Completion Strategies

- Direct hedge funds
- Hedge fund replication
- Emerging manager direct hedge fund
- Hedge fund and other credit fund co-investment

8

Enhanced manager search and selection process

9

Private Equity co-investment

10

Direct Real Estate Program

# PRIM Board



**Chair**  
**DEBORAH B. GOLDBERG**  
State Treasurer and  
Receiver-General,  
Commonwealth of Massachusetts



**Ruth Ellen  
Fitch**

Appointee of  
the State  
Treasurer



**James B.G.  
Hearty**

Designee  
of the  
Governor,  
Ex Officio  
Member



**Peter  
Monaco**

Appointee  
of the  
Governor,  
Non-State  
Employee or  
Official



**Carly Rose**

Appointee  
of the  
Governor,  
Public Safety



**Theresa F.  
McGoldrick,  
Esquire**

State  
Retirement  
Board  
Member  
(SRB)



**Dennis J.  
Naughton**

Teachers'  
Retirement  
Board  
Member  
(TRB)



**Robert L.  
Brousseau**

Elected  
Representative  
State Teachers'  
Retirement  
System



**Paul E.  
Shanley,  
Esquire**

Elected  
Representative  
State  
Employees  
Retirement  
System



# PRIM Advisory Committees

## Investment Committee

The Committee advises the Board with respect to the asset allocation policy of PRIM and related investment policies and assist the Board in overseeing the investment program. The mandate of the Investment Committee does not include real estate and timber. Members include:

1. **Deborah B. Goldberg**, Chair, Treasurer and Receiver General of Massachusetts, PRIM Board Chair (Ex Officio)
2. **Joseph C. Bonfiglio**, Massachusetts & Northern New England Laborers' District Council
3. **C. LaRoy Brantley**, Investment Consultant
4. **Michael Even**, Former President and CEO, Numeric Investors
5. **Constance M. Everson**, CFA, Managing Director, Capital Markets Outlook Group
6. **Ruth Ellen Fitch**, Esq., Board Member, Former President and CEO, the Dimock Center
7. **James B. G. Hearty**, Board Member, Former Partner, Clough Capital (Ex Officio)
8. **Peter Monaco**, Board Member, Managing Director, Raptor Group
9. **Phillip H. Perelmuter**, Former Managing Partner, Wellington Management
10. **Philip Rotner**, Chief Investment Officer, Boston Children's Hospital
11. **Paul E. Shanley**, Esq., Board Member, Director of Professional Liability, Amity Insurance
12. **Glenn P. Strehle**, CFA, Treasurer Emeritus, MIT
13. **Timothy L. Vaill**, Former Chairman and CEO, Boston Private Holdings

## Real Estate Committee

The Committee advises the Board in setting investment policy within the real estate and timber portfolios and assist the Board in overseeing these portfolios. Members include:

1. **Jill S. Hatton**, CRE, Chair, Real Estate Investment Professional
2. **Deborah B. Goldberg**, Treasurer and Receiver General of Massachusetts, PRIM Board Chair (Ex Officio)
3. **Lydia Chesnick**, Esq., Partner, Bernkopf Goodman LLP
4. **Robert Gifford**, RGA Corp.
5. **Anthony E. Hubbard**, Esq., CVS Health
6. **Jack Lutz**, PhD., Forest Research Group
7. **William F. (Bill) McCall, Jr.**, CRE, McCall & Almy, Inc.
8. **Garlan Morse, Jr.**, CRE, Morris and Morse Company, Inc.
9. **Peter F. O'Connell**, Marina Bay Company
10. **Carly Rose**, Board Member, Public Safety Union Member



# PRIM Advisory Committees

## Administration and Audit Committee

The Committee assists the Board in overseeing all issues related to the governance, administration, and audit functions of PRIM, and to provide recommendations for the Board's consideration. Members include:

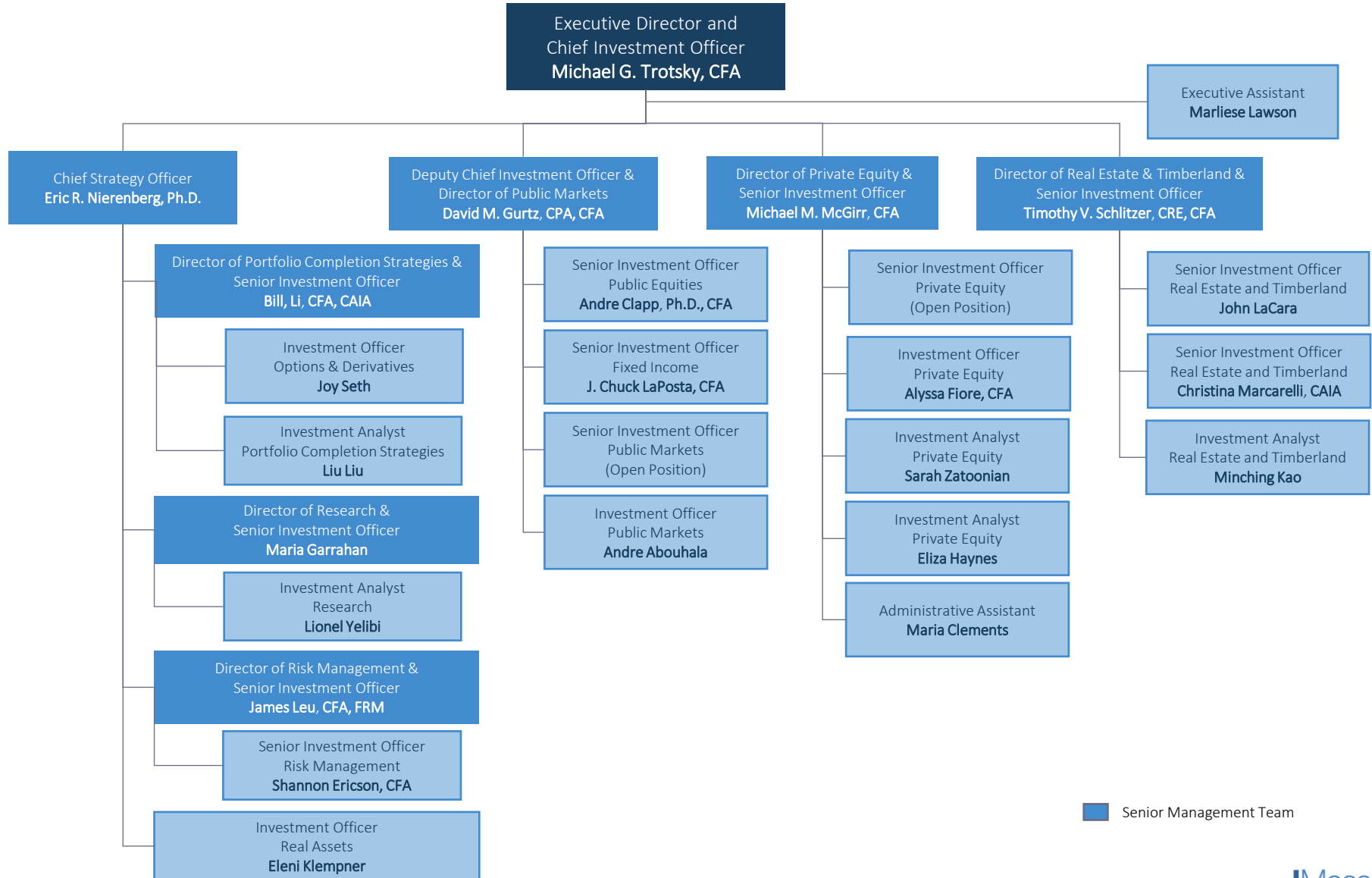
1. **Robert L. Brousseau**, Chair, Board Member, Retired Teacher, Town of Wareham School System
2. **Deborah B. Goldberg**, Treasurer and Receiver General of Massachusetts, PRIM Board Chair (Ex Officio)
3. **Patrick E. Brock**, Chairman, Hampshire County Retirement Board
4. **Karen E. Gershman**, CPA, Former Partner and Chief Operating Officer, Health Advances
5. **James B. G. Hearty**, Board Member, Former Partner, Clough Capital (Ex Officio)
6. **Theresa F. McGoldrick**, Esq., Board Member, National Executive Vice President, National Association of Government Employees (NAGE)
7. **Dennis J. Naughton**, Board Member, Retired Educator, Millis Public Schools
8. **Michele A. Whitham**, Esq., Founder & Principal, Whitham Law LLC

## Compensation Committee

The Committee assists the Board in overseeing staff compensation and benefit policies. The Administration and Audit Committee is responsible for assisting the Board on other human resource matters. Members include:

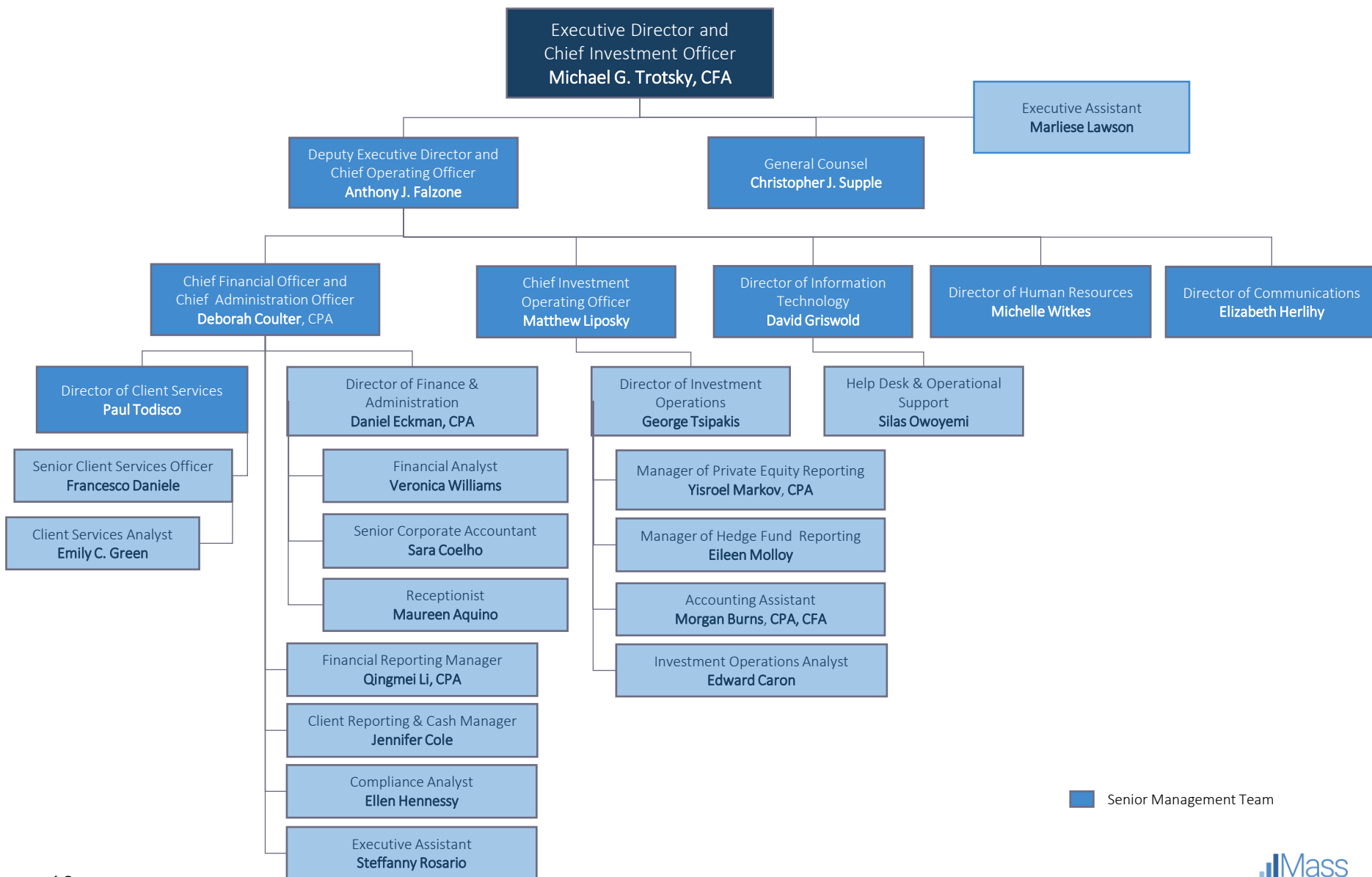
1. **Michele A. Whitham**, Esq., Chair, Founder & Principal, Whitham Law LLC
2. **Deborah B. Goldberg**, Treasurer and Receiver General of Massachusetts, PRIM Board Chair (Ex Officio)
3. **Robert L. Brousseau**, Board Member, Retired Teacher, Town of Wareham School System
4. **Patrick E. Brock**, Chairman, Hampshire County Retirement Board

# PRIM Investment Team



■ Senior Management Team

# PRIM Finance and Operations Team



# Recent Recognition

## MIT Sloan/PRIM Collaboration on Environmental, Social, and Governance Ratings Research

PRIM has joined with the MIT Sloan Sustainability Initiative as the founding member of the Aggregate Confusion Project. The groundbreaking collaboration seeks to create more reliable and transparent ESG data and benchmarks for Investors. (September 2020)

## GIPS Compliance

For the third consecutive year, PRIM has completed the CFA Institute's Global Investment Performance Standards of Integrity and transparency. PRIM is one of only a handful of large public pension plans to comply with the GIPS standards. (August 2020)

## Certificate of Achievement for Excellence in Financial Reporting – Government Finance Officer Association

PRIM was awarded the Government Finance Officer Association's Certificate of Achievement for Excellence in Financial Reporting for the 15th consecutive year. (August 2020)

## PRIM's Private Equity Portfolio ranked #2 by the American Investment Council

PRIM's Private Equity Portfolio has been ranked #2 among 176 U.S. public pension funds based on 10-year performance by the American Investment Council's Public Pension Study. PRIM is the only fund that has been in the top five every year the study has been conducted. (July 2020)

## Commonwealth Citation for Outstanding Performance

Dan Eckman, Director of Finance and Administration, was recognized for his contributions that allowed PRIM to continue to operate seamlessly throughout the pandemic, among many other things. Maria Garrahan, Senior Investment Officer – Director of Research, was recognized for spearheading several industry-leading initiatives, including asset allocation framework and ESG initiative with MIT (October 2020)

## Treasurer Deborah B. Goldberg Honored by National Association of State Treasurers

Treasurer Goldberg was honored by the National Association of State Treasurers with the Jesse H. Unruh Award, which is awarded to an active Treasurer in recognition of outstanding service to the Association, the profession, and his or her state. Treasurer Goldberg currently serves as the President of the Association (September 2020)

## Institutional Investor's Lifetime Achievement Award

Michael Trotsky, CFA, Executive Director and Chief Investment Officer of Mass PRIM, was honored with Institutional Investor's Lifetime Achievement Award at the third annual Allocators' Choice Awards (December 2019)

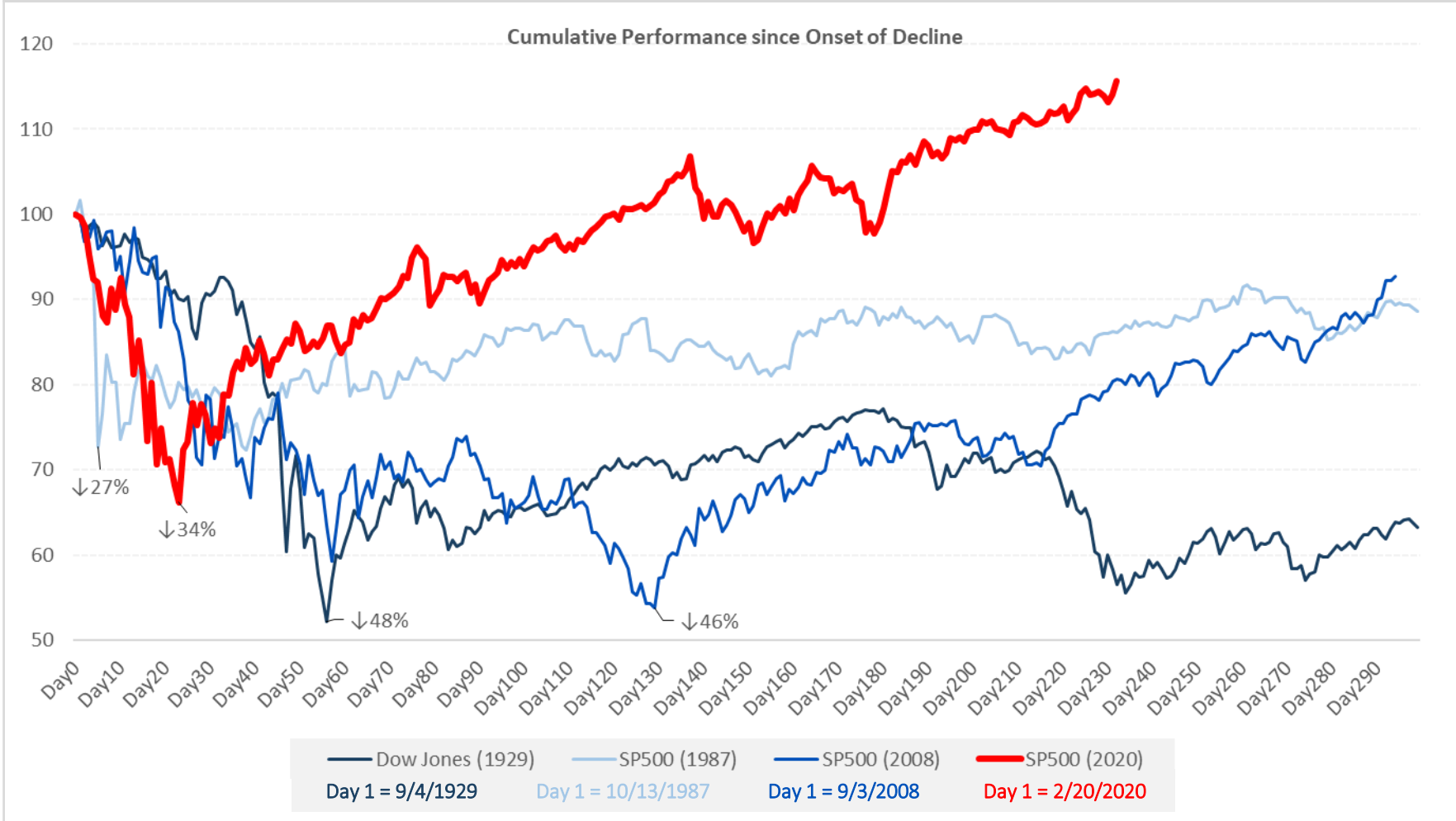
## Michael Trotsky elected as Chair of the Board of Directors for CFA Society Boston

CFA Society Boston has elected Michael Trotsky, CFA, Executive Director and Chief Investment Officer to serve as Chair of the Board of Directors. The CFA Society Boston serves 6,000 professionals representing 650 companies and is part of the CFA Institute with nearly 200,000 members. (June 2019)

# Unprecedented Sharp Decline

As of January 20, 2021

- Velocity of COVID-19 sell-off surpassed that of GFC.
- Rebound velocity also surpassed that post previous sell-offs.
- S&P 500 reached new high in January 2021.

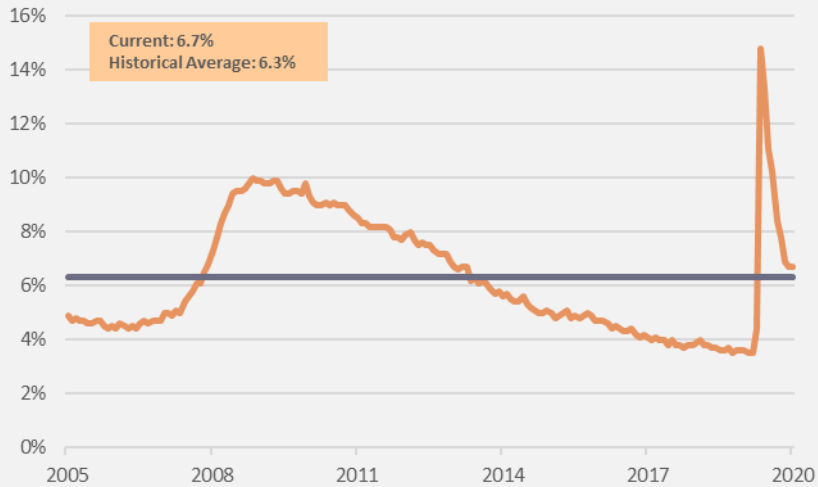


Source: FactSet, PRIM Staff.

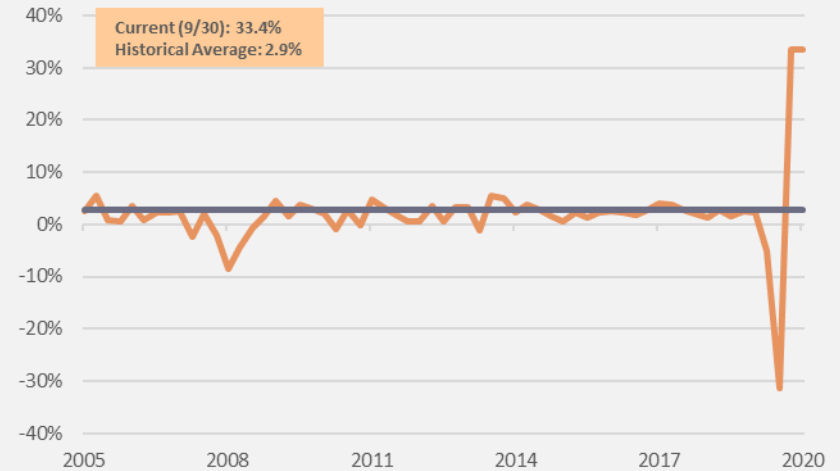


# U.S. Economic Data

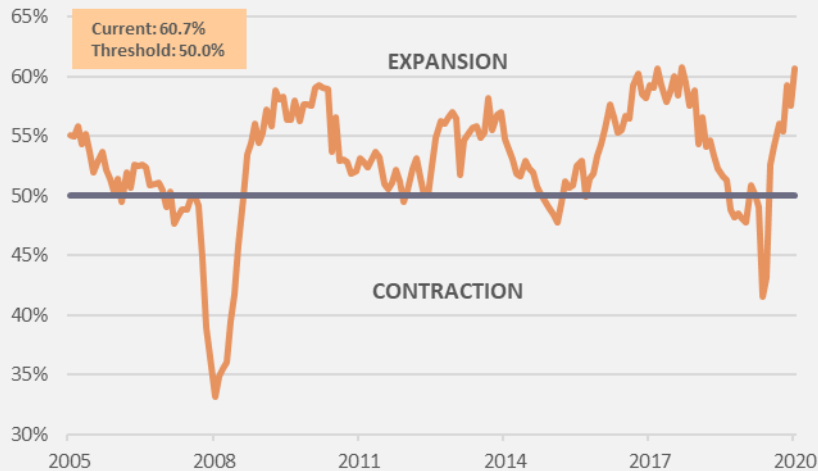
## UNEMPLOYMENT RATE



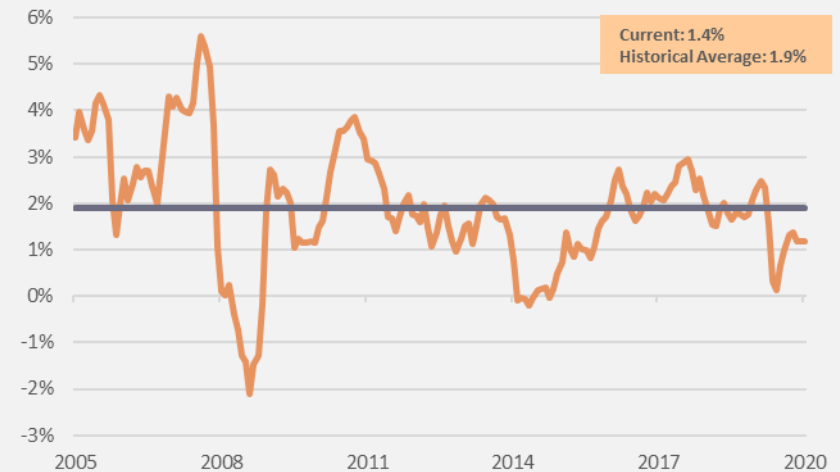
## GDP GROWTH RATE



## MANUFACTURING PMI

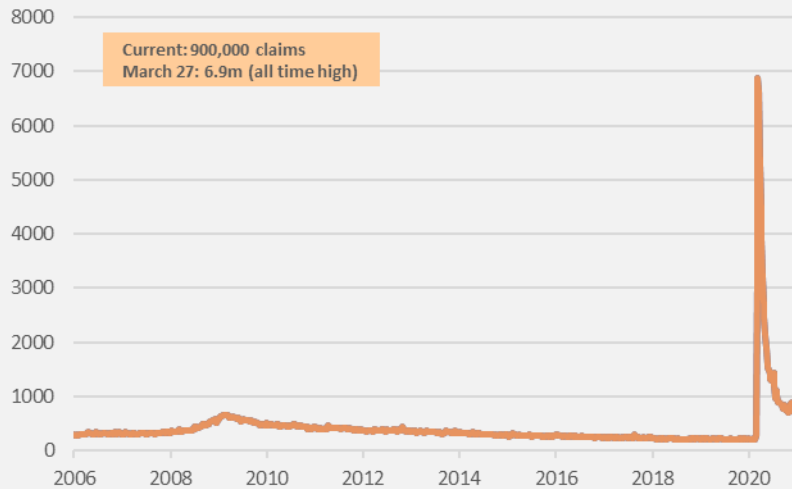


## CONSUMER PRICE INDEX

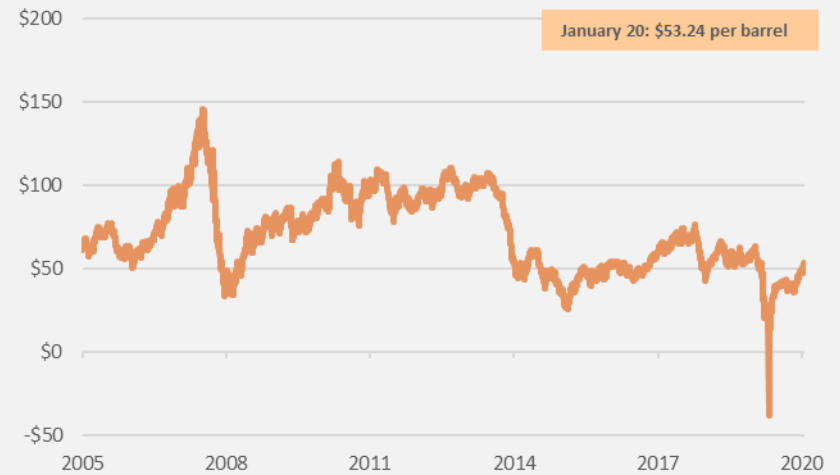


# U.S. Economic Data

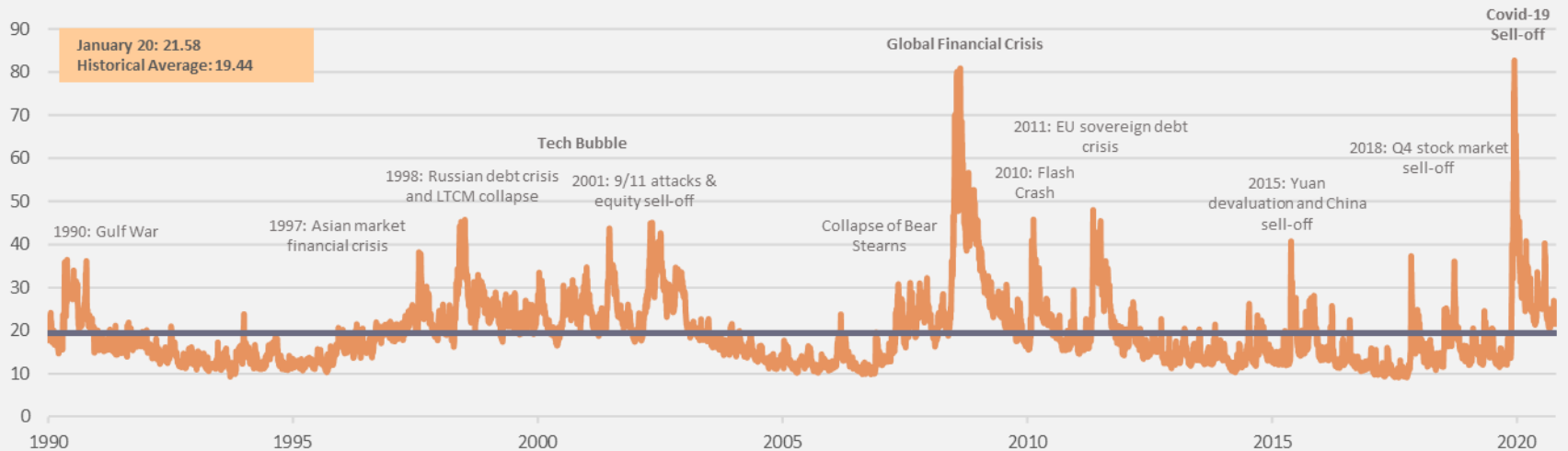
## WEEKLY INITIAL JOBLESS CLAIMS (IN MILLIONS)



## WTI CRUDE OIL (\$/BBL)

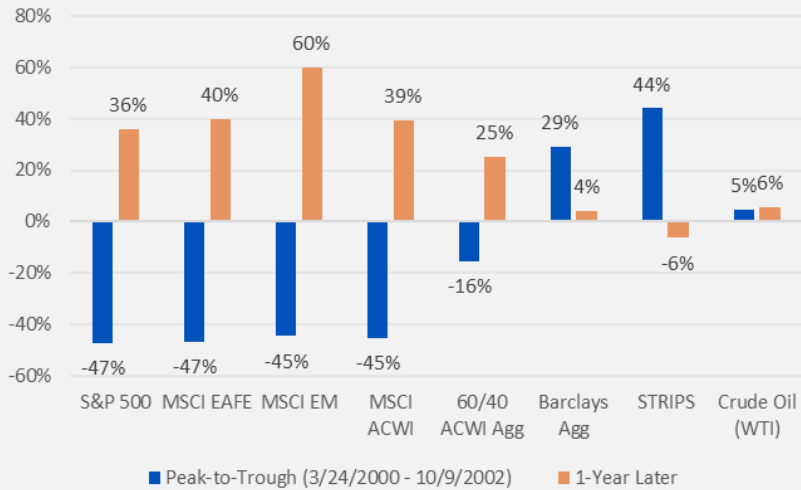


## CBOE MARKET VOLATILITY INDEX (VIX)

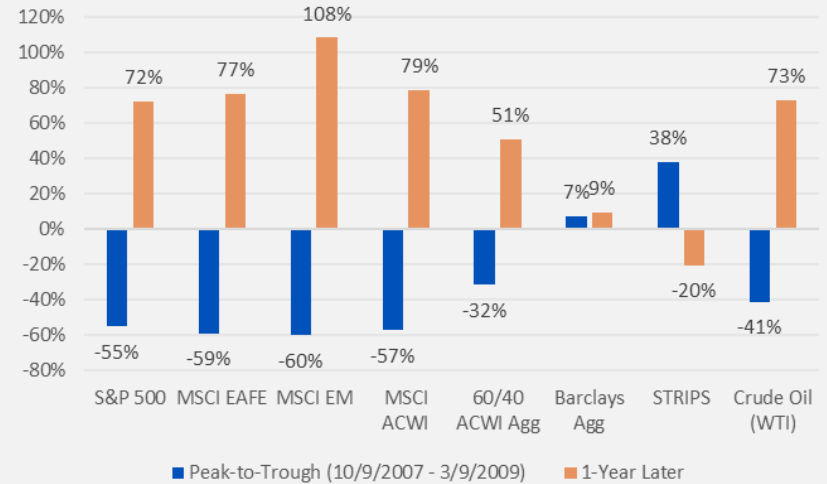


# Historical Market Sell-Off Performance

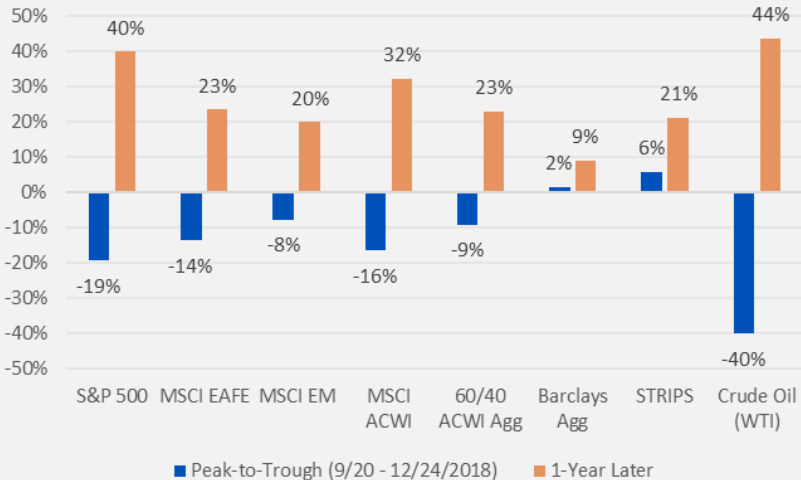
## DOT-COM BUBBLE



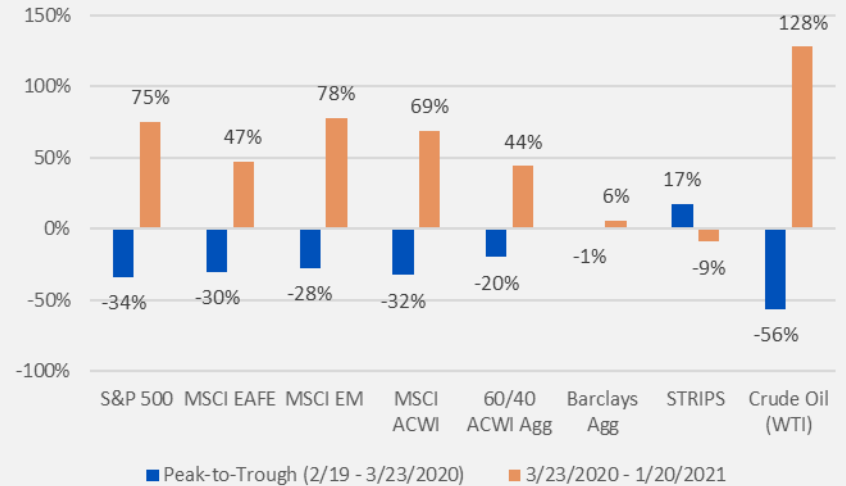
## GLOBAL FINANCIAL CRISIS



## 2018 GLOBAL STOCK MARKET DOWNTURN



## COVID-19 PANDEMIC



A nighttime photograph of a city skyline, likely Boston, viewed from a waterfront promenade. The sky is a deep blue, and the city lights are visible. In the foreground, there is a paved walkway with a low stone wall and some greenery. The water is dark and reflects the city lights.

# PRIT FUND PERFORMANCE

The logo for Mass PRIM, featuring the word "Mass" in a serif font above the word "PRIM" in a bold, sans-serif font. To the left of the text are three vertical bars of increasing height, resembling a bar chart.

AS OF DECEMBER 31, 2020

# Total PRIT Fund Fiscal Year Market Value

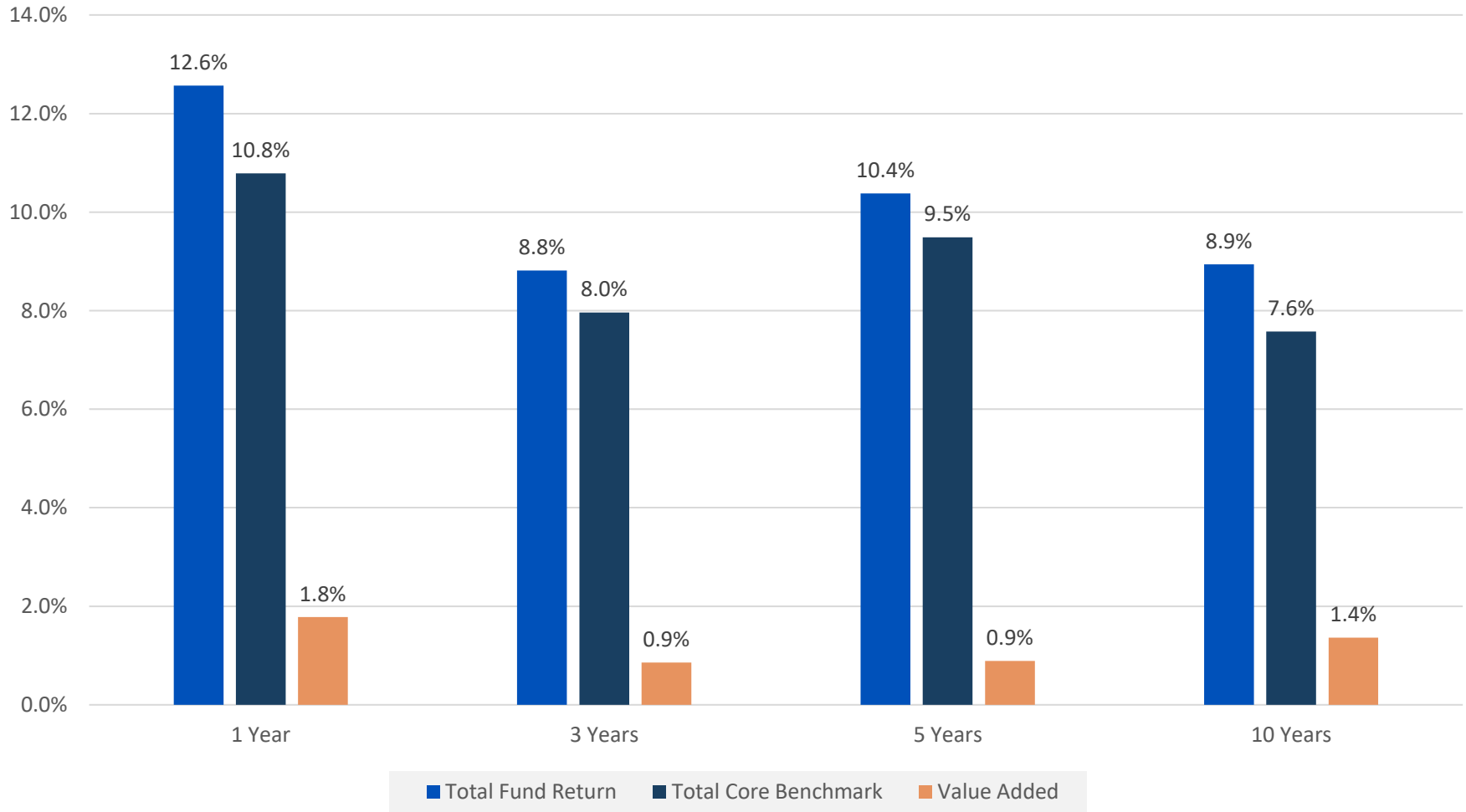
Value (\$Billions)



Source: BNY Mellon. As of December 31, 2020.

# PRIT Fund Total Returns

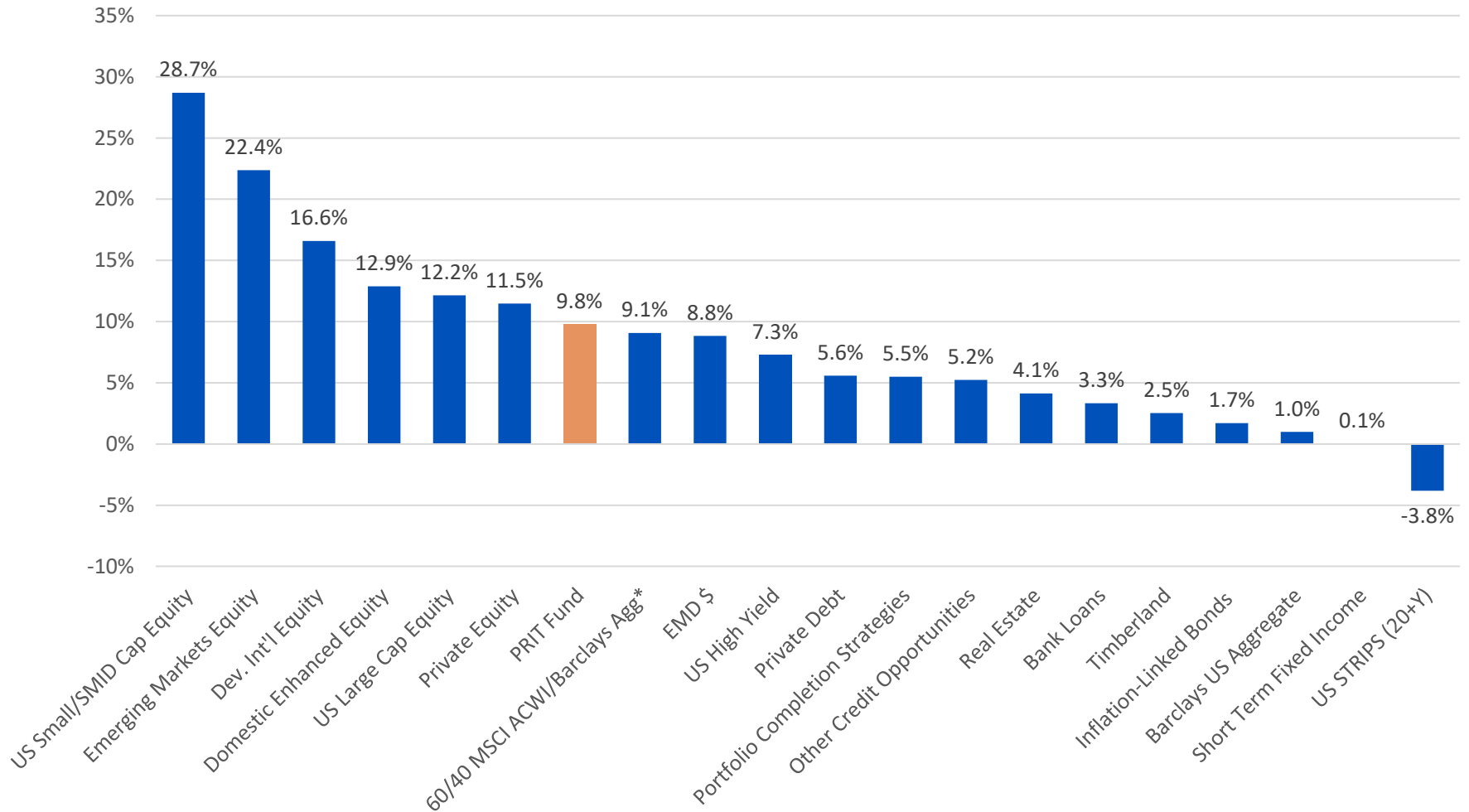
Annualized Returns as of December 31, 2020 (Gross of Fees)



Source: BNY Mellon. Total Core Benchmark includes private equity benchmark.

# PRIT Performance By Strategy – Fourth Quarter 2020

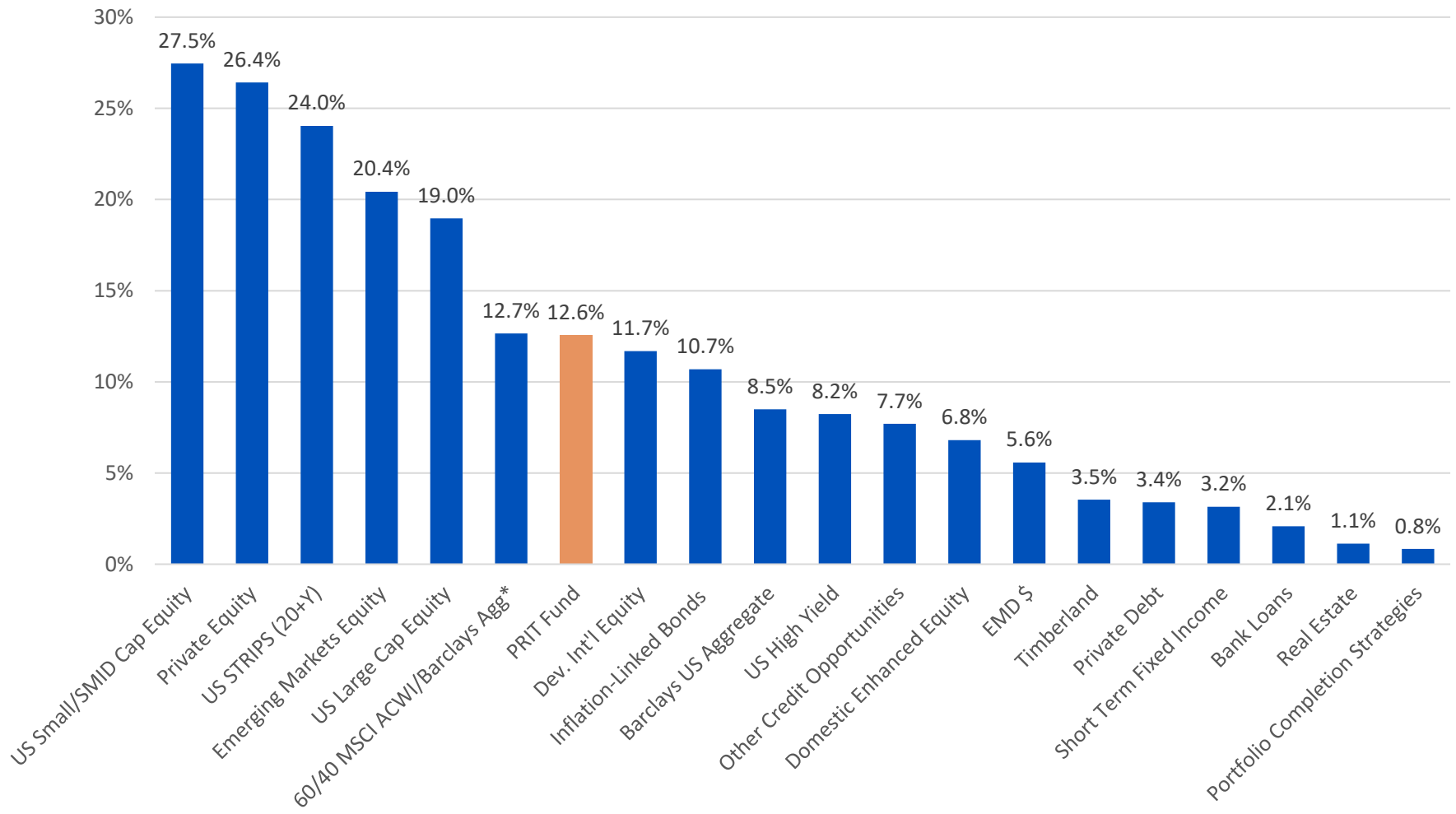
Quarter Ended December 31, 2020 (Gross of Fees)



Source: BNY Mellon, FactSet. All performance figures reflected are PRIT Fund Asset Class returns. \*MSCI ACWI/Barclays Aggregate is derived from a 60/40 combination of index returns.

# PRIT Performance By Strategy – One-Year

One-Year Ended December 31, 2020 (Gross of Fees)

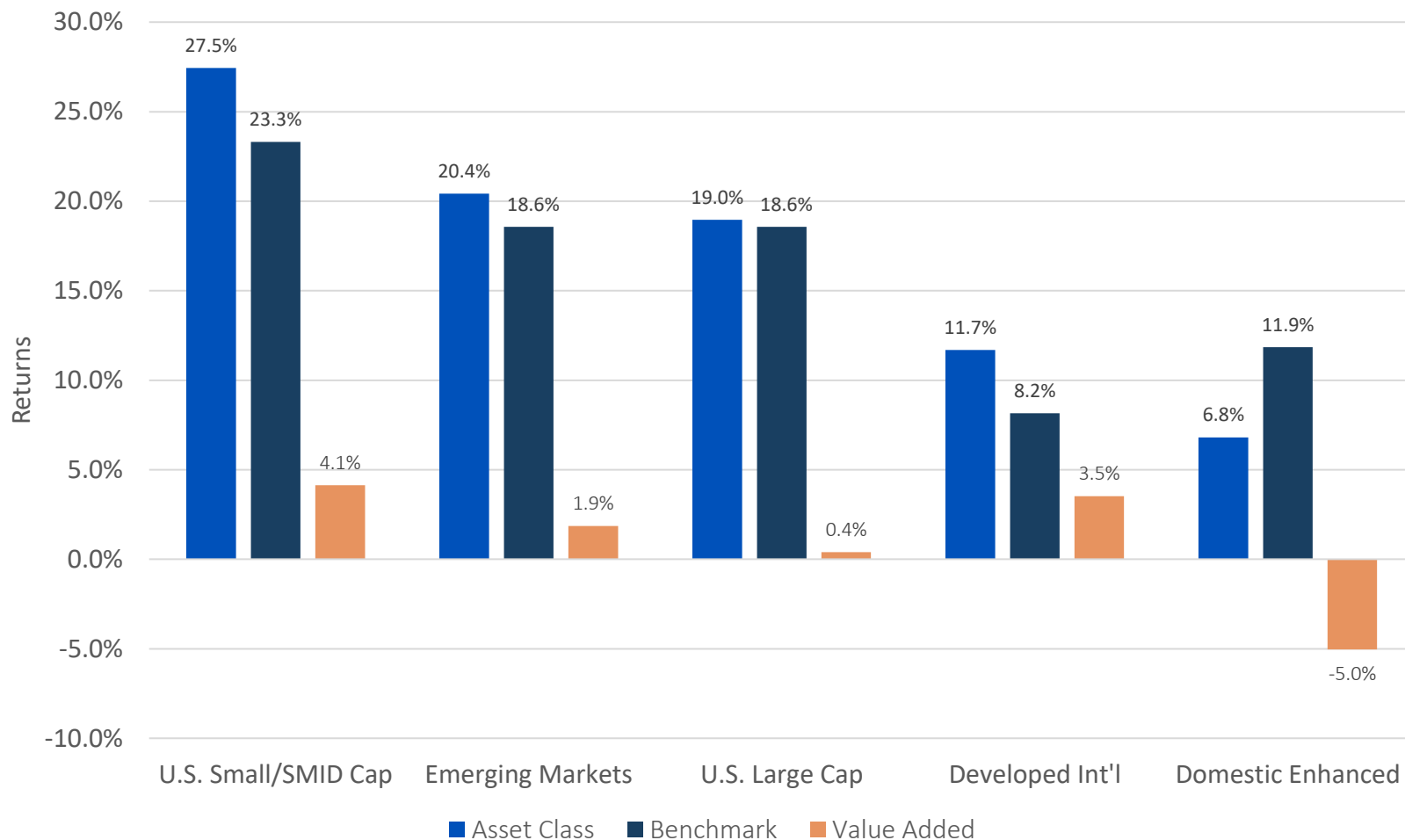


Source: BNY Mellon, FactSet. All performance figures reflected are PRIT Fund Asset Class returns. \*MSCI ACWI/Barclays Aggregate is derived from a 60/40 combination of index returns.



# Global Equity Performance

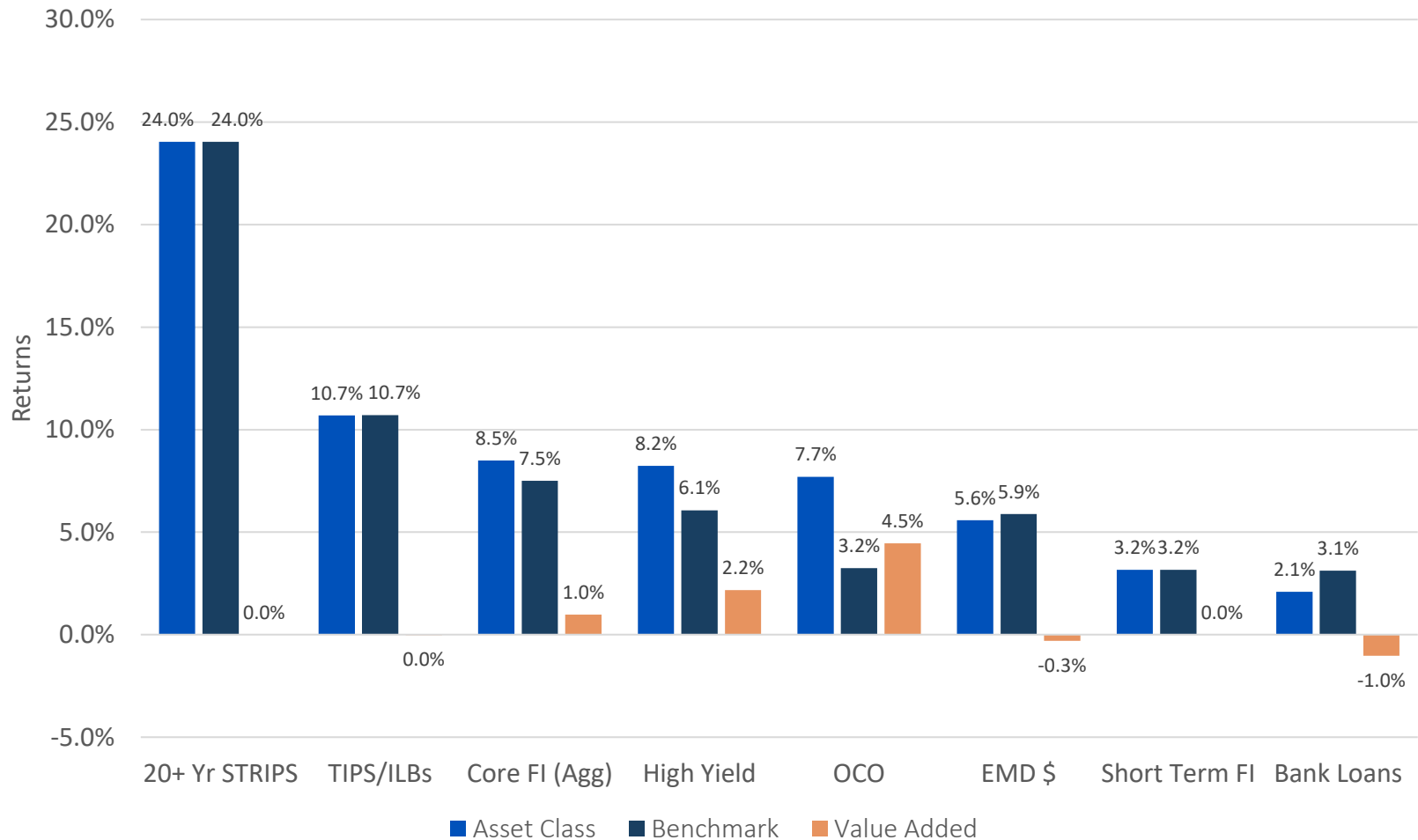
One Year Ended December 31, 2020 (Gross of Fees)



Source: BNY Mellon.  
Totals may not add due to rounding.

# Public Fixed Income Performance

One Year Ended December 31, 2020 (Gross of Fees)



Source: BNY Mellon.  
Totals may not add due to rounding.

# PRIT Fund Annualized Returns By Asset Class

(Gross of Fees)

1 Year	3 Year	5 Year	10 Year
PRIVATE EQUITY 26.4%	PRIVATE EQUITY 21.0%	PRIVATE EQUITY 20.2%	PRIVATE EQUITY 19.1%
GLOBAL EQUITY 15.9%	GLOBAL EQUITY 9.7%	GLOBAL EQUITY 12.5%	REAL ESTATE 9.7%
CORE FIXED INCOME 12.1%	CORE FIXED INCOME 7.4%	VALUE-ADDED FIXED INCOME 6.9%	GLOBAL EQUITY 9.6%
VALUE-ADDED FIXED INCOME 4.5%	REAL ESTATE 5.9%	REAL ESTATE 6.9%	VALUE-ADDED FIXED INCOME 5.7%
TIMBER 3.5%	VALUE-ADDED FIXED INCOME 4.8%	CORE FIXED INCOME 6.3%	CORE FIXED INCOME 5.5%
REAL ESTATE 1.1%	TIMBER 2.4%	TIMBER 4.4%	TIMBER 4.7%
PCS 0.8%	PCS 2.0%	PCS 3.6%	PCS 4.0%

Source: BNY Mellon. Returns as of December 31, 2020.

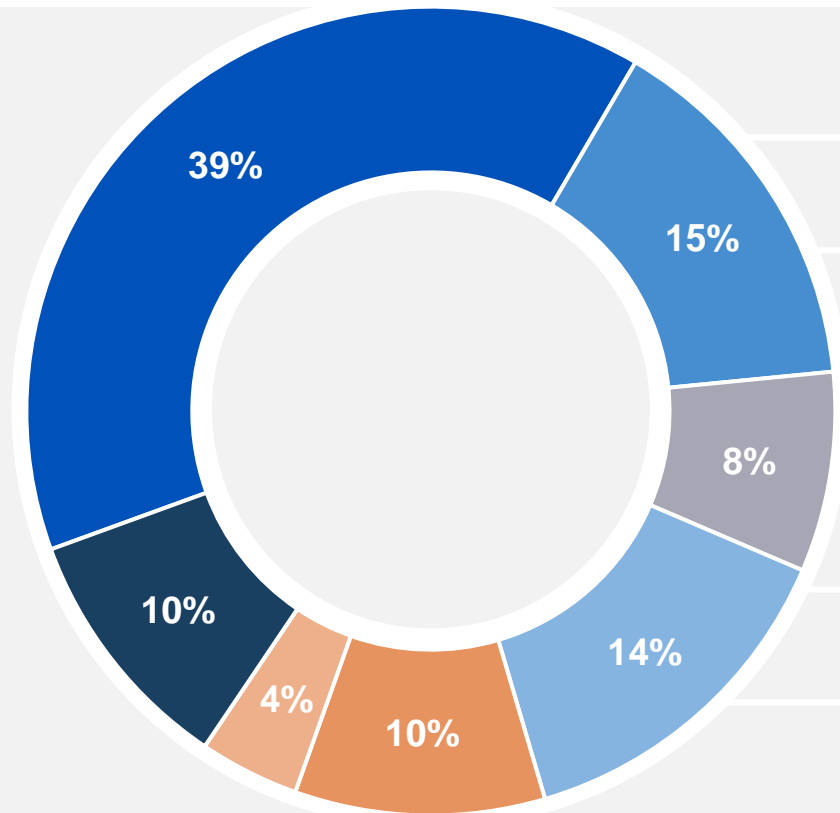
A blue-tinted photograph of a city skyline, likely Boston, featuring several skyscrapers and a prominent cable-stayed bridge. The image is overlaid with a semi-transparent blue filter. The text 'PRIT FUND ASSET ALLOCATION TARGETS' is centered in white, bold, sans-serif font. Below the main title, the 'Mass PRIM' logo is displayed, consisting of three vertical bars of increasing height followed by the text 'Mass' and 'PRIM' stacked vertically.

# PRIT FUND ASSET ALLOCATION TARGETS

Mass  
PRIM

# PRIT Asset Allocation

Approved February 24, 2021



	AA 2020 Approved Range	AA 2021 Approved Range	Within Range
<b>Global Equity</b> (including Hedged US Equity)	34% - 44%	No Change	Yes
<b>Core Fixed Income</b>	12% - 18%	No Change	Yes
<b>Value-Added Fixed Income</b>	5% - 11%	No Change	Yes
<b>Private Equity</b>	10% - 16%	11% - 17%	Yes
<b>Real Estate</b>	7% - 13%	No Change	Yes
<b>Timberland</b>	1% - 7%	No Change	Yes
<b>Portfolio Completion Strategies</b>	8% - 14%	7% - 13%	Yes

The ranges in the PRIM asset allocation reflect the long-standing use of bands around a midpoint.. Managing the asset allocation to a particular midpoint in the range is not always possible, practical or advisable.

# Changes to Target Ranges – PRIT Fund Asset Allocation

Approved February 24, 2021

## Increase in Allocation Range

**Private Equity:**  
Target Band moves up 1%

## Same Allocation Range

**Global Equity:**  
Target Band stays the same

**Core Fixed Income:**  
Target Band stays the same

**Value-Added Fixed Income:**  
Target Band stays the same

**Real Estate:**  
Target Band stays the same

**Timber:**  
Target Band stays the same

## Decrease in Allocation Range

**Portfolio Completion Strategies:**  
Target Band moves down 1%

# PRIM 2021 Asset Allocation Recommendations

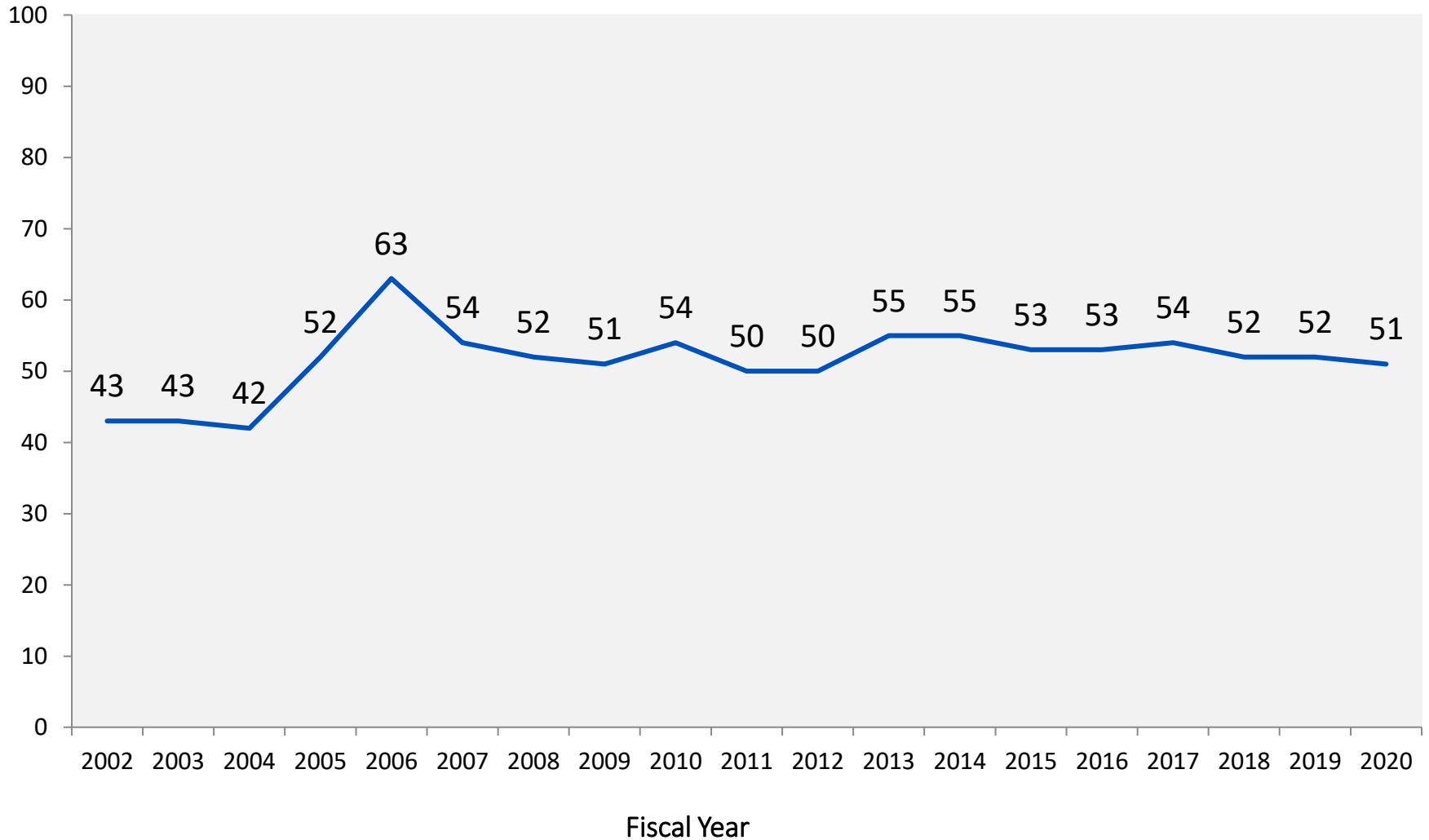
## NEPC Capital Market Assumptions with PE and PCS Changes

Asset Classes			12/31/20 Asset Class Assumptions	
	Proposed Asset Allocation Range		10 Yr. Expected Return	30 Yr. Expected Return
US Equity <sup>1</sup>	21.2%		5.5%	6.4%
International Equities <sup>2</sup>	11.8%		5.9%	6.6%
Emerging International Equities <sup>2</sup>	5.0%		7.6%	8.4%
Hedged Equity <sup>3</sup>	1.0%		4.8%	5.7%
<b>Global Equity</b>	<b>34% - 44%</b>			
Core Bonds	7.0%		1.4%	2.7%
Short-Term Fixed Income <sup>4</sup>	1.0%		1.0%	2.0%
20+ Yr. Treasury STRIPS	3.0%		0.4%	1.7%
TIPS/ILBs	4.0%		1.0%	2.1%
<b>Core Fixed Income</b>	<b>12% - 18%</b>			
Value-Added Fixed Income <sup>5</sup>		<b>5% - 11%</b>	4.8%	6.2%
Private Equity		<b>11% - 17%</b>	9.6%	10.2%
Real Estate <sup>6</sup>		<b>7% - 13%</b>	4.8%	6.0%
Timberland <sup>7</sup>		<b>1% - 7%</b>	5.4%	6.6%
Portfolio Completion (PCS) <sup>8</sup>		<b>7% - 13%</b>	4.0%	5.2%
<b>Total Fund Expected Return<sup>9</sup></b>			<b>5.8%</b>	<b>6.8%</b>

1. Blended allocation to large-cap equity (85%) and small-cap equity (15%)
2. Blended allocation to large-cap equity (90%) and small-cap equity (10%)
3. Modeled as US LIBOR, US large-cap equity, and US small-cap equity
4. Modeled as short-term Treasury
5. Modeled as 50% High Yield and 50% Private Debt

6. Real Estate is modeled as 80% Private Real Estate and 10% REITs
7. Timberland is modeled as Private Real Assets Infrastructure/Land
8. Modeled as equal weighed blend of Hedge Fund Equity, Credit and Macro
9. Asset classes modeled as the midpoint of the asset allocation range

# PRIT Fund - Ratio of Expenses in Basis Points





# MWRA Employees' Retirement System

Net of Fees Returns as of December 31, 2020

	MKT \$	%	Month	QTR	FY '21	Calendar YTD	1 Year	3 Year	5 Year	10 Year	Inception
<b>MASSACHUSETTS WATER RESOURCES</b>											
<b>AUTHORITY EMPLOYEES' RETIREMENT SYSTEM</b>	<b>25,826,629</b>	<b>100%</b>	<b>5.19</b>	<b>7.60</b>	<b>15.26</b>	<b>8.21</b>	<b>8.21</b>	<b>7.50</b>	<b>8.15</b>	<b>7.96</b>	<b>8.50</b>
CAPITAL FUND	4,576,506	18%	4.28	9.68	16.37	12.15	12.15	8.38	9.94	8.50	
HEDGE FUNDS	14,018,182	54%	3.26	5.98	8.83	1.27	1.27	2.40	3.91	4.06	
PRIVATE EQUITY 2008	1,027,707	4%	13.84	13.96	30.09	8.17	8.17	11.55	16.25	18.50	
PRIVATE EQUITY 2009	178,521	1%	12.35	12.19	75.49	57.54	57.54	36.90	27.05	21.68	
PRIVATE EQUITY 2010	558,256	2%	9.48	9.31	38.08	39.61	39.61	18.05	18.42	13.29	
PRIVATE EQUITY 2011	978,697	4%	10.38	10.43	17.66	14.33	14.33	15.39	17.92		
PRIVATE EQUITY 2012	771,337	3%	7.58	8.33	36.71	40.12	40.12	19.98	20.26		
PRIVATE EQUITY 2014	2,025,551	8%	6.92	6.74	27.42	22.61	22.61	24.32	20.47		
PRIVATE EQUITY 2017	1,446,603	6%	11.94	10.34	29.00	17.63	17.63	11.43			
PRIVATE EQUITY 2020	245,268	1%	8.67	8.41	16.28						
<b>INTERIM BENCHMARK</b>											
			4.09	9.36	15.57	12.65	12.65	8.83	10.14	8.34	
<b>TOTAL HEDGE FUNDS BENCHMARK</b>											
			3.04	6.97	10.17	5.17	5.17	3.12	3.36	2.82	

- **Inception date: February 1, 1988** Initial contribution to the PRIT Fund as a Purchasing/Segmented System, investing in the General Allocation Account (aka Capital Fund)
- **October 1, 2006:** Initial contribution to the Hedge Fund sleeve
- **May 1, 2008:** Initial contribution to the Private Equity Vintage Year 2008 sleeve and subsequently contributed to the Private Equity Vintage Year Sleeves 2009, 2010, 2011, 2012, 2014, 2017, and 2020
- **July 1, 2010:** Initial contribution to the Core Real Estate sleeve
- **June 3, 2019:** Full liquidation of holdings in the Core Real Estate sleeve

A nighttime photograph of the Boston waterfront, showing a cobblestone walkway in the foreground, a body of water, and a city skyline with illuminated buildings in the background under a dark blue sky.

# APPENDIX PRIT FUND ASSET CLASS DETAIL

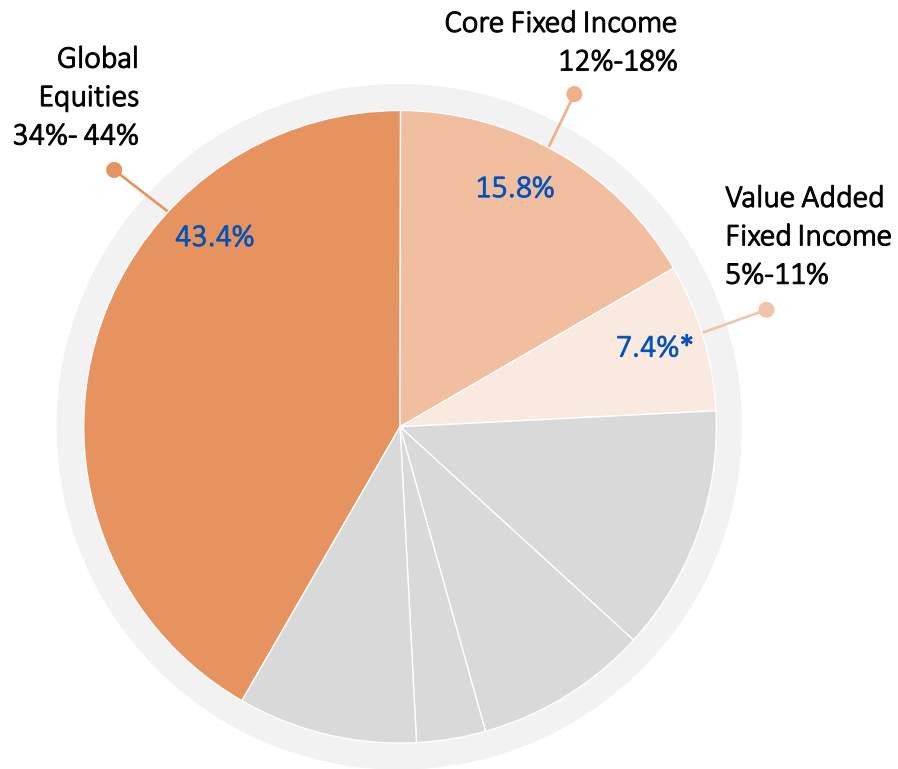


AS OF DECEMBER 31, 2020

# Public Market Portfolios

## PRIT FUND TARGET ASSET ALLOCATION

Actual Allocation as of December 31, 2020



**\$56.2 billion 64.9% of PRIT Fund**

- Global Equities: \$37.5 billion, 43.4% of PRIT Fund
- Fixed Income: \$18.7 billion, 21.6% of PRIT Fund\*

**46% Active / 54% Passive**

- Global Equities: 42% Active / 58% Passive
- Fixed Income: 54% Active / 46% Passive

**50 Portfolios**

- 25 equity portfolios
- 25 fixed income portfolios

**15 Asset Classes**

- U.S. Large Cap Equity
- U.S. Small/SMID Cap Equity
- Developed International Equity
- Developed International Small Cap Equity
- Emerging Markets Equity
- Emerging Markets Small Cap Equity
- Core Bonds
- 20+ Year STRIPS
- Short Term Fixed Income
- U.S. TIPS
- Global Inflation-Linked Bonds
- High Yield Bonds
- Bank Loans
- EMD \$
- Other Credit Opportunities

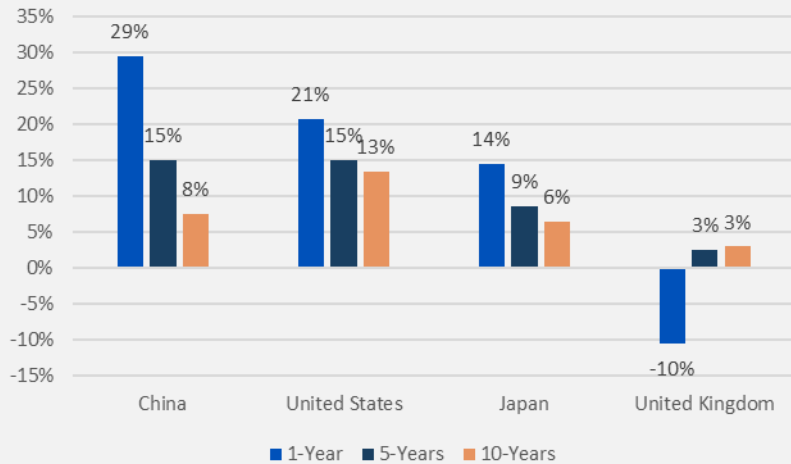


## Public Markets – Key Initiatives

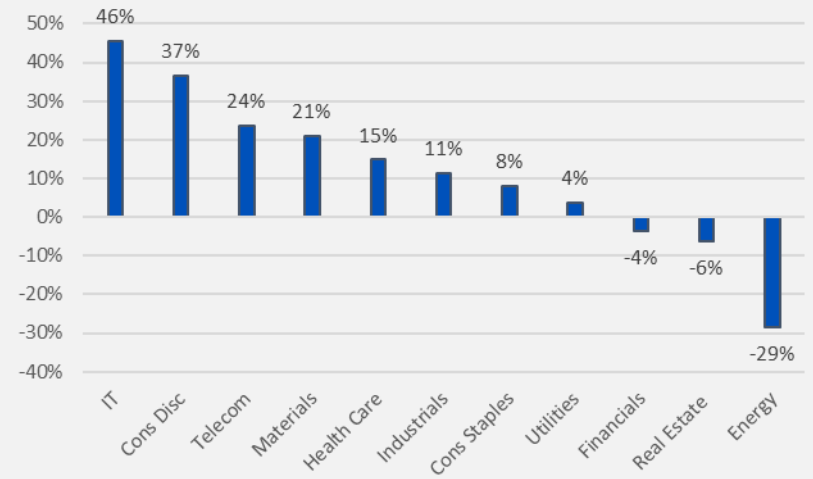
- Continue to source and allocate to diverse investment managers.
- Review Public Markets Benchmarks with Verus.
- Continue to identify Other Credit Opportunities investments, including co-investment opportunities.
- Conduct routine review and update of the Investment Policy Statement.
- Collaborate with Real Estate team to review and implement an improved Real Estate Debt program.
- Continue to upgrade analytical tools to improve investment research/analysis.

# Public Equity Review

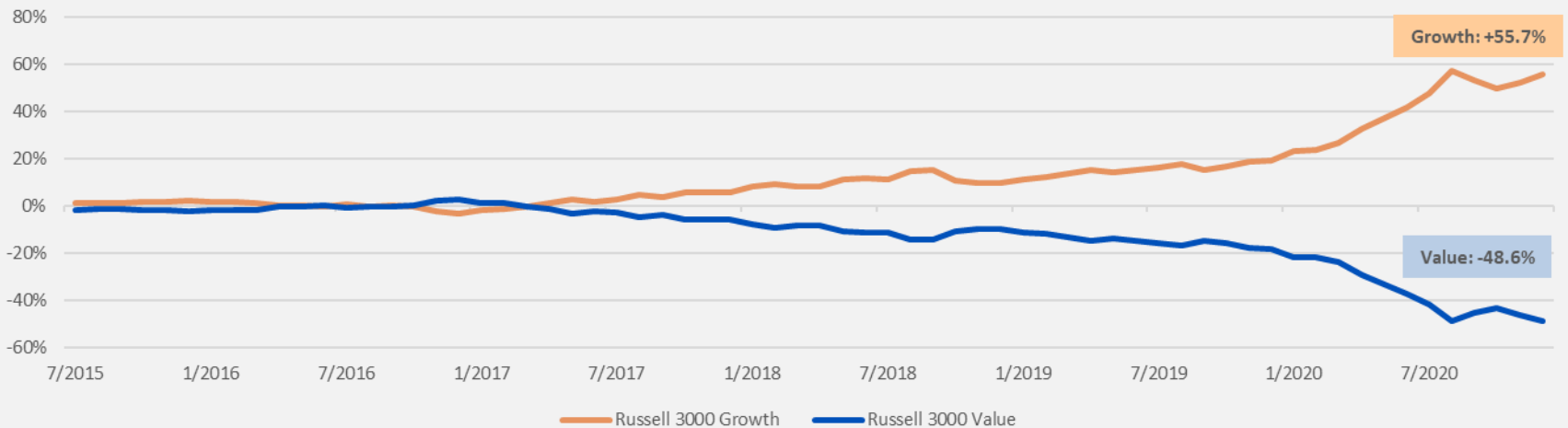
## MAJOR COUNTRY RETURNS (MSCI ACWI)



## GLOBAL SECTOR ONE-YEAR RETURN (MSCI ACWI)



## VALUE VS. GROWTH: RELATIVE RETURNS VS. RUSSELL 3000 (CUMULATIVE)

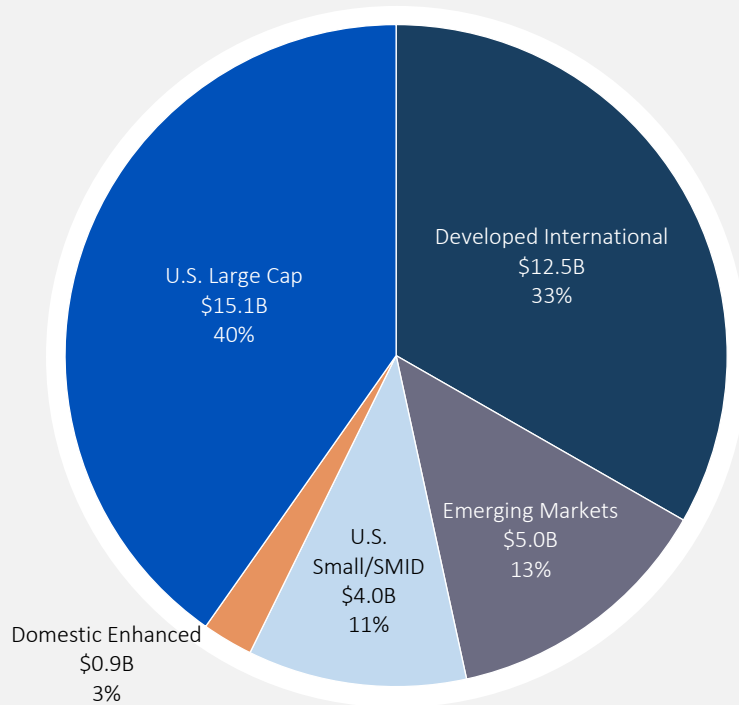


# Global Equity

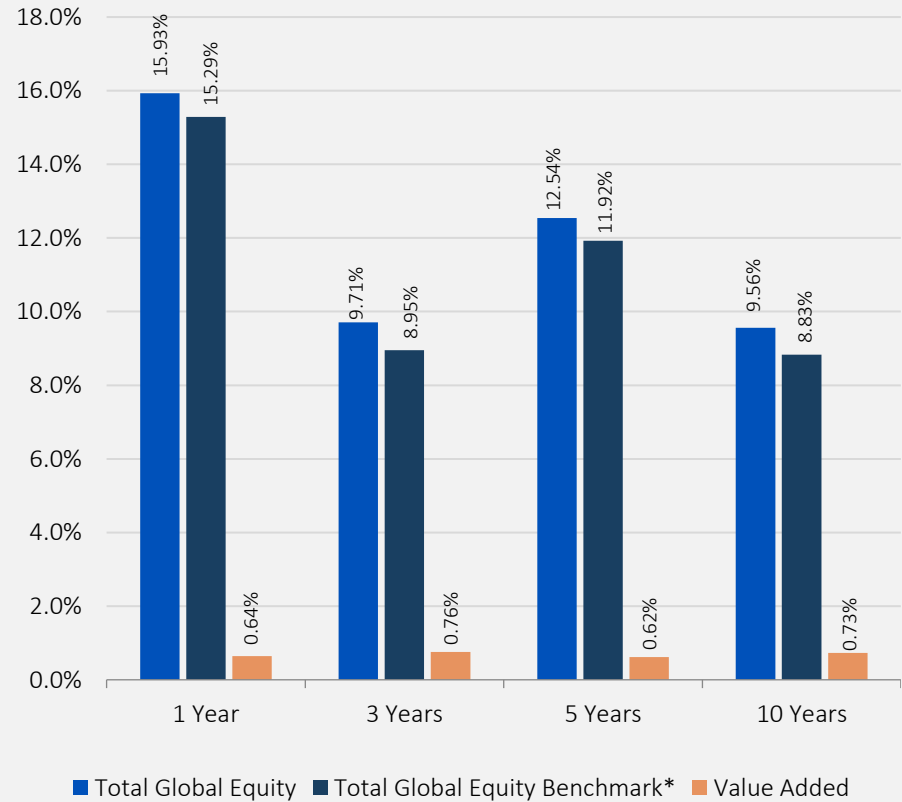
\$37.5 Billion – 43.3% of PRIT FUND (Target 34%-44%)

## ASSET ALLOCATION

42% ACTIVE/58% PASSIVE



## GROSS OF FEES PERFORMANCE



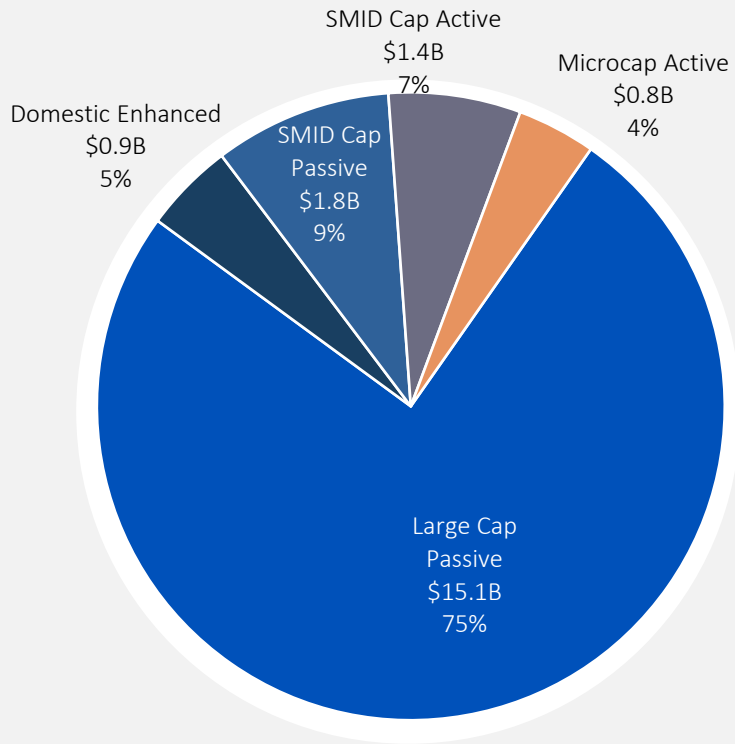
Source: FactsSet, PRIM Staff, As of December 31, 2020.

\*Total Global Equity Benchmark: 53.85% Domestic Equity BM/33.33% International Equity BM/12.82% Emerging Markets BM

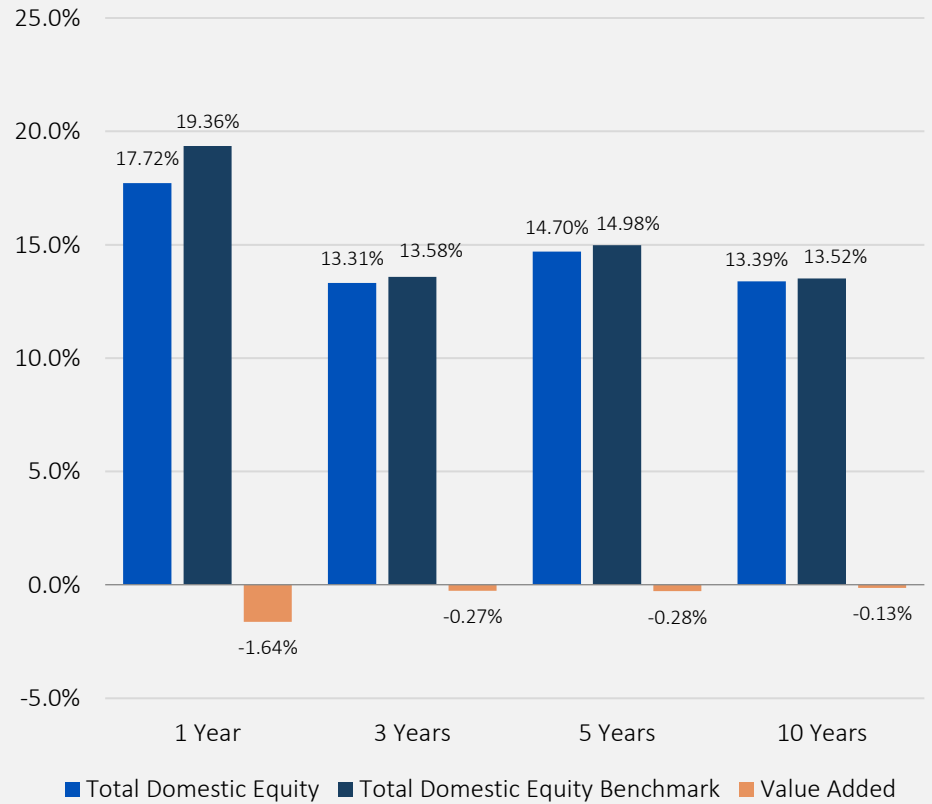
# Domestic Equity

\$20.0 Billion

## ASSET ALLOCATION



## GROSS OF FEES PERFORMANCE

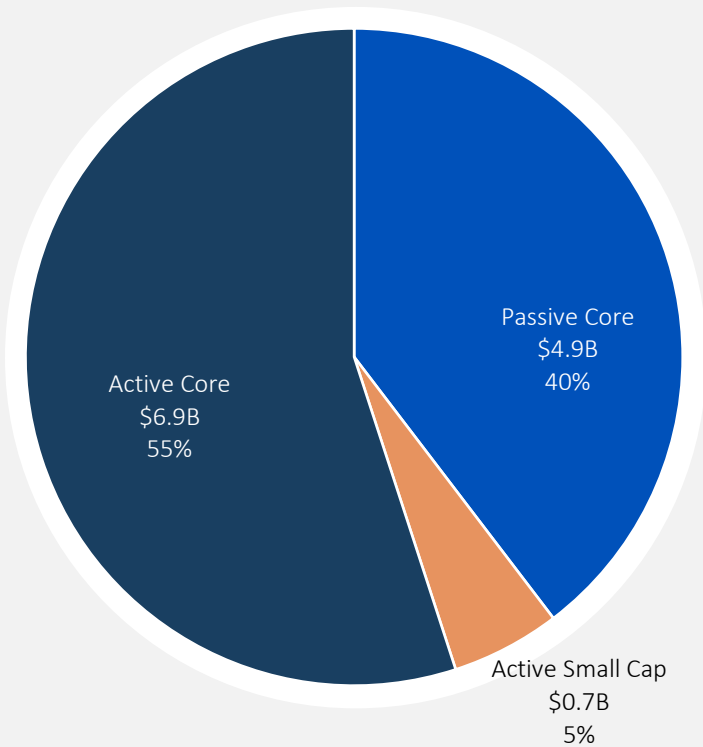


As of December 31, 2020

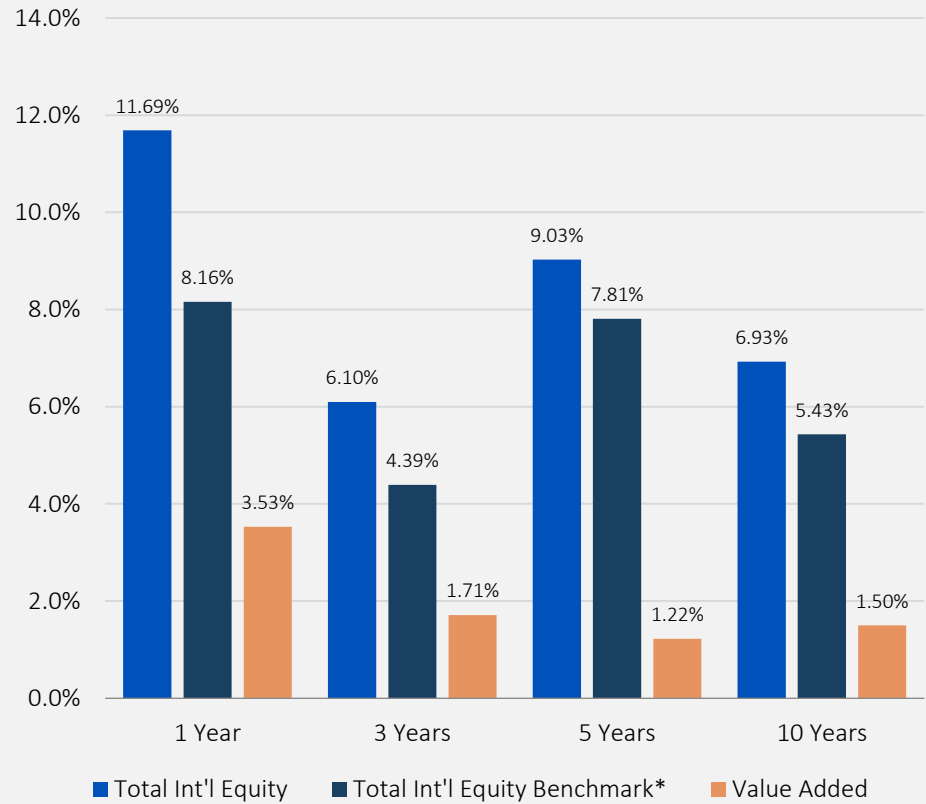
\*Total Domestic Equity Benchmark: 78.9% Custom S&P 500/21.10% Total Small/SMID Cap Equity BM through 2/28/2019; currently the Total Domestic Equity benchmark is calculated by applying the investment performance of the sub asset class benchmarks to the sub asset class weights within the total domestic equity portfolio.

# Developed International Equity

\$12.5 Billion



## GROSS OF FEES PERFORMANCE



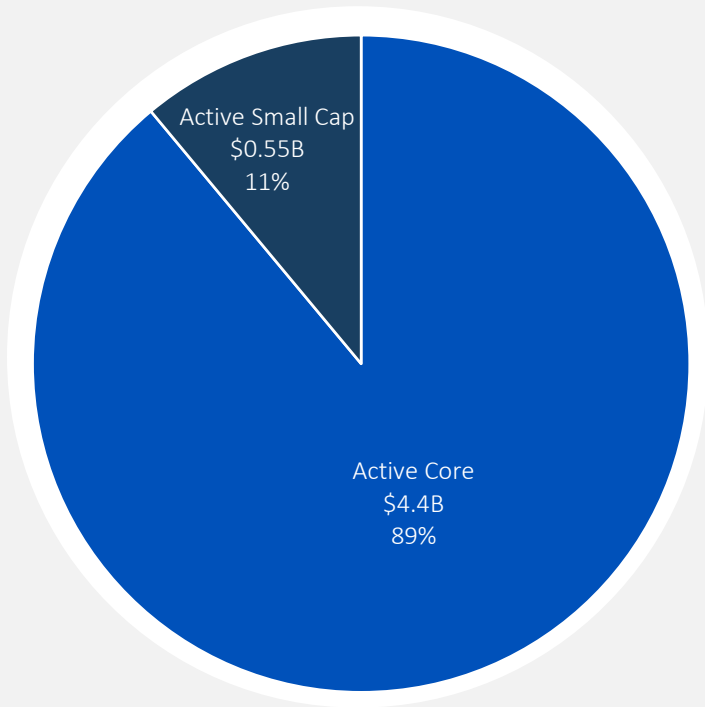
As of December 31, 2020

\*Total International Equity Benchmark: 41% Custom MSCI World Ex-US IMI Net Dividends/50% Custom MSCI EAFE Standard Index Net Dividends, 9% Custom MSCI EAFE Small Cap Index Net Dividends.

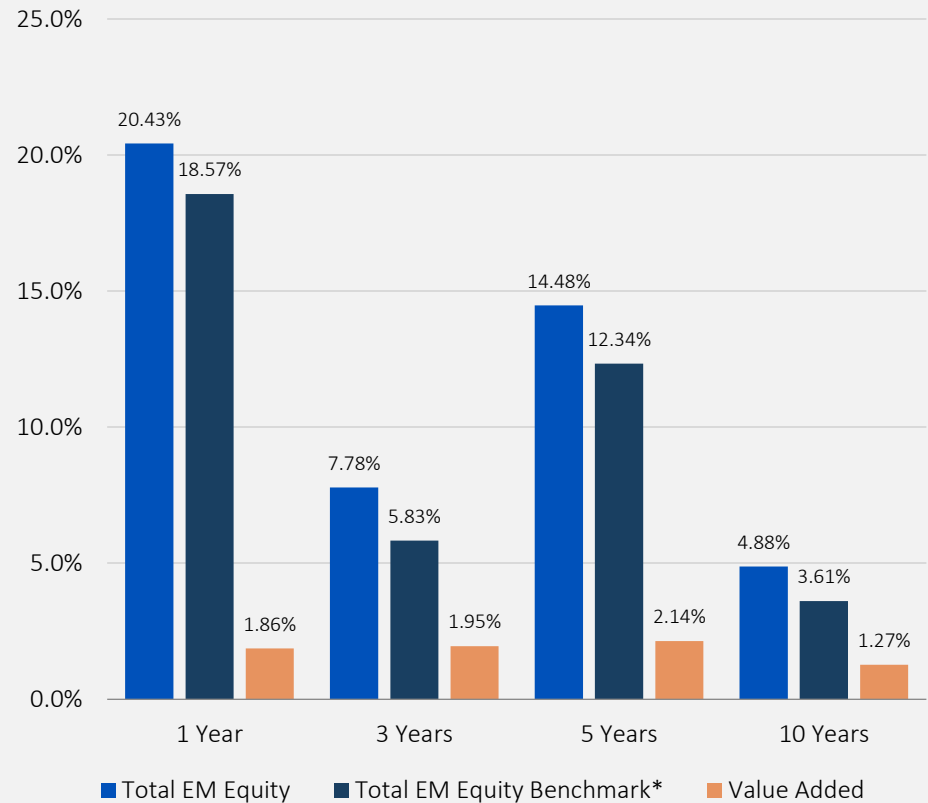


# Emerging Markets Equity

\$5.0 Billion



## GROSS OF FEES PERFORMANCE

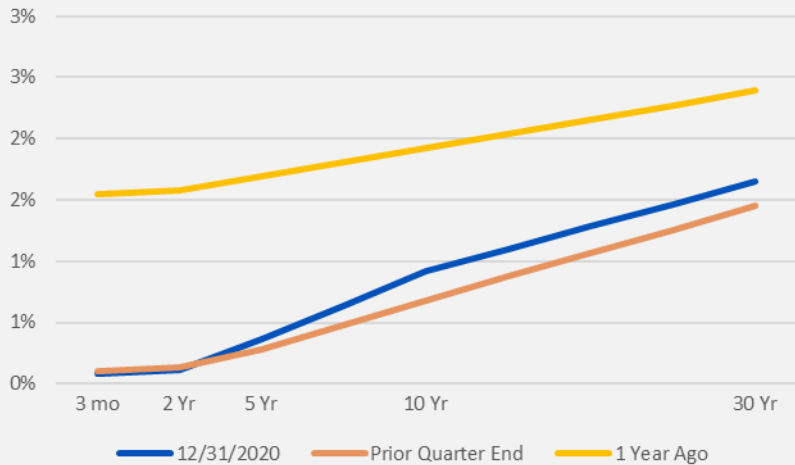


As of December 31, 2020

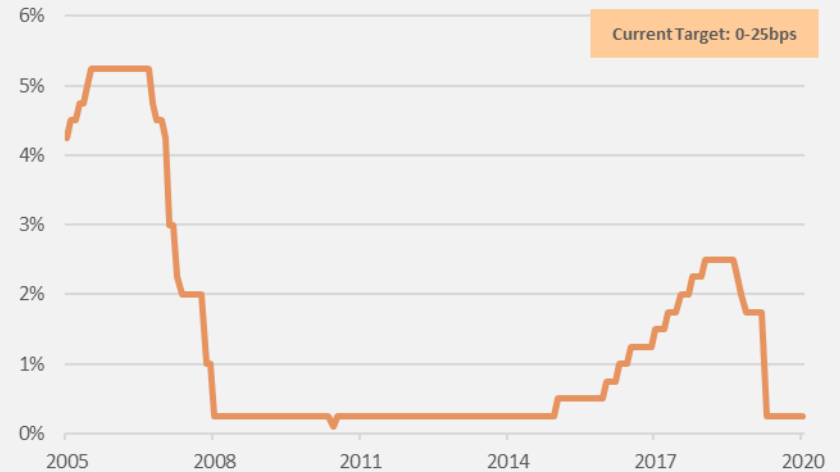
\*Total Emerging Markets Equity Benchmark: 25% Custom MSCI EM IMI Net Divs, 64% MSCI EM Standard Net Divs, 7% Custom MSCI EM Small Cap Net Divs, 4% CUSTOM MSCI FM 15% Country Capped Index net divs. (Current blend is maintained by MSCI)

# Public Fixed Income Review

## U.S. TREASURY YIELD CURVE



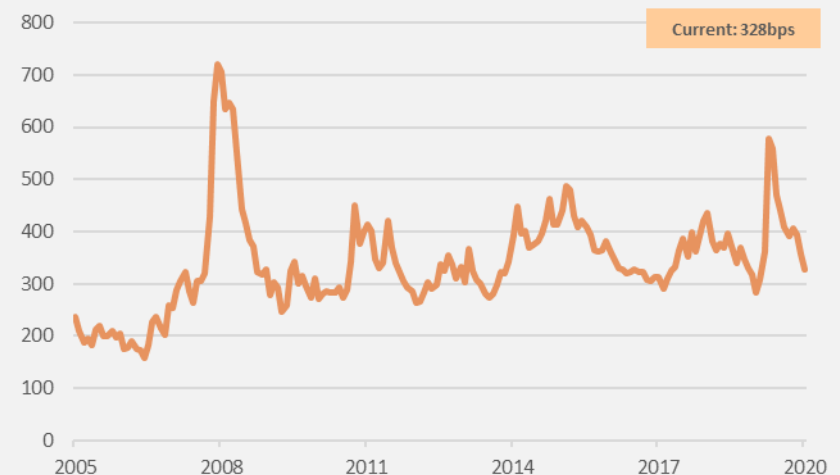
## TARGET FED FUNDS RATE



## U.S. CREDIT SPREADS



## EMERGING MARKETS DEBT SPREAD

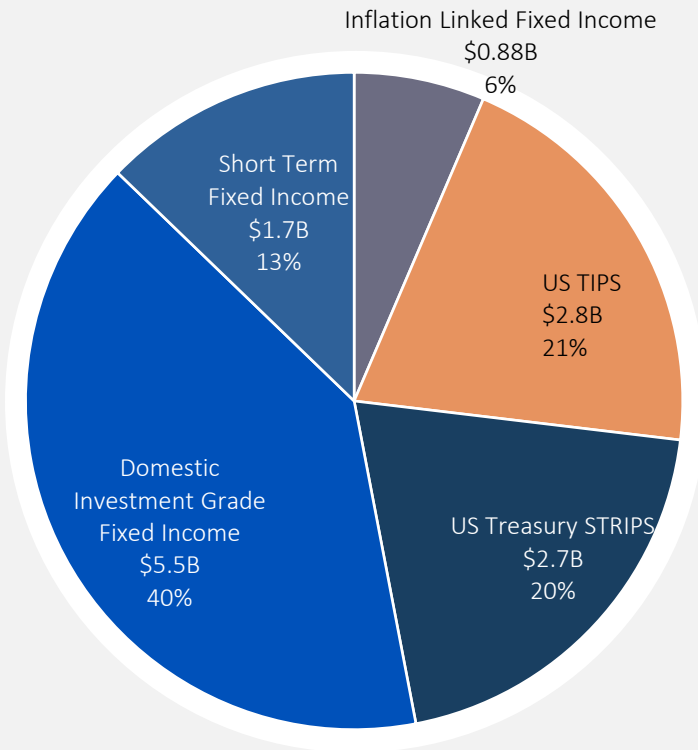


# Domestic Investment Grade & Inflation-Linked Fixed Income

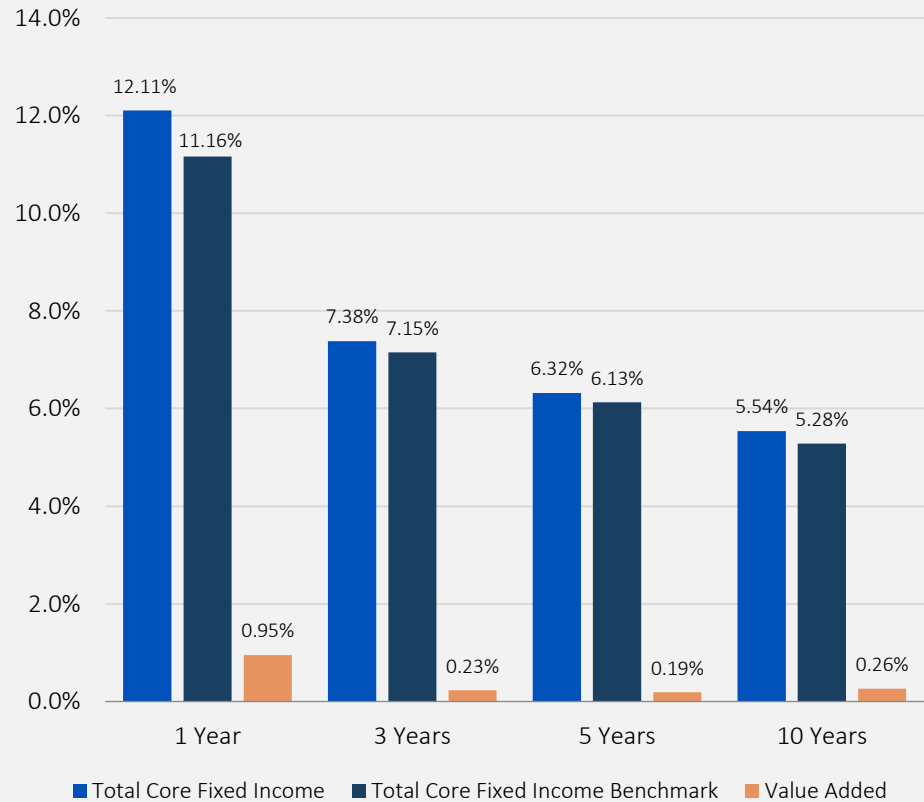
\$13.7 Billion – 15.8% of PRIT Fund (Target 12%-18%)

## ASSET ALLOCATION

37% ACTIVE 63% PASSIVE



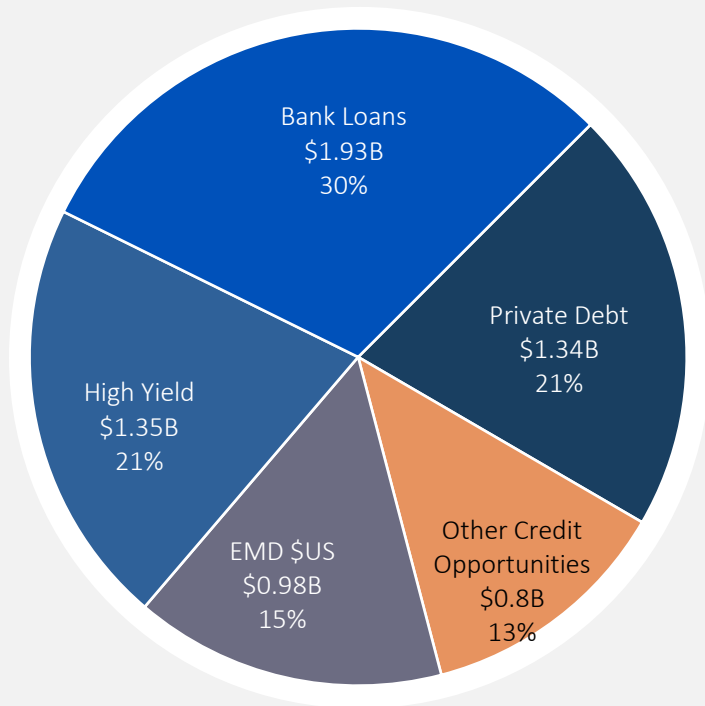
## GROSS OF FEES PERFORMANCE



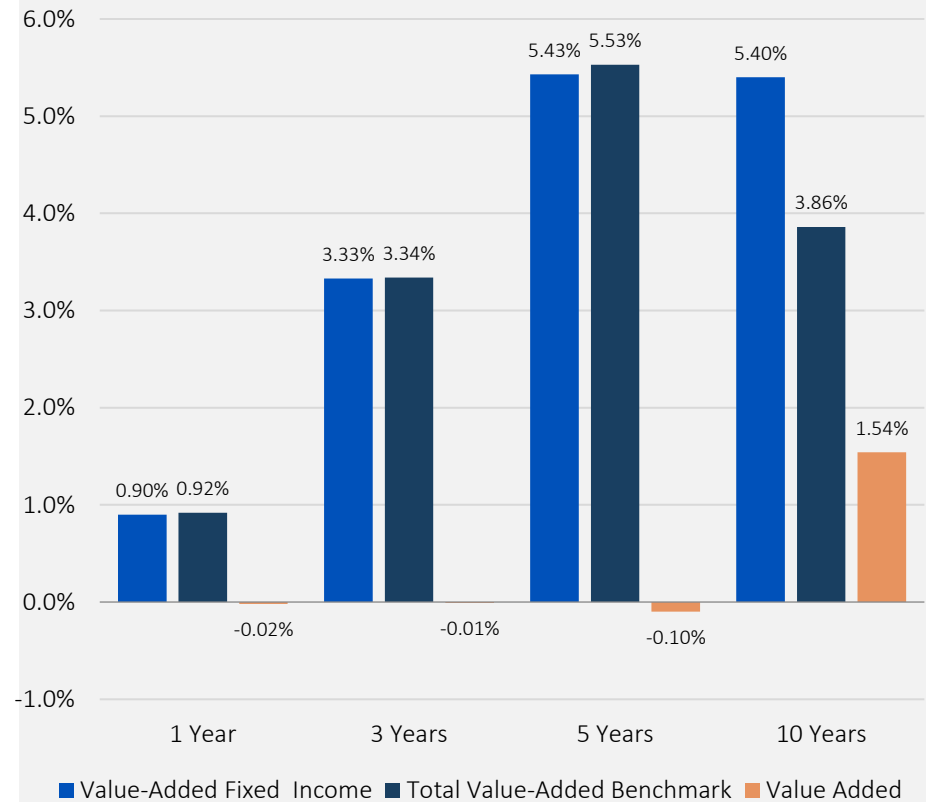
# Value-Added Fixed Income

\$6.4 Billion – 7.4% of PRIT Fund (Target 5%-11%)

## ASSET ALLOCATION



## GROSS OF FEES PERFORMANCE



As of December 31, 2020

\*The Value-Added Fixed Income Benchmark is calculated by applying the investment performance of the sub asset class benchmarks to the sub asset class weights within the value added fixed income portfolio. These weightings are automatically adjusted on a monthly basis.

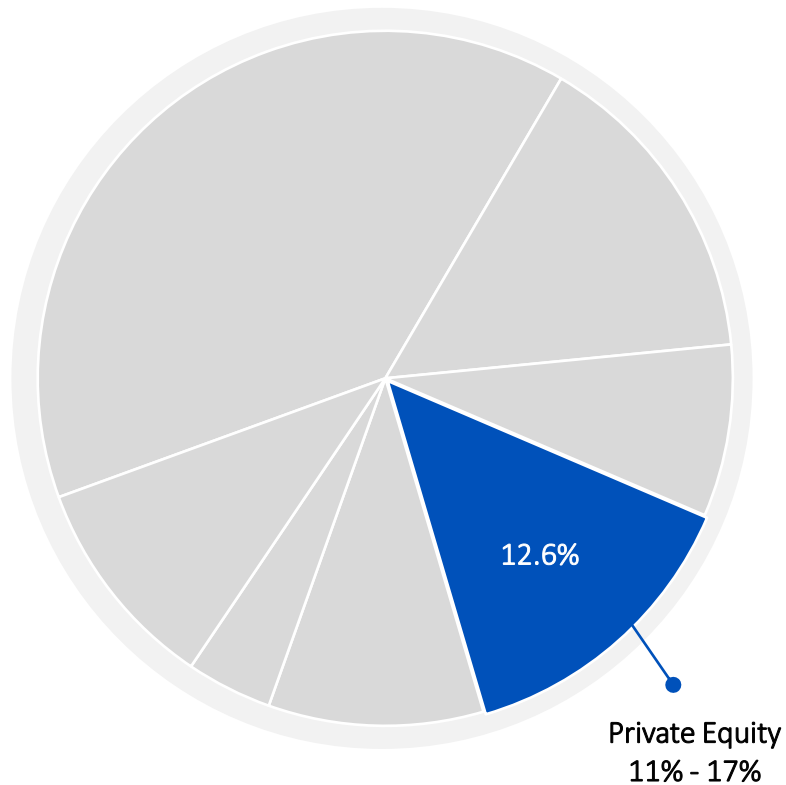
# PRIVATE EQUITY PORTFOLIO



# Private Equity Portfolio

## PRIT FUND TARGET ASSET ALLOCATION

Actual Allocation as of December 31, 2020



### Private Equity

\$10.9 billion, 12.6% of PRIT Fund

### Private Debt

\$1.3 billion, 1.6% of PRIT Fund

**114 investment managers**

**6 team members**

**~ 30 investment decisions/year**

**5 core investment strategies:**

- Large buyouts
- Small and mid cap buyouts
- Growth equity
- Venture capital
- Distressed debt

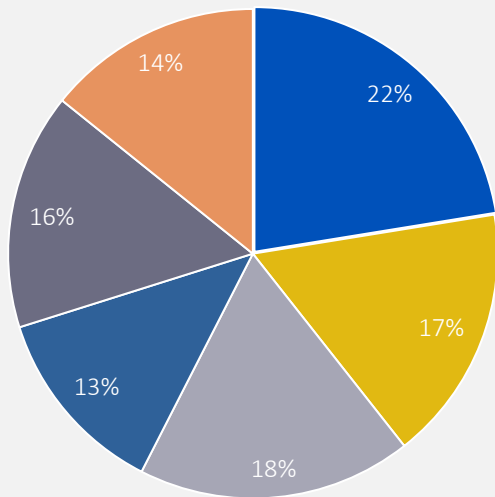


## Private Equity Key Initiatives

- **Execute successful Private Equity Investment strategy.**
  - Increase Private Equity target allocation range to PRIT Fund to 11% to 17%.
  - Commitment goal of \$2.1 billion to \$2.7 billion to funds.
  - Raise co-investment capacity to \$480 million, 20% of 2021 commitments.
- **Continue to source and allocate to diverse investment managers.**
- **Research new Private Equity Strategies.**
  - Private Equity replication.
  - Scale co-investments.
  - Improve governance terms to benefit limited partners.
  - Improve LP/GP relationship balance with selected investment managers.
- **Build the team's expertise and capacity.**
  - Increase collaboration with other PRIM teams.

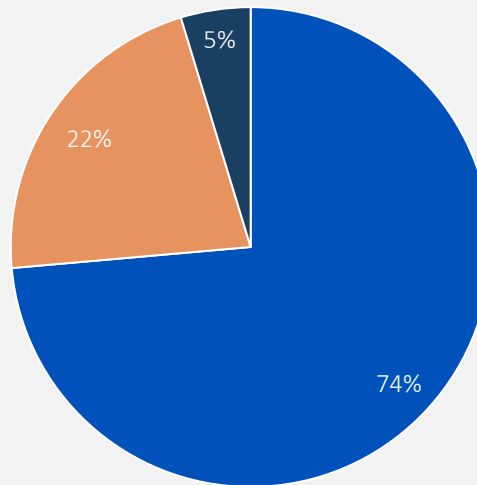
# Private Equity Diversification

## By Strategy



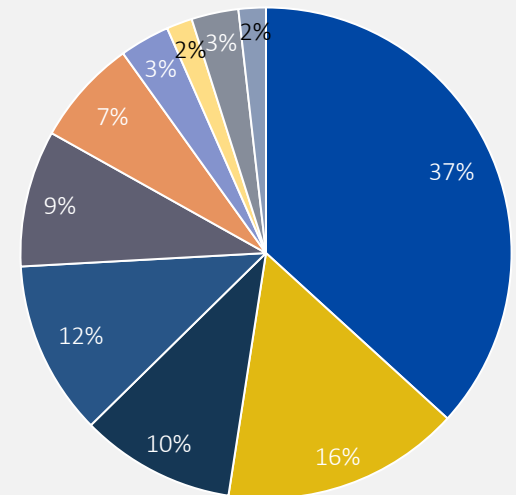
- Buyout - Mid
- Buyout - Large
- Buyout - Mega
- Buyout - Small
- Venture Capital
- Growth Equity

## By Geography



- North America
- Western Europe
- Other

## By Sector



- Information Technology
- Health Care
- Consumer Discretionary
- Industrials
- Financials
- Communication Services
- Energy & Utilities
- Materials
- Consumer Staples
- Other



# Private Equity

\$10.9 Billion – 12.6% of PRIT FUND Gross of Fees Performance



\* The 7 Year Annualized performance is used in the Policy Return and Policy Benchmark.

\*\*The 7-Year Annualized Benchmark: Currently 7-year annualized return of a blend of the 85% Russell 3000 + 3% / 15% MSCI Europe IMI + 3%.

# Private Equity Performance by Vintage Year

Performance Summary By Category as of September 30, 2020

Private Equity	Capital Committed	Paid-In Capital	Percentage Contributed	Capital Distributed <sup>(1)</sup>	Percentage Distributed	Reported Market Value	TVPI	Net IRR 3/31/2020	Cambridge Median IRR <sup>(2)</sup>
PE Vintage Year									
1986	\$77,680,426	\$79,264,625	102.04%	\$238,804,549	301.28%	-	3.01x	15.58%	9.47%
1987	216,385,228	215,372,662	99.53%	420,456,645	195.22%	-	1.95x	11.34%	15.15%
1988	93,451,860	89,954,995	96.26%	184,708,592	205.33%	-	2.05x	14.99%	11.77%
1989	61,340,193	59,296,115	96.67%	126,898,769	214.01%	-	2.14x	20.38%	13.55%
1990	218,931,380	225,129,257	102.83%	516,114,811	229.25%	-	2.29x	13.51%	20.16%
1991	1,000,000	1,000,000	100.00%	796,310	79.63%	-	0.80x	(4.22%)	20.26%
1992	28,010,702	27,694,264	98.87%	51,950,840	187.59%	-	1.88x	23.29%	18.47%
1993	151,028,336	150,975,841	99.97%	282,602,309	187.18%	-	1.87x	18.20%	19.17%
1994	15,000,000	15,024,279	100.16%	28,813,938	191.78%	-	1.92x	19.98%	19.76%
1995	251,102,871	215,034,991	85.64%	414,254,435	192.65%	88,011	1.93x	16.85%	16.16%
1996	64,257,593	67,485,450	105.02%	110,478,819	163.71%	-	1.64x	12.65%	10.33%
1997	380,791,347	399,674,317	104.96%	744,506,933	186.28%	15,263	1.86x	17.37%	11.06%
1998	564,974,028	550,291,977	97.40%	812,224,408	147.60%	2,821,511	1.48x	8.78%	7.30%
1999	413,881,039	411,160,285	99.34%	372,894,516	90.69%	1,046,864	0.91x	(1.59%)	(0.90%)
2000	1,084,468,703	1,064,338,299	98.14%	1,789,048,038	168.09%	19,676,189	1.70x	13.71%	2.52%
2001	591,145,066	582,099,003	98.47%	1,217,183,755	209.10%	7,469,019	2.10x	26.09%	7.19%
2002	128,587,392	129,702,500	100.87%	225,081,201	173.54%	11,207,960	1.82x	12.14%	8.04%
2003	521,790,693	534,062,460	102.35%	977,437,804	183.02%	6,327,018	1.84x	17.53%	9.09%
2004	400,000,000	394,708,529	98.68%	928,616,948	235.27%	15,494,826	2.39x	23.34%	7.40%
2005	726,090,597	738,064,442	101.65%	1,164,097,760	157.72%	17,239,875	1.60x	9.51%	7.93%
2006	1,911,169,212	1,968,271,587	102.99%	3,047,370,777	154.82%	102,799,524	1.60x	8.53%	7.35%
2007	941,890,261	1,020,950,584	108.39%	1,568,721,355	153.65%	133,574,727	1.67x	11.60%	8.49%
2008	1,457,515,404	1,527,432,522	104.80%	2,641,367,165	172.93%	187,506,424	1.85x	14.40%	8.93%
2009	572,344,338	595,488,124	104.04%	986,875,136	165.73%	134,480,452	1.88x	19.19%	13.37%
2010	381,250,000	402,534,389	105.58%	640,234,759	159.05%	462,923,629	2.74x	21.08%	14.35%
2011	1,504,552,316	1,632,189,538	108.48%	2,065,664,138	126.56%	996,183,822	1.88x	16.36%	14.32%
2012	703,981,748	783,312,283	111.27%	1,020,450,071	130.27%	589,477,595	2.06x	21.69%	14.44%
2013	524,535,003	533,530,564	101.71%	437,455,187	81.99%	535,104,669	1.82x	16.56%	13.55%
2014	1,235,219,435	1,222,657,676	98.98%	957,730,257	78.33%	1,461,022,130	1.98x	21.93%	18.61%
2015	953,583,479	915,398,453	96.00%	433,203,050	47.32%	1,293,947,186	1.89x	23.29%	14.91%
2016	1,661,813,202	1,535,941,888	92.43%	366,762,483	23.88%	1,949,523,164	1.51x	20.18%	15.71%
2017	700,595,188	455,096,288	64.96%	42,625,383	9.37%	537,781,386	1.28x	12.91%	17.22%
2018	1,880,385,479	1,109,256,753	58.99%	145,044,720	13.08%	1,282,417,957	1.29x	20.79%	9.14%
2019	2,052,233,327	695,770,001	33.90%	78,303,351	11.25%	739,118,727	1.17x	25.81%	(1.46%)
2020	2,018,078,954	244,750,057	12.13%	1,273,390	0.52%	260,023,127	1.07x	13.90%	(6.98%)
<b>Total Private Equity:</b>	<b>\$24,489,064,803</b>	<b>\$20,592,914,996</b>	<b>84.09%</b>	<b>\$25,040,052,603</b>	<b>121.60%</b>	<b>\$10,747,271,056</b>	<b>1.74x</b>	<b>13.77%</b>	

# Private Markets Portfolios

## 2008 Vintage Year Deal Activity

Name of Partnerships	Type	Segment	Amount
Hellman & Friedman Capital Partners VII	Large Market Buyout	Special Equity	200
TPG Partners VI	Large Buyout	Special Equity	200
Onex Partners III	Upper Middle to Large Market Buyout	Special Equity	150
Blackstone Capital Partners VI	Large Market Buyout	Special Equity	100
Odyssey Investment Partners IV	Middle Market Buyout	Special Equity	100
Advent International GPE VI	Europe Middle Market Buyout	Special Equity	100
Charterhouse Capital Partners IX	Europe Middle Market Buyout	Special Equity	80
American Securities Fund V	Middle Market Buyout	Special Equity	75
H.I.G. Bayside Debt & LBO Fund II	Lower Middle Market Distressed LBO	Special Equity	75
Thoma Bravo IX	Middle Market Buy and Build	Special Equity	50
TowerBrook Investors III	US and Europe Middle Market Buyout	Special Equity	50
Candover 2008 Fund	Europe Middle Market Buyout	Special Equity	15
Battery Ventures VIII Side-Car	Multi Stage Venture Capital	Venture Capital	11
Union Square Ventures 2008	Early Stage Ventures	Venture Capital	10
<b>Total</b>			<b>\$1,216</b>

# Private Markets Portfolios

## 2009 Vintage Year Deal Activity

Name of Partnerships	Type	Segment	Amount
TA XI	Growth		150
Gores Capital Partners III	Middle Market	Buyout	100
Charlesbank Equity Fund VII	Middle Market	Buyout	95
KPS Special Situations Fund III Supplemental	Middle Market	Special Situations	50
Highland Capital Partners Fund VIII	Growth	Multi Stage	30
Battery Ventures IX	Growth	Multi Stage	29
SV Life Sciences V	Growth Health Care	Multi Stage	25
WestView Capital Partners II	Growth	Multi Stage	25
Xenon Private Equity Fund V	Middle Market- Italy	Buyout	17
<b>Total</b>			<b>\$521</b>

# Private Markets Portfolios

## 2010 Vintage Year Deal Activity

Name of Partnerships	Type	Segment	Amount
American Securities Fund VI	Middle Market	Buyout	150
Centerbridge Capital Partners II	Middle Market	Buyout	150
Golder, Thoma, Cressey & Rauner Fund X	Middle Market	Buyout	150
Montagu Private Equity IV	Middle Market- Western Europe	Buyout	60
Insight Venture Partners VII	Info. Tech and New Media	Late stage	50
Insight Venture Partners Co-investment Fund II	Info. Tech and New Media	Late stage	15
Ethos Private Equity VI	Middle Market- South Africa	Buyout	40
Gilde Buy-Out Fund IV	Middle Market- Benelux	Buyout	30
Institutional Venture Partners XIII	Info. Tech and New Media	Late Stage	25
SAIF Partners IV	China and India	Late Stage	25
Flagship Ventures Fund IV	Info. Tech	Early Stage	20
Polaris Venture Partners VI		Multi Stage	20
Rembrandt Venture Partners II	Info. Tech	Early Stage	20
Spark Capital III	Info. Tech	Early Stage	20
Union Square Ventures Opportunity Fund	Info. Tech and New Media	Late Stage	11
<b>Total</b>			<b>\$786</b>

# Private Markets Portfolios

## 2011 Vintage Year Deal Activity

Name of Partnerships	Type	Segment	Amount
Vista Equity Partners Fund IV	Buyout	Middle Market	150
Providence Equity Partners Fund VII	Buyout	Middle Market	100
Berkshire Partners VIII	Buyout	Middle Market	100
KKR North America Fund XI	Buyout	Mega	100
Denham Commodity Partners Fund VI	Diversified Natural Resources	Growth	100
Thoma Bravo Fund X	Buyout	Middle Market	75
Genstar Capital Partners VI	Buyout	Middle Market	60
Quad-C Partners VIII	Buyout	Middle Market	50
Hony Capital Fund V	China Focused	Growth	40
Chequers Capital XVI	France	Middle Market	30
Sofinnova Venture Partners VIII	Life Sciences	Late stage	20
Rembrandt Venture Partners Fund Three	Information Technology	Early Stage	20
Keytone Ventures II	China Focused	Early Stage	20
Index Ventures Growth II	Venture	Growth	20
Union Square Ventures 2012 Fund	Information Technology	Early Stage	15
Kepha Partners Fund II	Information Technology	Early Stage	15
<b>Total</b>			<b>\$915</b>

# Private Markets Portfolios

## 2012 Vintage Year Deal Activity

Name of Partnerships	Type	Segment	Amount
Advent International GPE VII	Global Mid-to Large Buyout	Special Equity	145
Nordic Capital Fund VIII	Europe Large Buyout	Special Equity	115
Technology Crossover Ventures VIII	Late Stage VC- Information Technology	Venture Capital	100
Insight Venture Partners VIII	Late Stage VC-Info. Tech & New Media	Venture Capital	94
TowerBrook Investors IV	US and Europe Middle Market	Special Equity	75
Institutional Venture Partners XIV	Late Stage VC- Information Technology	Venture Capital	40
Catalyst Investors III	Growth Equity	Venture Capital	26
Ascent Venture Partners V	Early Stage VC- Information Technology	Venture Capital	12
Index Ventures VI	Europe Late- Stage VC- Information Technology	Venture Capital	10
Index Life VI (Medicxi)	Europe Late- Stage VC-Life Sciences	Venture Capital	8
<b>Total</b>			<b>\$624</b>

# Private Markets Portfolios

## 2014 Vintage Year Deal Activity

Name of Partnerships	Type	Segment	Amount
Hellman & Friedman Capital Partners VIII	Large Buyout	Special Equity	230
Centerbridge Capital Partners Fund III, L.P.	Large Buyout	Special Equity	175
Thoma Bravo Fund XI	Upper middle Market Buyout	Special Equity	150
Vista Equity Partners Fund V	Large and Upper middle Market Buyout	Special Equity	100
Quantum Energy Partners Fund VI, L.P.	Large Buyout	Special Equity	100
H.I.G. Middle Market LBO Fund II	Middle Market Buyout	Special Equity	50
Thomas H. Lee Equity Fund VII, L.P.	Large and Upper middle Market Buyout	Special Equity	50
Spark Capital Growth Fund	Late stage venture capital	Venture	40
Sofinnova Venture Partners IX	Multi stage venture capital	Venture	30
Insight Venture Partners Co-investment Fund III	Growth Equity	Venture	22
Xenon Private Equity Fund VI	Italy-focused middle Market Buyout	Special Equity	17
Ascent Venture Partners VI	Early stage venture capital	Venture	14
Index Ventures VII	European venture capital	Venture	10
<b>Total</b>			<b>\$1,294</b>



# Private Markets Portfolios

## 2017 Vintage Year Deal Activity

Name of Partnerships	Type	Segment	Amount
Trident VII, L.P.	Middle Market Buyout – Sector Focused	Special Equity	50
CVC Capital Partners VII, L.P.	Large Buyout - Europe	Special Equity	228
Chequers Capital XVII	Middle Market Buyout - Europe	Special Equity	51
Onex Partners Fund V, L.P.	Large Buyout	Special Equity	160
Quantum Energy Partners VII & Quantum Energy Partners Co-Investment Fund	Middle Market Buyout	Special Equity	165
GTCR Fund XIII, L.P.	Middle Market Buyout	Special Equity	200
Charlesbank Equity Fund IX, L.P & Charlesbank Equity Fund IX Overage Allocation Program	Middle Market Buyout	Special Equity	150
Insight Venture Partners X, L.P.	Growth Equity	Venture	80
Waterland Private Equity Fund VII	Middle Market Buyout - Europe	Special Equity	60
Flagship Pioneering Fund VI, L.P.	Early Stage Venture – Life Sciences	Venture	25
Nordic Capital Fund IX	Large Buyout - Europe	Special Equity	115
Thomas H. Lee Equity Fund VIII, L.P.	Middle Market Buyout	Special Equity	50
Westview Capital Partners IV, L.P.	Middle Market Buyout	Special Equity	50
Berkshire Fund IX Co-Investment, L.P.	Large Buyout	Special Equity	20
<b>Total</b>			<b>\$1,404</b>

# Private Markets Portfolios

## 2020 Vintage Year Deal Activity

Name of Partnerships	Type	Segment	Amount
Index Ventures X*	Seed and Early-Stage Venture - Tech - Europe and U.S.	Venture	18
Index Ventures Growth V*	Growth and Late-Stage Venture - Tech - Europe and U.S.	Venture	46
Insight Partners XI*	Growth Equity - Software, Software-Enabled Services, and Internet Businesses	Venture	140
Thoma Bravo Explore Fund*	Lower-Middle Market Buyout - Software and Tech Svcs	Special Equity	60
Thoma Bravo Discover Fund III*	Middle Market Buyout - Software and Tech Services	Special Equity	150
Thoma Bravo Fund XIV*	Large Buyout - Software and Tech Services	Special Equity	275
Flagship Pioneering Origination Fund VII*	Seed, Early-, and Late-Stage Venture - Therapeutics, Health Tech, and Agricultural Tech	Venture	25
CVC Capital Partners Fund VIII*	Large and Upper-Middle Market Buyout - Europe and North America	Special Equity	309
Elysian Capital III	Lower-Middle Market Buyout - United Kingdom	Special Equity	74
Nordic Capital Fund X*	Middle Market Buyout - Healthcare, Tech and Payments, and Financial Services - Northern Europe	Special Equity	197
Technology Crossover Ventures Fund XI*	Growth Equity - High Growth Technology - U.S. and Western Europe	Venture	200
GTCR Fund XIII*	Middle Market Buyout – Financial Services and Tech, Growth Business Services, Healthcare, TMT	Special Equity	273
Charlesbank Equity Fund X*	Middle Market Buyout – Business Services, Consumer, Healthcare, Industrials, Technology - North America	Special Equity	175
Charlesbank Equity Overage Fund X*	Middle Market Buyout – Business Services, Consumer, Healthcare, Industrials, Technology - North America	Special Equity	25
Waterland Private Equity Fund VIII*	Small and Middle Market Buyout – Europe	Special Equity	60
USV 2021*	Seed and Early-Stage Technology - North America and Europe	Venture	11
USV Climate 2021*	Early-Stage Technology - Climate Change Mitigation/Adaptation - North America and Europe	Venture	4
<b>Total Commitments Through 12/31//2020</b>			<b>\$2,042</b>
<i>2020 Investment Plan</i>			<i>\$1,700 - \$2,300</i>

# MWRA Retirement System

## Life-to-Date Activity Summary

Vintage Year	Percent Vintage Fund	Targeted Commitment	Adjusted Commitment	Drawn Capital	Percent Commitment		Direct Fees	Interest Paid (Earned)	Management Fees
					Drawn	Distributions			
2008	0.20%	\$3,000,000	\$2,430,460	\$2,207,684	90.83%	\$4,009,109	\$13,270	(\$1,961)	\$6,524
2009	0.07%	1,000,000	348,735	322,214	92.40%	619,556	0	-390	821
2010	0.10%	1,000,000	786,250	730,523	92.91%	1,113,373	0	-777	2,157
2011	0.15%	1,500,000	1,372,500	1,254,495	91.40%	1,715,025	7,488	-1,302	3,197
2012	0.10%	1,000,000	628,638	570,204	90.70%	626,565	0	-481	1,679
2014	0.14%	2,000,000	1,820,605	1,598,531	87.80%	1,028,204	0	65	2,773
2017	0.14%	2,000,000	2,081,508	1,203,288	57.81%	121,514	3	1,446	852
2020	0.25%	5,000,000	4,996,575	399,815	8.00%	24	0	142	143
<b>LTD Total</b>		<b>\$16,500,000</b>	<b>\$14,465,270</b>	<b>\$8,286,754</b>	<b>57.29%</b>	<b>\$9,233,371</b>	<b>\$20,762</b>	<b>(\$3,257)</b>	<b>\$18,146</b>

Please note that all management fees and interest paid/earned are in addition to the adjusted commitment.



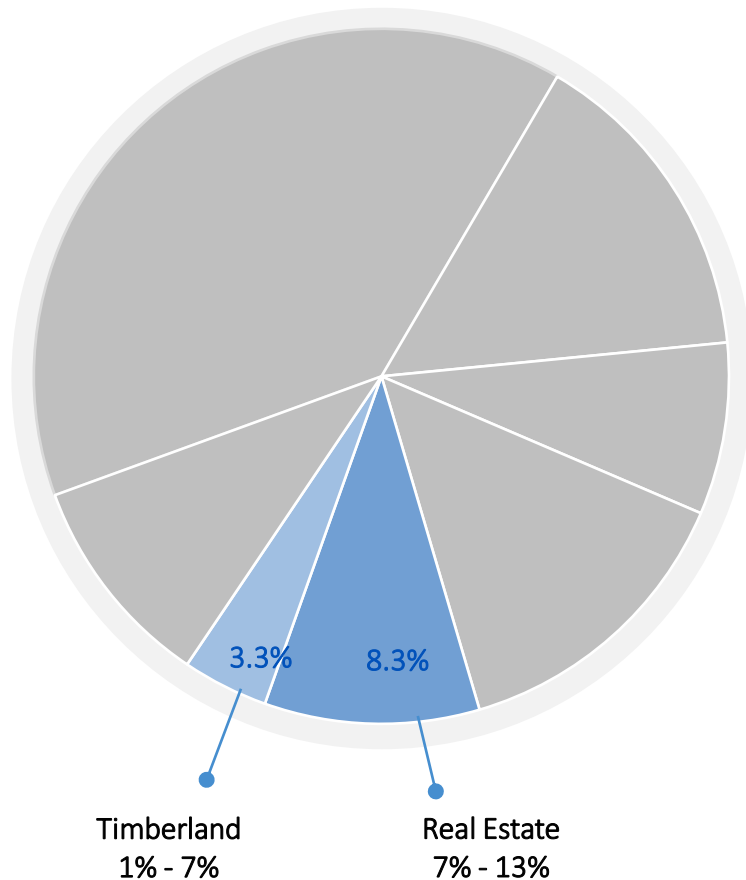
**REAL ESTATE AND TIMBERLAND  
PORTFOLIO**

**Mass  
PRIM**

# Real Estate and Timberland Portfolios

## PRIT FUND TARGET ASSET ALLOCATION

Actual Allocation as of December 31, 2020



\$10.0 billion, 11.6% of PRIT Fund

- Real Estate: \$7.2 billion, 8.3% of PRIT Fund
- Timberland: \$2.8 billion, 3.3% of PRIT Fund

### 16 portfolios

- 6 core portfolios
- 5 non-core portfolios
- 2 global REIT portfolios
- 2 timberland portfolios
- 1 direct investment portfolio

### Property investments

- Real estate – 91 properties
- Timberland – 24 properties

### 140 global real estate securities

### 4 primary strategies

- Core U.S. private real estate
- Non-core U.S. private real estate
- Global real estate securities
- Global timberland

### 5 team members

# Real Estate and Timber Key Initiatives

## Real Estate

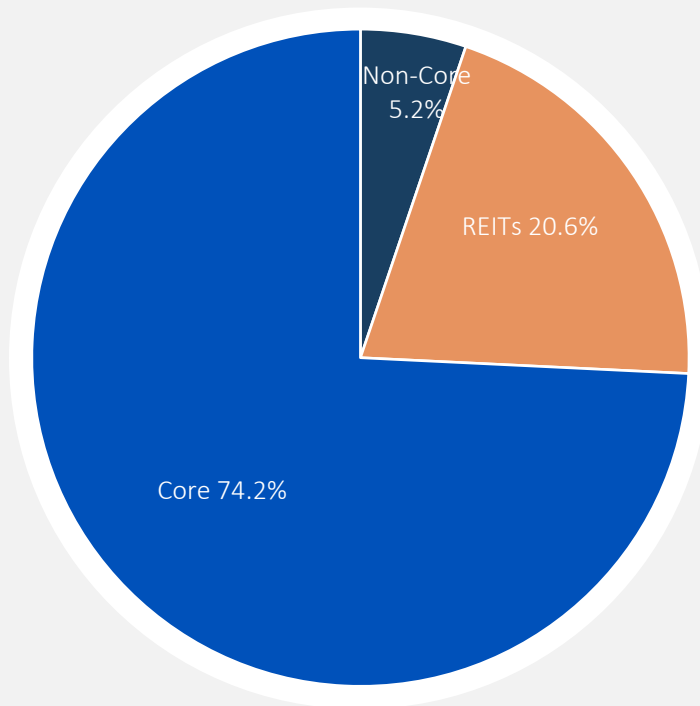
- **Investments**
    - Continue to source and allocate to diverse investment managers.
    - Emphasize non-core and direct investment sourcing.
    - Office and retail assets: Maintain an asset level focus. Re-evaluate manager assignments as needed.
    - Implement project consulting model.
    - Continue to increase PRIM's knowledge of non-traditional Real Estate sectors.
    - Continue to use REITs as liquidity for acquisitions.
    - Evaluate new technology for customized asset management solutions.
  - **Real Estate portfolio debt**
    - Refinance \$500 million maturity.
- 58 • Re-evaluate PRIM's capital structure.

## Timber

- Review PRIM's long-term investment thesis.
- Monitor implementation of Real Estate and Timberland operating and disposition plans.
- **Collaboration with other PRIM teams.**
  - Review asset class with Research team.
  - Review benchmark with Risk team.

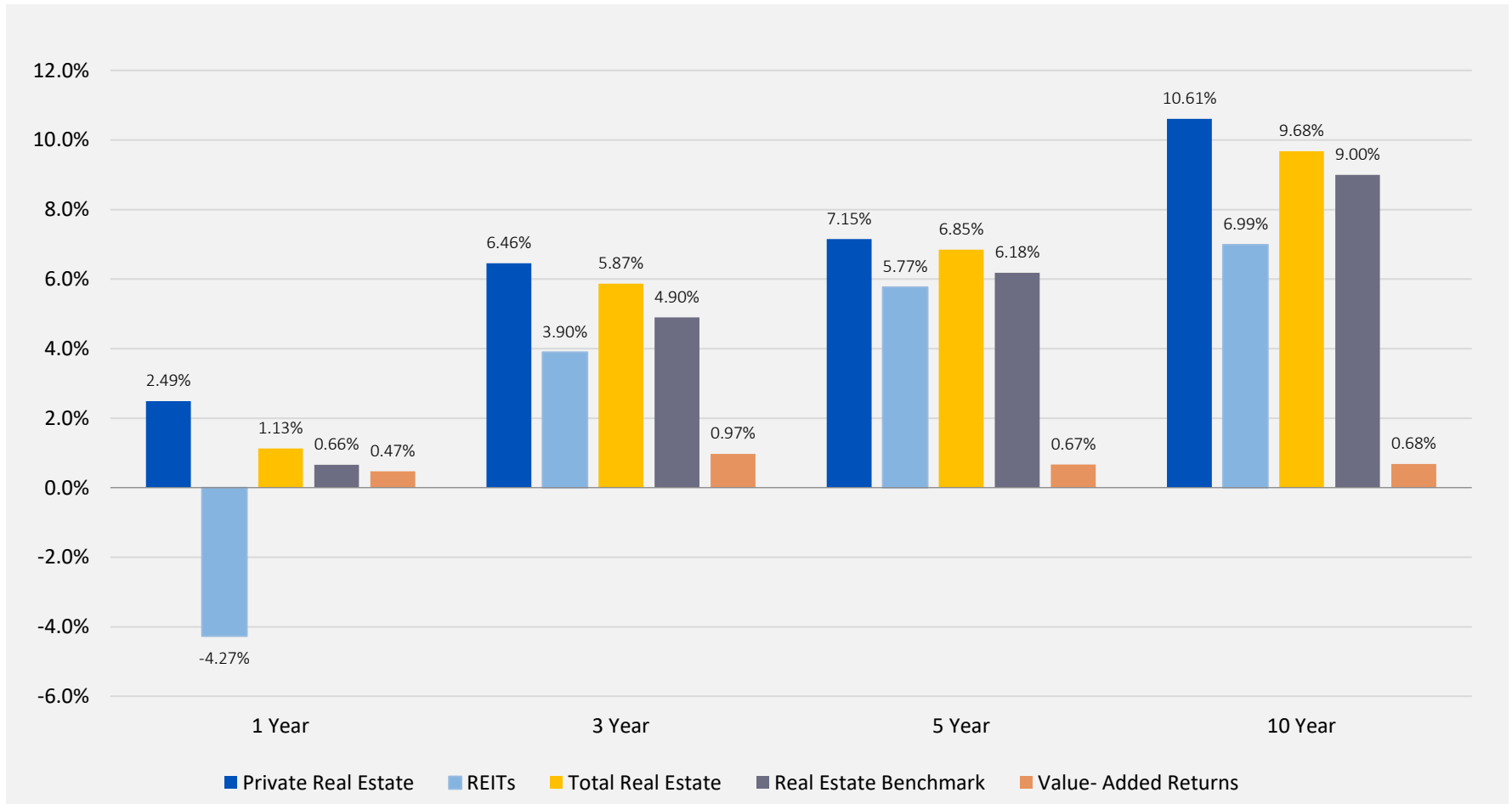
# Real Estate Asset Allocation

TARGETS	
Core	70%
Non-Core	10%
REITs	20%



- Equity investments in both directly-owned properties and REIT securities
- Directly-owned core properties make up the majority of the portfolio
- Core properties are typically well-leased, operating properties that provide regular cash flow from rents
- Non-Core investments make up approximately 5% of the real estate portfolio and include properties that are under development

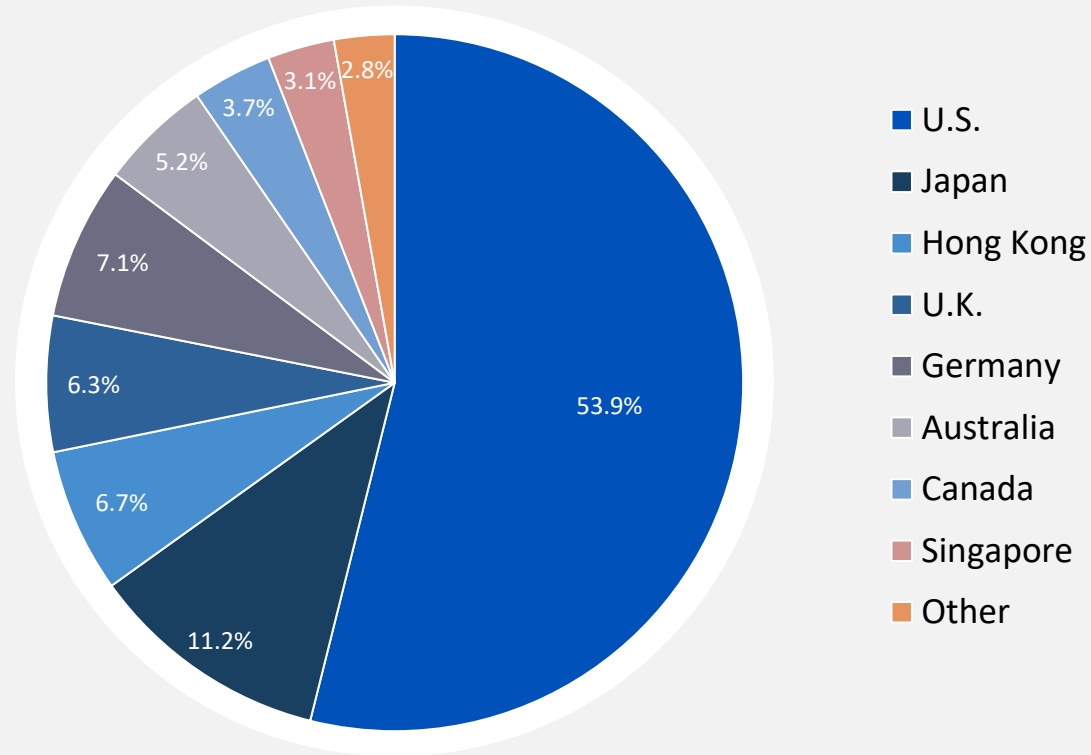
# Total Real Estate Performance



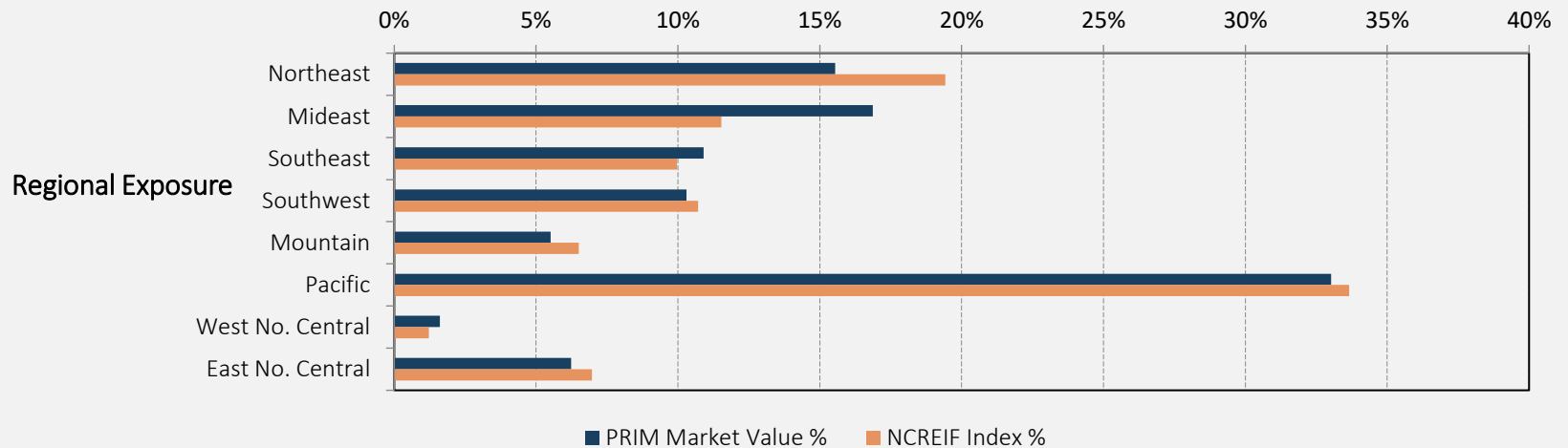
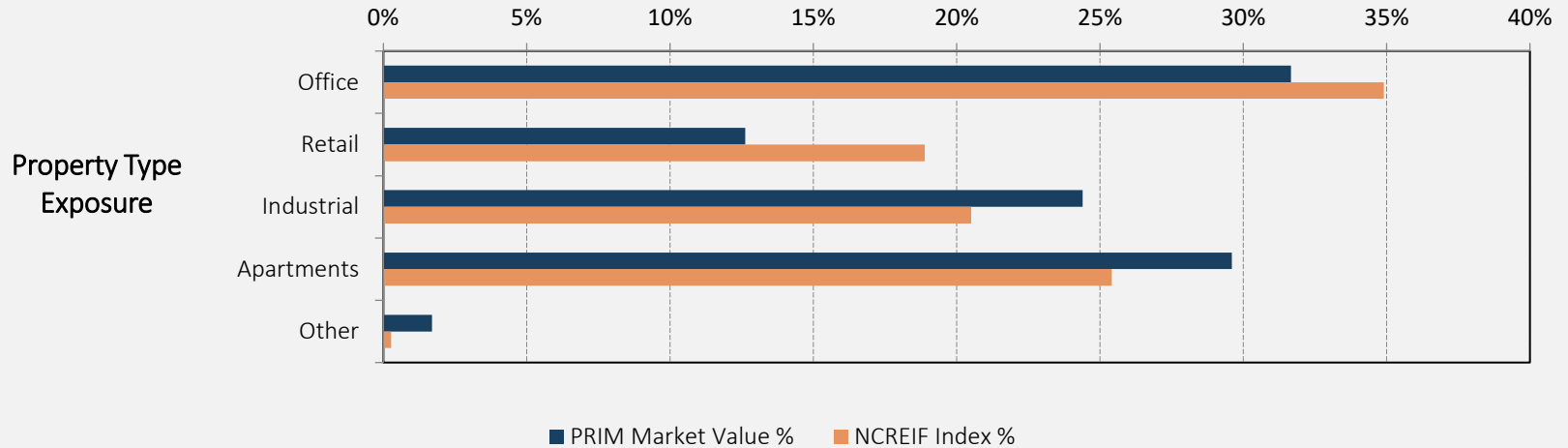


# Public Real Estate (REITs) Exposure by Country

BY MARKET VALUE

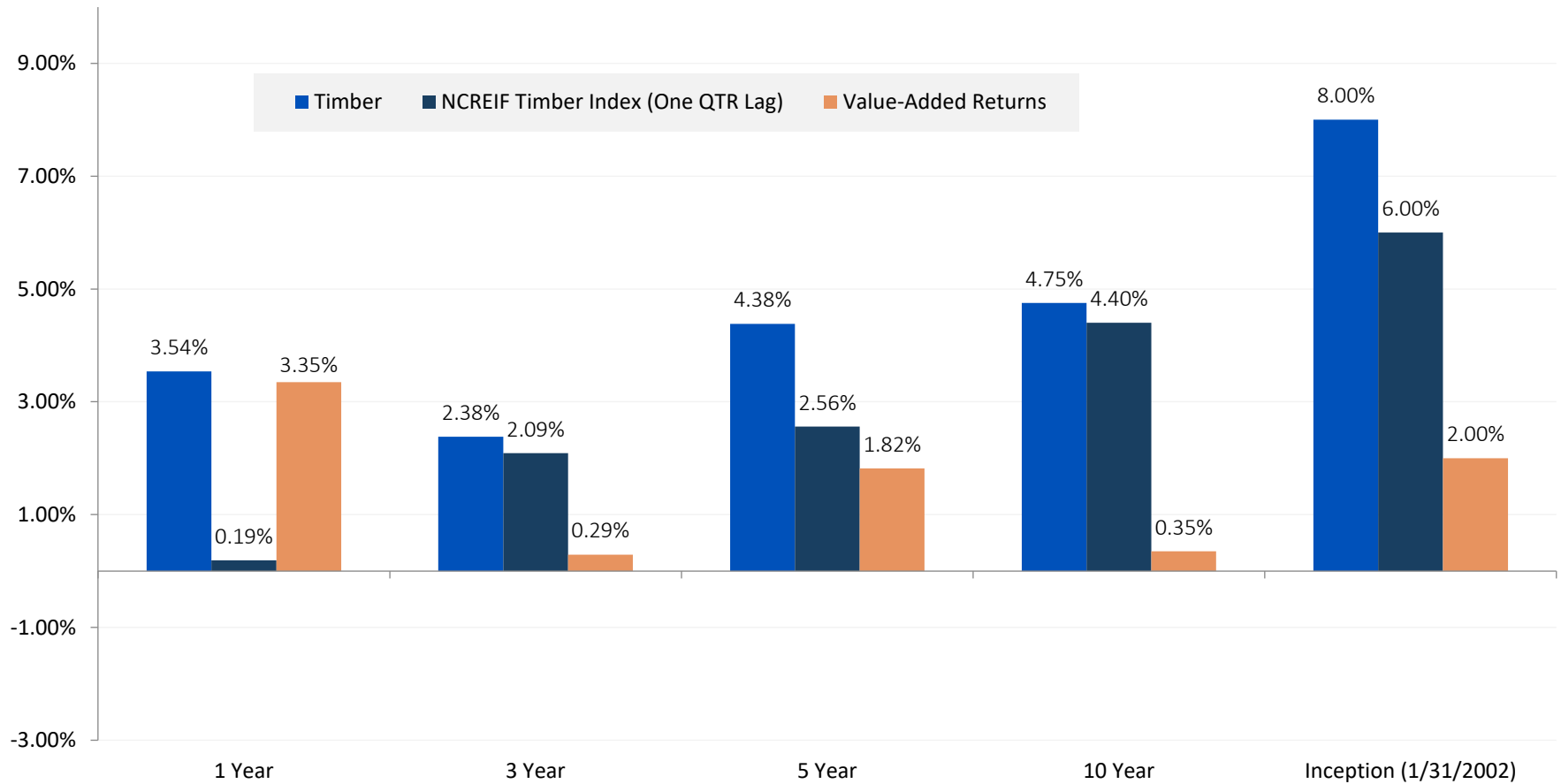


# Private Real Estate Portfolio Exposure



# Timberland Performance

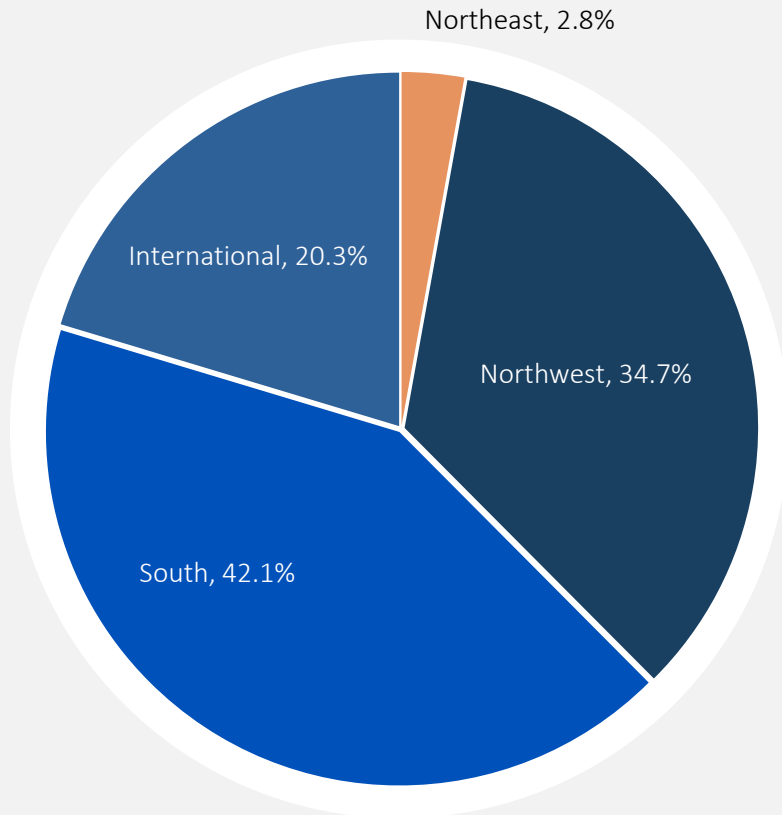
## Gross of Fees



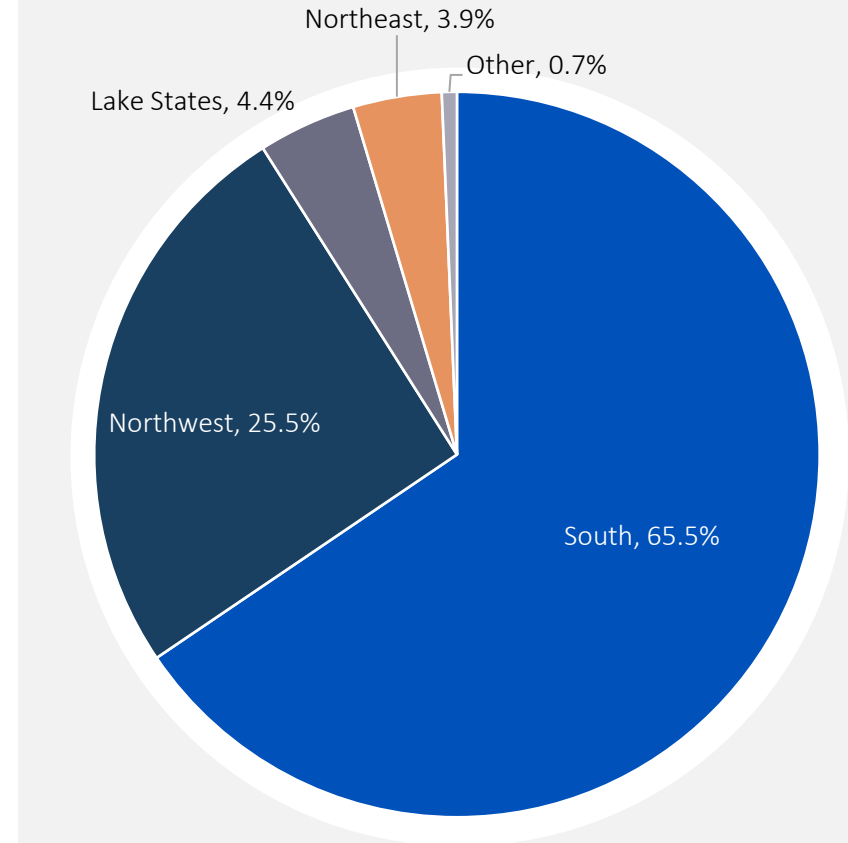
# Timberland Exposure by Region vs. Benchmark

Equity Value

## PRIM REGION EXPOSURE



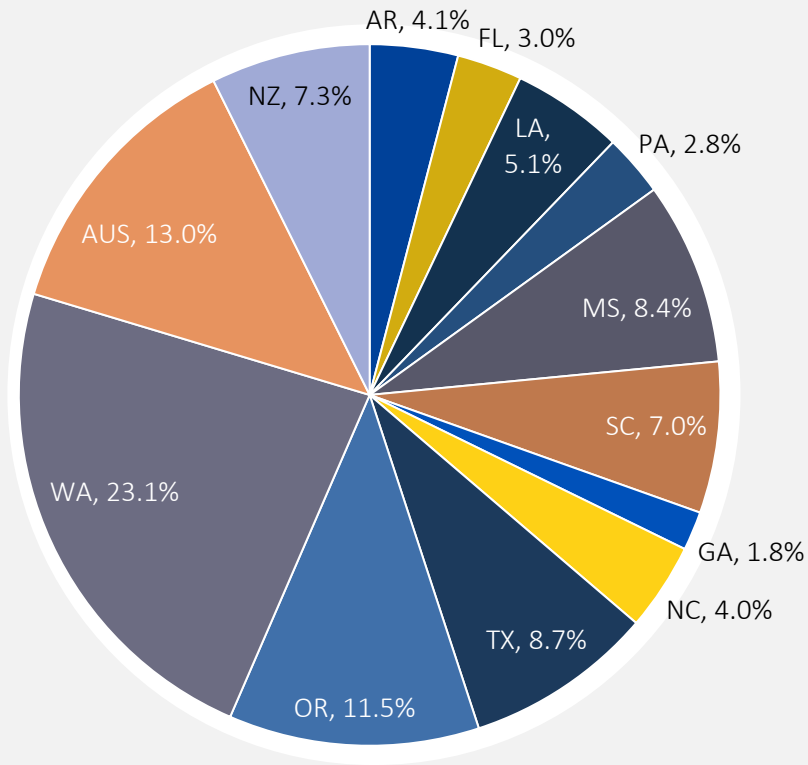
## BENCHMARK



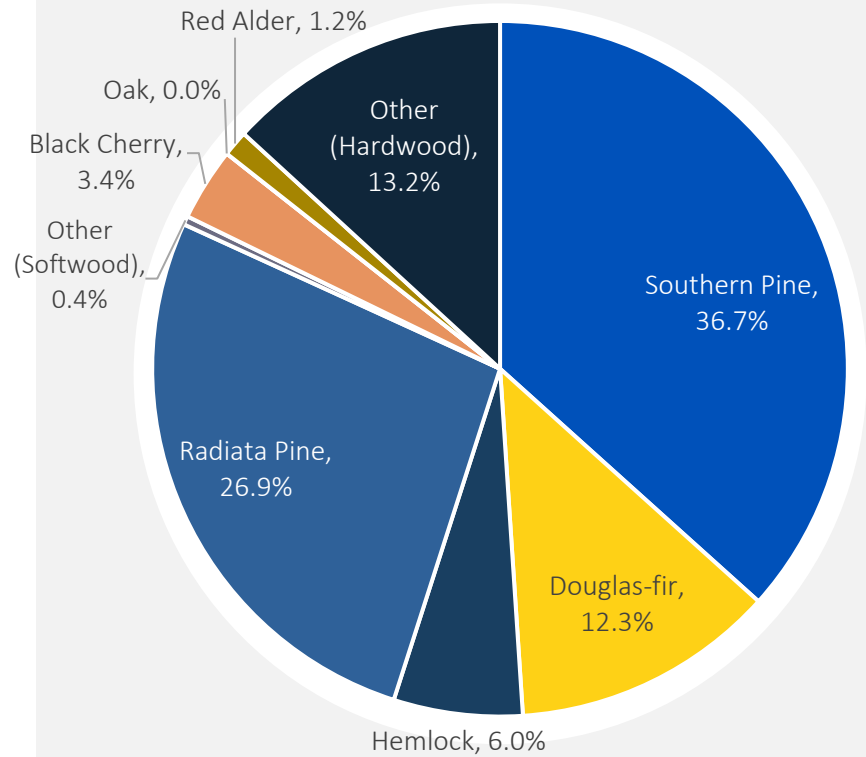
# Timberland Exposure by State/Region

# Timberland Exposure by Species

BY EQUITY VALUE



BY ACRES



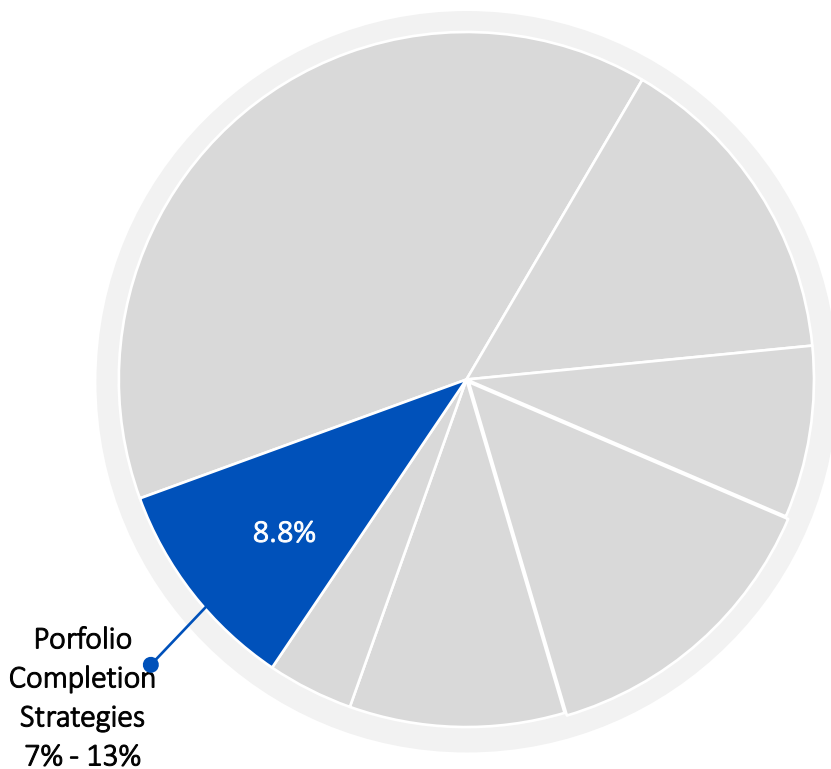
# PORTFOLIO COMPLETION STRATEGIES



# Portfolio Completion Strategies (PCS)

## PRIT FUND TARGET ASSET ALLOCATION

Actual Allocation as of December 31, 2020



PCS \$7.6 billion, 8.8% of PRIT Fund

- Direct Hedge Funds: \$6.2 billion, 82% of PCS
- Hedge Fund of Funds: \$0.6 billion, 8% of PCS
- Real Assets: \$0.8 billion, 11% of PCS

26 Hedge Fund managers:

- 1 FoHF Manager
- 25 direct hedge fund managers

9 team members

6 PCS managers

Collaboration across all PRIM teams

# Portfolio Completion Strategies

## Key Initiatives

### Portfolio Completion Strategies

- Continue to source and allocate to diverse investment managers.
- Continue implementing carveout of Hedge Fund portfolio into “Stable Value” and “Directional” components.
- Continue collaboration with PRIM teams on investment and co-investments opportunities.
- Finalize analytic infrastructure to better research and monitor derivative-based strategies.

### Risk

- Conduct comprehensive benchmark review in 2021.
- Develop risk management “best practices”- procedures, policies, and measures from a risk perspective related to the stages of investment due diligence and ongoing manager monitoring.
- Evaluate risk management platform and internal vendors.
- Identify and implement lower cost borrowing alternative for the Real estate sleeve.

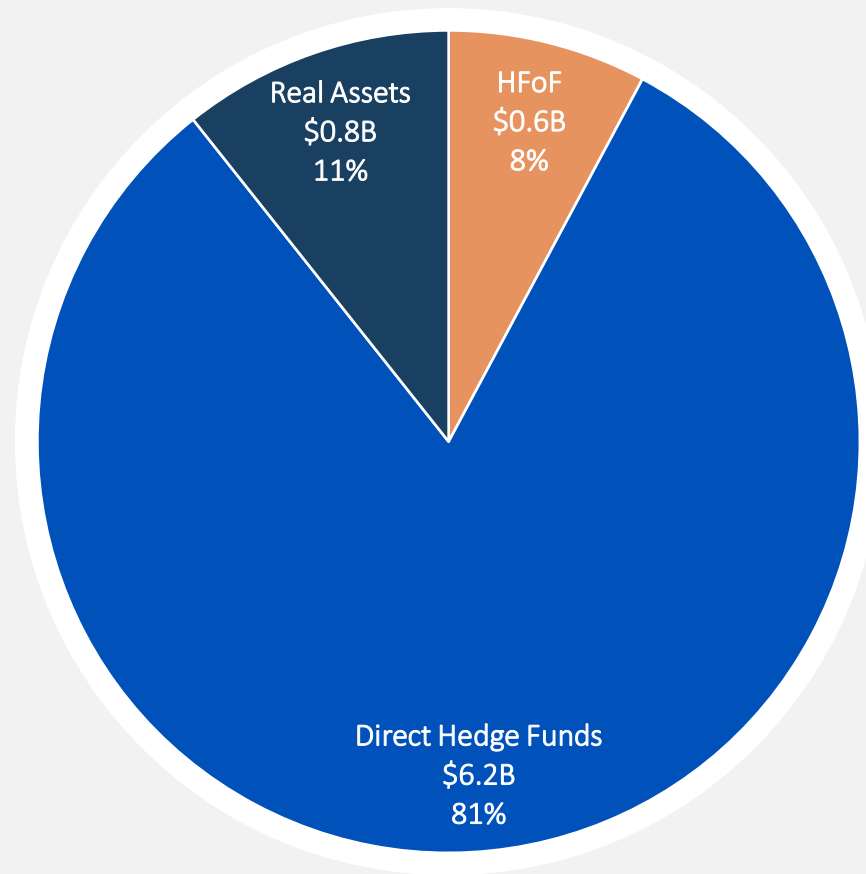
### Research

- Build out supplemental asset allocation research to refine optimal asset class ranges and further increase model robustness.
- Conduct Private Equity replication research.
- Collaborate with MIT and other prospective members of the Aggregate Confusion Project: An ESG Research consortium.
- Further refine the Diverse-owned Investment Management firm database.



# Portfolio Completion Strategies

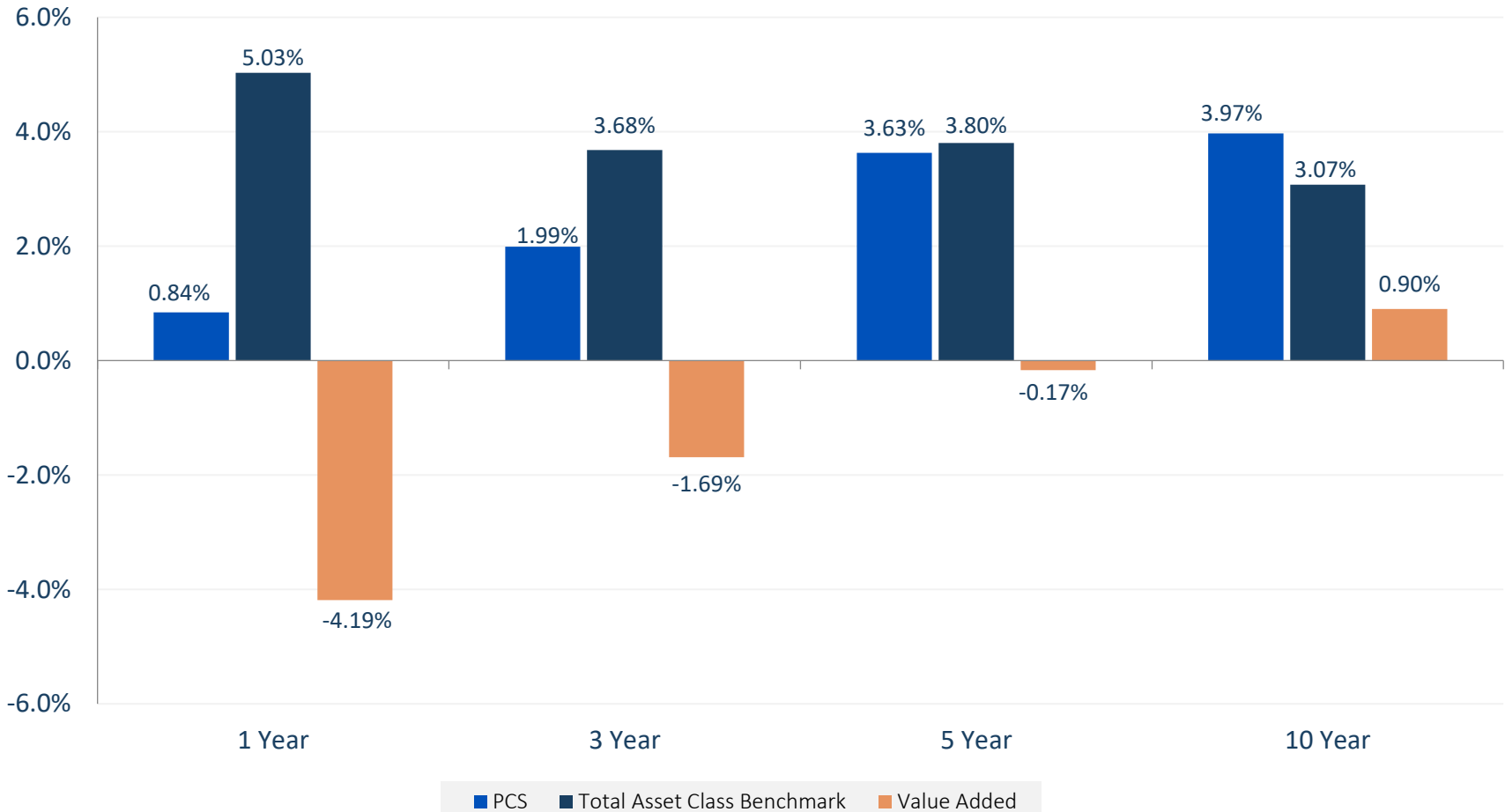
Total Assets \$7.6 Billion



\* \$ in 000's.

# Portfolio Completion Strategies Performance

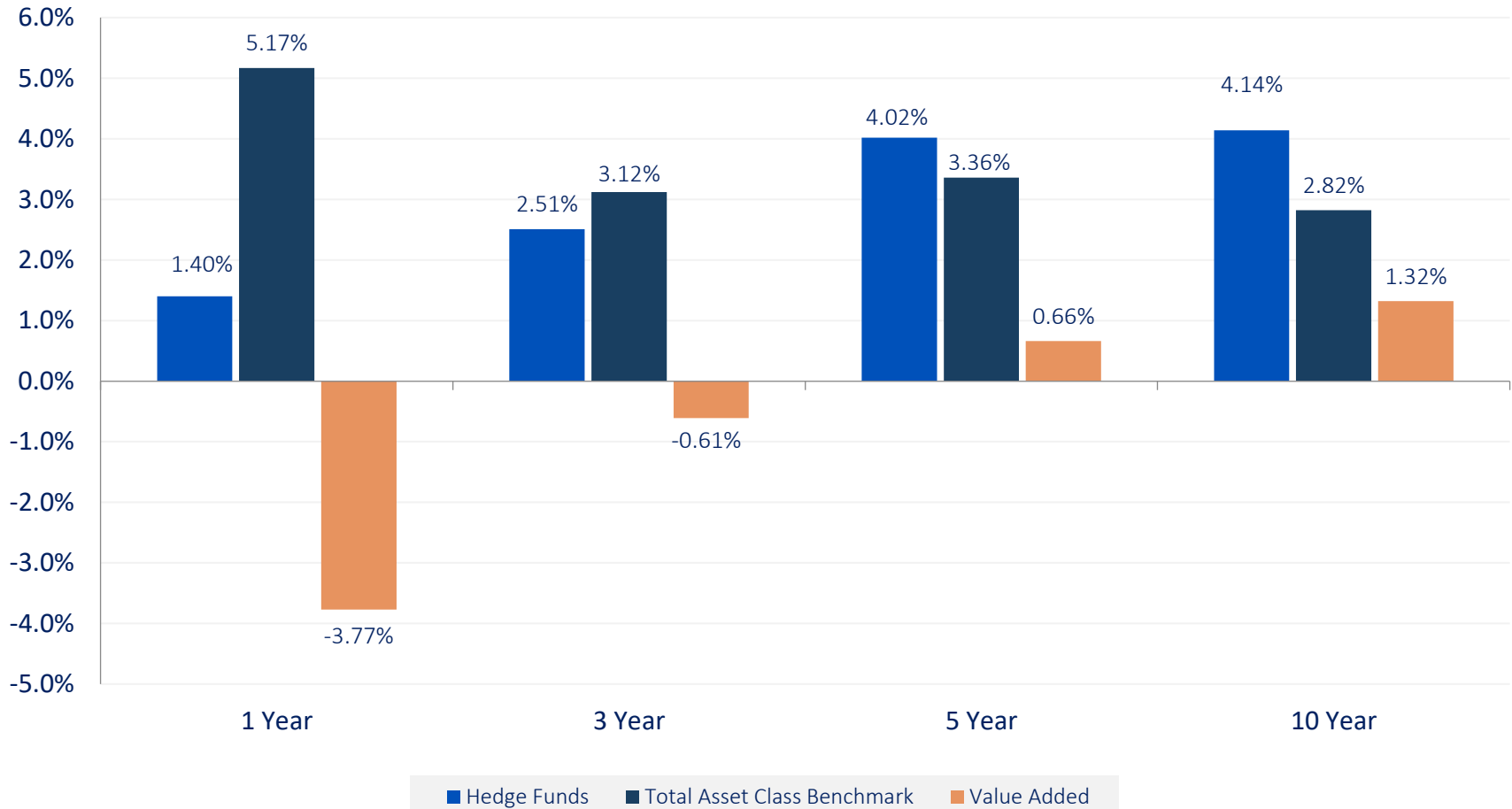
As of December 31, 2020\*



Benchmark: Total Portfolio Completions Composite Index was formed on April 1, 2017 by combining the prior Portfolio Completion Strategies with Total Hedge Funds. Total Portfolio Completion Strategies Composite Index is calculated by applying the underlying benchmark return for each sub asset class to the asset class's weight within the Total Portfolio Completion Strategies Composite. These weights are based on the beginning adjusted monthly market value of each sub asset. \*Hedge Funds returns, 80% of the PCS Portfolio, are net of fees.

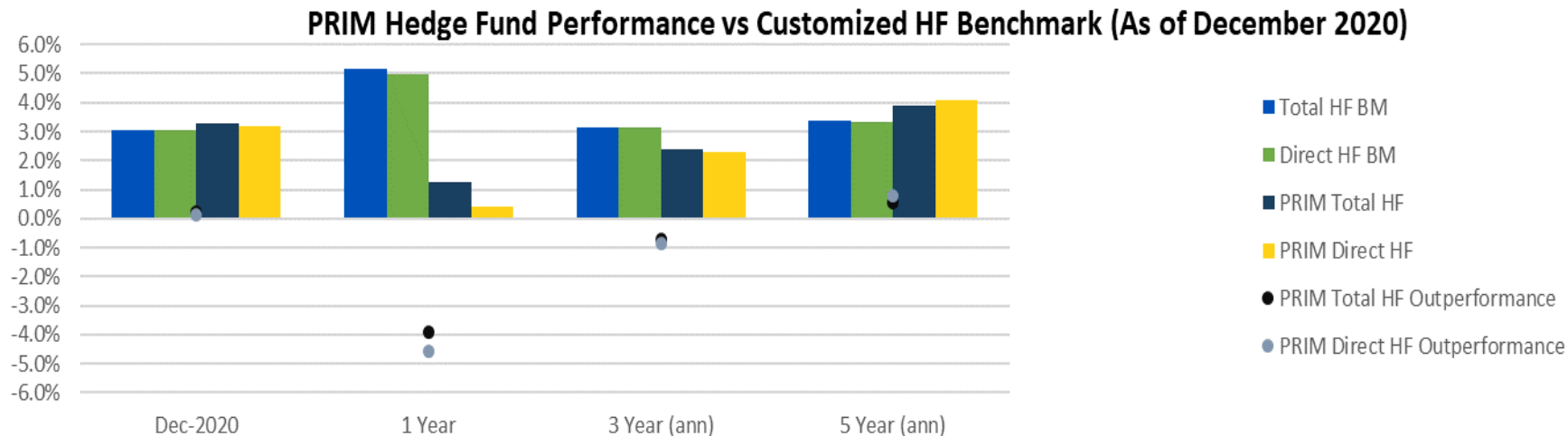
# Hedge Funds Performance

Total Assets \$6.8 Billion – 7.9% of PRIT Fund



\*As of December 31, 2020. Benchmark: ML 90 Day T-Bill + 4% through 12/31/2009; currently HFRI Fund of Funds Composite Index through 6/30/2017; currently using a composite of several HFRI sub-indices. (HFRI indices - Flash returns are used through 12/31/11. Current returns reflect most up to date performance and are subject to change.)

# PRIM Hedge Fund Portfolio Performance



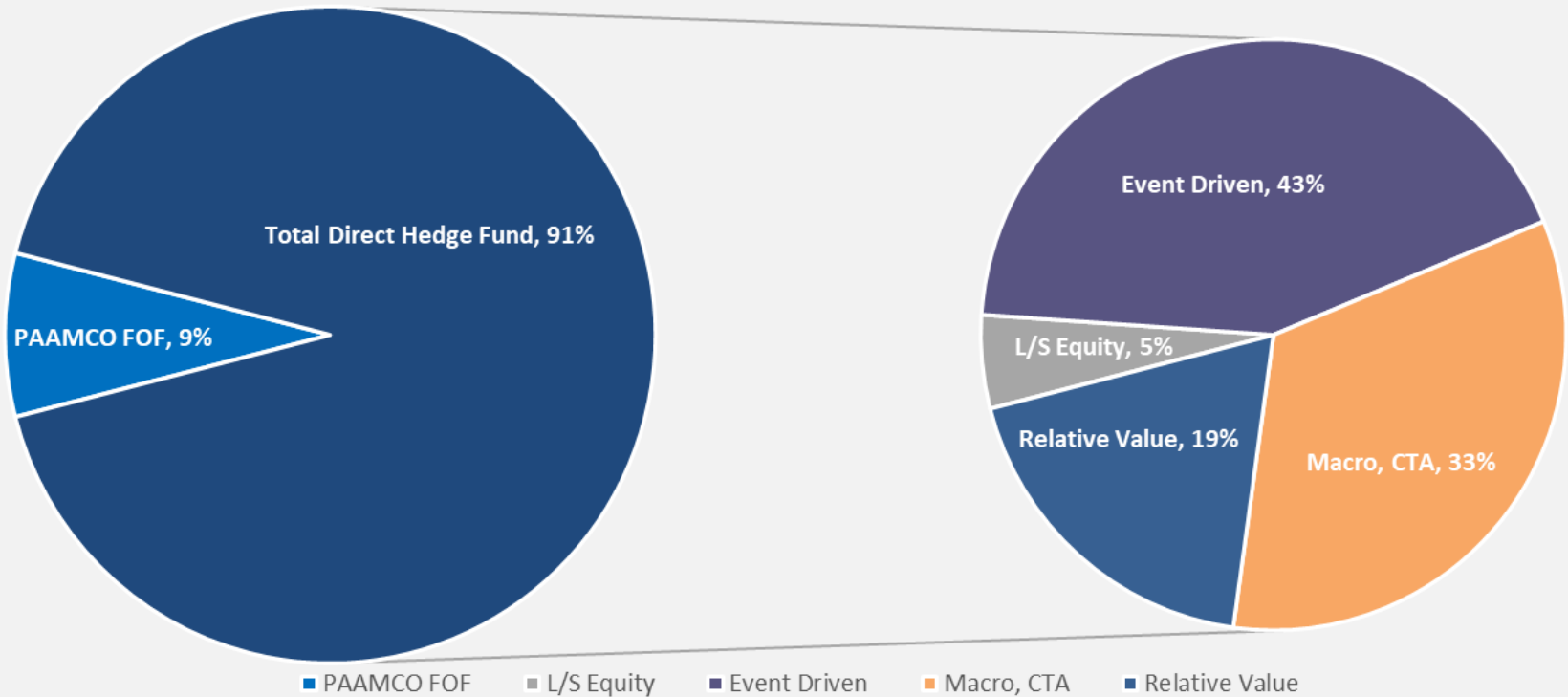
	Dec-2020	1 Year	3 Year (ann)	5 Year (ann)
<b>PRIM Total HF</b>	3.26%	1.26%	2.39%	3.91%
<b>PRIM Direct HF</b>	3.18%	0.42%	2.28%	4.09%
<b>Total HF BM</b>	3.04%	5.17%	3.12%	3.36%
<b>Direct HF BM</b>	3.04%	4.97%	3.12%	3.33%
<b>PRIM Total HF Outperformance</b>	0.22%	-3.91%	-0.73%	0.55%
<b>PRIM Direct HF Outperformance</b>	0.14%	-4.55%	-0.84%	0.76%

# PRIM Hedge Fund Portfolio Snapshot

Total Hedge Funds' Market Value = \$6.8B

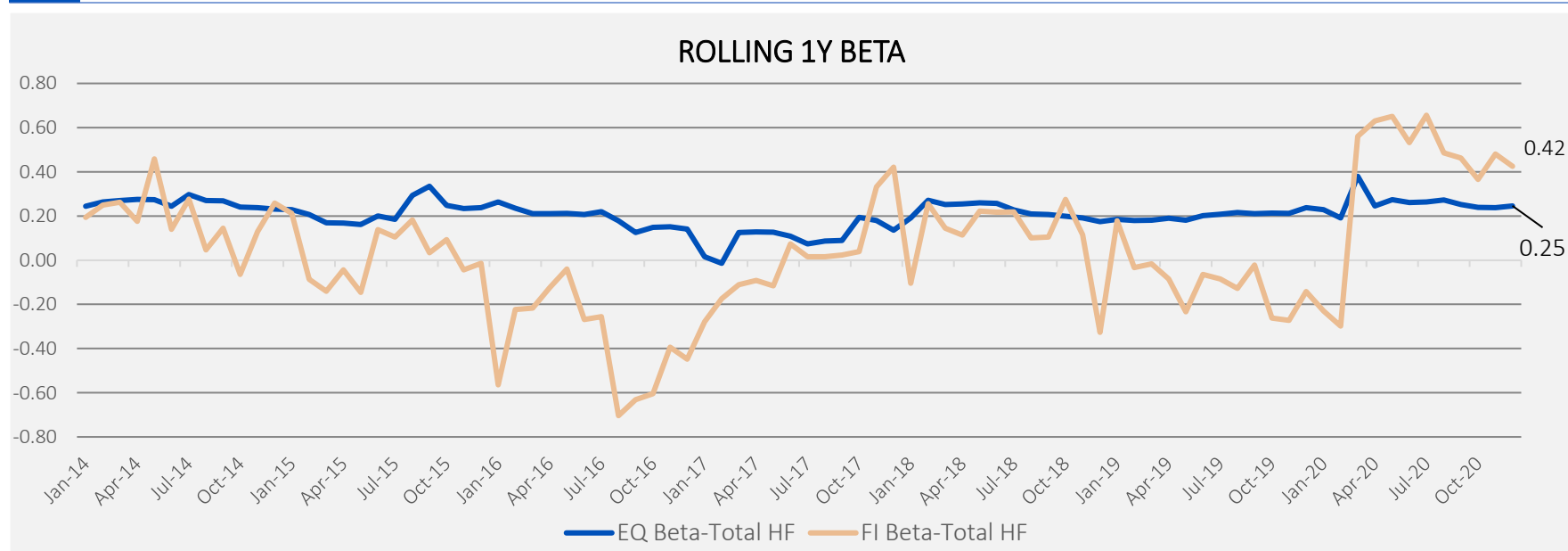
- Fund of Fund (PAAMCO) Market Value = \$0.6B
- Direct Hedge Fund Market Value = \$6.2B

Hedge Fund Portfolio (as of December 2020)



# Sharpe Ratio and Market Beta Performance

		Total Fund	Total HF	Direct HF	HFRI FOF	SP500	Barclays Agg
1 Year	Return	12.1%	1.3%	0.4%	10.3%	18.4%	7.5%
	Vol	12.4%	9.6%	9.7%	10.8%	25.9%	3.4%
	Sharpe Ratio	0.94	0.10	0.01	0.92	0.70	2.16
3 Year	Return	8.3%	2.4%	2.3%	4.7%	14.2%	5.3%
	Vol	8.9%	6.1%	6.2%	7.1%	18.8%	3.4%
	Sharpe Ratio	0.77	0.15	0.13	0.45	0.67	1.14
5 year	Return	9.9%	3.9%	4.1%	4.4%	15.2%	4.4%
	Vol	7.4%	5.0%	5.1%	5.8%	15.3%	3.2%
	Sharpe Ratio	1.17	0.55	0.58	0.57	0.92	1.05



# PRIM Hedge Fund and PCS Performance Breakdown

	1 Year		2 Year		3 Year	
	Avg. Weight	Performance	Avg. Weight	Performance	Avg. Weight	Performance
<b>Managed Account</b>	61%	2.4%	57%	7.0%	49%	4.4%
<b>Legacy (incl High Conviction)</b>	15%	9.7%	14%	8.5%	13%	6.8%
<b>Run Off</b>	4%	-4.0%	6%	-1.5%	9%	-1.5%
<b>PAAMCO</b>	9%	8.8%	9%	7.3%	10%	3.6%
<b>Risk Premia</b>	0%	0.0%	1%	-1.1%	2%	-5.6%
<b>Real Assets</b>	12%	4.5%	11%	-3.1%	10%	-5.7%

# Glossary of PRIT Fund Investment Terms

**Active Management** – Refers to a portfolio management strategy where the manager makes specific investments with the goal of outperforming an investment benchmark index.

**Barclays Capital Aggregate Bond Index** – An index that replicates the investment grade bond market. The index is comprised of corporate, government, and mortgage-backed securities.

**Core Fixed Income Portfolio** – Investments in investment grade bonds (see definition of Barclays Capital Aggregate Bond Index).

**Domestic Equity Portfolio** - Investments in shares of publicly-traded U.S. companies utilizing a large capitalization strategy (large cap) and small and middle capitalization equity strategies (small/sm mid cap).

**Emerging Markets Equity Portfolio** - The primary strategy for this portfolio is investing in companies in developing countries, including, but not limited to, China, Brazil, Russia, South Korea, Taiwan, India and Turkey. These countries typically have less efficient securities markets, and thus there is opportunity for substantial returns.

**Hedge Fund Research, Inc. (HFRI)** - An organization that specializes in the areas of indexation and analysis of hedge funds.

**International Equity Portfolio** - The primary strategy for this portfolio is investing in companies in developed markets, industrialized nations outside of the United States, including, but not limited to, Japan, Germany, the United Kingdom, France, Italy, Switzerland, Hong Kong, Canada, and Australia.

**MSCI EAFE Index** - A stock market index that is designed to measure the equity market performance of developed markets outside of the U.S. & Canada.

**MSCI Emerging Markets Index** - Captures large and mid cap representation across 24 Emerging Markets (EM) countries

**Passive Management** - An investing strategy that tracks a market-weighted index or portfolio. The most popular method is to mimic the performance of an externally specified index by buying an index fund.

**Portfolio Completion Strategies (PCS)** – The objective of the PCS portfolio is to provide the PRIT Fund access to broader investment opportunities. Investments selected for the PCS portfolio should enhance the risk/return profile of the PRIT Fund. Investments may include long-term strategic investments or short-term opportunistic investments. Some of these strategies include hedge funds and real assets.

**Private Equity Portfolio** - Two components comprise the PRIT Fund's Private Equity portfolio: venture capital (early-stage and multi-stage) and special equity partnerships (buyout and growth equity). Unlike public markets, where the investor has the ability to "cash out" of positions at any time, these private market investments are illiquid.

**REIT** – A company that owns, and in most cases operates, income-producing real estate. REITs often trade on major exchanges like other securities and provide investors with a liquid stake in real estate.

**Russell 2500 Index** - Combines a portion of midcap U.S. stocks with small cap U.S. stocks – forming a "SMID" (small/mid) cap segment of stocks from the Russell 3000® Index, which is a capitalization-weighted U.S. stock market index that seeks to be a benchmark of the entire U.S. stock market

**Standard & Poor's (S&P) 500 Index** – A U.S. stock market index based on the market capitalizations of 500 large companies having common stock listed on the NYSE or NASDAQ.

**Timberland Portfolio** – Direct investments in timberland: in the United States timberland markets are divided into three regions, each with distinct economic characteristics: the Pacific Northwest, the Northeast and the Southeast. The Pacific Northwest is a high value softwood market, in which the growing cycle to produce a mature tree is forty to fifty years; in Australia, there is approximately 2 million hectares (4.9 million acres) of plantation timberlands that are almost evenly split between hardwood and softwood species.

**Treasury Inflation-Protected Securities (TIPS)** - Investment grade fixed income investments designed to provide a hedge against rising inflation. The principal of a TIPS increases with inflation and decreases with deflation, as measured by the Consumer Price Index. When a TIPS matures, the investor is paid the adjusted principal or original principal, whichever is greater.

**Value Added Fixed Income** – A fixed income portfolio consisting of the following strategies: high yield bonds (non-investment grade corporate debt); bank loans (senior secured corporate debt); emerging markets debt (debt issued within the emerging, or developing countries, marketplace, and private debt (investments in private partnerships that invest directly in companies under financial distress).





Massachusetts Pension Reserves  
Investment Management Board  
84 State Street, Suite 250  
Boston, MA 02109  
617-946-8401  
[www.mapension.com](http://www.mapension.com)

THANK YOU

#### CONTACTS

**Paul W. Todisco**  
Senior Client Services Officer  
Office 617-946-8423  
E-mail: [ptodisco@mapension.com](mailto:ptodisco@mapension.com)

**Francesco Daniele**  
Senior Client Services Officer  
Office 617-946-8416  
E-mail: [fdaniele@mapension.com](mailto:fdaniele@mapension.com)

**Emily Green**  
Client Services Analyst  
Office 617-946-8486  
E-mail: [egreen@mapension.com](mailto:egreen@mapension.com)

# PERFORMANCE REPORT

## MWRA EMPLOYEES' RETIREMENT SYSTEM

March 25, 2021

Sebastian Grzejka, CAIA, Principal

Kiley Fischer, 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:**

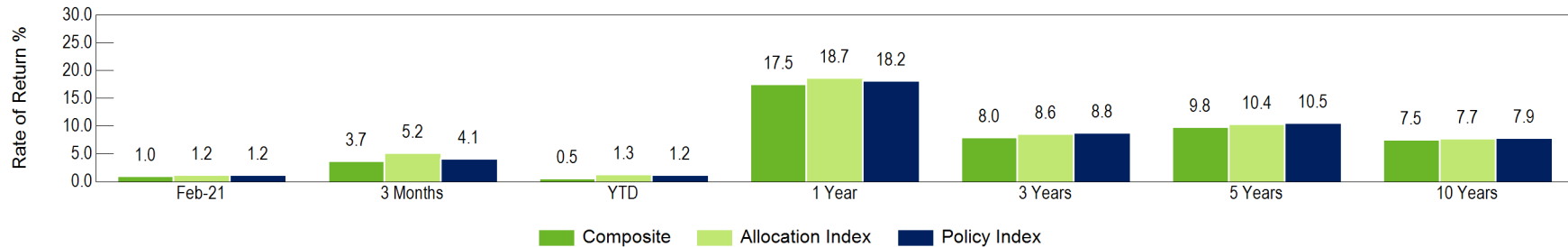
- **Time Horizon:** Return assumptions will be based on a ten year time horizon with a detailed review and analysis to be made at least annually to monitor allocations and assumptions. Should a manager deviate from proscribed mandate or expected risk and return profile by a consequential degree, that 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).



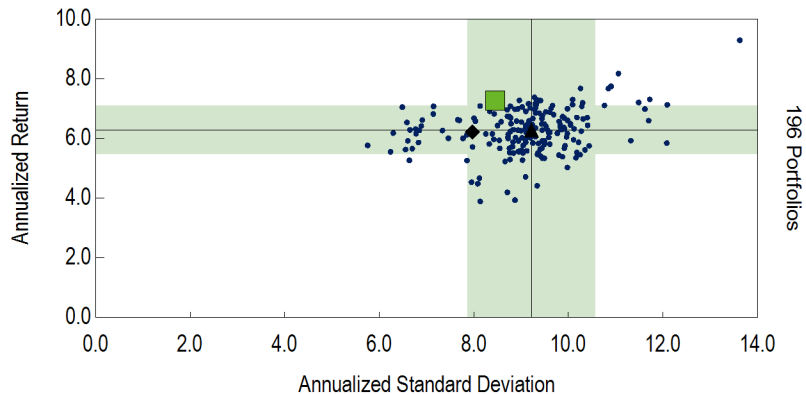
# MWRA Employees' Retirement System

## EXECUTIVE SUMMARY

### Net Return Summary Ending February 28, 2021



### 20 Years Ending December 31, 2020



### Performance

- The Composite returned 1.0% (net) for the month underperforming the Allocation Index (1.2%) and Policy Index (1.2%).
- Developed market equities got off to a strong start in February due to improving COVID-19 trends and the proposed stimulus plan. However, as the weeks progressed, upward pressure on interest rates negatively impacted stocks. The S&P 500 rose 2.8% while the MSCI ACWI ex USA was up 2.0% for the month. The portfolio's domestic equity composite returned 3.5% (net) while International Equity returned 0.8% (net) for the month. Emerging markets exposure has been added to the portfolio through the funding of Axiom, which will have its first full month of performance in March.
- Within fixed income, the yield curve steepened with the 10- and 30-year Treasury yields rising 37 and 34 basis points, respectively. The Fixed Income Composite returned -1.2% (net) for the month while the BC Agg and BC US HY returned -1.4 and 0.4% respectively.
- This brings the total plan return for the trailing one year period to 17.3% (net), while the Allocation and Policy Index returned 18.7% (net) and 18.2% (net) respectively.

### Statistics Summary

	Anlzd Ret	Anlzd Std Dev	Rank
Composite	7.3%	8.4%	17
Allocation Index	6.3%	8.0%	76
Policy Index	6.6%	8.6%	57
InvMetrics Public DB Gross Median	6.7%	9.3%	--

20 years Risk/Return is as of 12/31/2020. 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 8.6% 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 (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Composite</b>	<b>648,215,540</b>	<b>100.0</b>	<b>100.0</b>	<b>1.0</b>	<b>0.5</b>	<b>17.5</b>	<b>8.0</b>	<b>9.8</b>	<b>7.5</b>	<b>7.0</b>	<b>Jan-86</b>
Allocation Index				1.2	1.3	18.7	8.6	10.4	7.7	--	Jan-86
Policy Index				1.2	1.2	18.2	8.8	10.5	7.9	--	Jan-86
<b>Total Balanced</b>	<b>4,627,034</b>	<b>0.7</b>	<b>0.0</b>	<b>1.2</b>	<b>1.1</b>	<b>17.4</b>	<b>5.0</b>	<b>7.9</b>	<b>4.4</b>	<b>4.7</b>	<b>Dec-10</b>
PRIT Core Fund	4,627,034	0.7		1.2	1.1	17.4	8.7	10.7	8.3	7.1	Apr-99
60% S&P 500 / 40% BBgBarc Aggregate				1.1	0.2	19.1	11.0	11.6	9.6	6.5	Apr-99
<b>Total Domestic Equity</b>	<b>186,495,388</b>	<b>28.8</b>	<b>26.0</b>	<b>3.5</b>	<b>2.3</b>	<b>33.6</b>	<b>15.3</b>	<b>16.9</b>	<b>12.9</b>	<b>7.9</b>	<b>May-99</b>
Russell 3000				3.1	2.7	35.3	15.0	17.4	13.4	7.4	May-99
<b>Large Cap</b>	<b>138,274,896</b>	<b>21.3</b>	<b>20.0</b>	<b>2.5</b>	<b>0.4</b>	<b>30.8</b>	<b>15.7</b>	<b>16.8</b>	<b>13.2</b>	<b>14.1</b>	<b>Dec-10</b>
Rhumblin Advisors S&P 500 Index Fund	61,256,554	9.5	8.0	2.8	1.7	31.2	14.1	16.7	13.3	9.1	Apr-97
S&P 500				2.8	1.7	31.3	14.1	16.8	13.4	9.0	Apr-97
Coho Relative Value Equity	37,958,907	5.9	6.0	1.5	-1.8	21.7	9.9	11.5	--	11.5	Mar-16
Russell 1000 Value				6.0	5.1	22.2	8.2	12.0	10.4	12.0	Mar-16
Polen Focused Growth	39,059,435	6.0	6.0	2.9	0.3	38.8	24.1	22.1	--	21.3	Feb-16
Russell 1000 Growth				0.0	-0.8	44.3	21.0	22.2	16.4	21.8	Feb-16
<b>Small Cap</b>	<b>48,220,491</b>	<b>7.4</b>	<b>6.0</b>	<b>6.7</b>	<b>8.4</b>	<b>42.5</b>	<b>14.7</b>	<b>17.8</b>	<b>12.4</b>	<b>13.7</b>	<b>Dec-10</b>
Boston Partners Small Cap Value	24,633,807	3.8	3.0	8.6	10.4	31.7	8.0	12.2	9.3	10.7	Feb-97
Russell 2000 Value				9.4	15.2	41.1	10.1	14.2	9.7	9.4	Feb-97
Loomis Sayles Small Cap Growth	23,586,684	3.6	3.0	4.8	6.4	52.7	21.1	23.0	15.2	8.0	Jan-97
Russell 2000 Growth				3.3	8.3	58.9	18.9	21.1	13.8	8.4	Jan-97
<b>Total Non-US Equity</b>	<b>142,569,112</b>	<b>22.0</b>	<b>21.0</b>	<b>0.7</b>	<b>0.8</b>	<b>28.7</b>	<b>6.0</b>	<b>12.1</b>	<b>4.6</b>	<b>5.0</b>	<b>Mar-99</b>
<b>International Equity</b>	<b>123,668,449</b>	<b>19.1</b>	<b>15.0</b>	<b>0.8</b>	<b>0.9</b>	<b>30.8</b>	<b>8.0</b>	<b>12.7</b>	<b>5.4</b>	<b>4.8</b>	<b>Sep-05</b>
SEG Baxter Street	40,519,748	6.3	5.0	1.3	-1.1	25.3	9.9	--	--	12.3	May-16
MSCI ACWI ex USA				2.0	2.2	26.2	5.4	11.2	4.8	9.2	May-16
Schroder International Alpha Trust Class 1	51,670,576	8.0	5.0	1.8	2.1	40.2	11.2	13.7	--	8.5	Mar-12
MSCI ACWI ex USA				2.0	2.2	26.2	5.4	11.2	4.8	6.1	Mar-12
Baillie Gifford International Growth Fund Class K	31,478,125	4.9		-1.5	1.4	--	--	--	--	22.6	Oct-20
MSCI ACWI ex USA				2.0	2.2	26.2	5.4	11.2	4.8	19.6	Oct-20

Since inception return is 8.6% 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.

SEG Baxter Street is preliminary as of 02/2021 and is subject to change when finalized.



## MWRA Employees' Retirement System

# TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Emerging Markets Equity</b>	<b>18,900,662</b>	<b>2.9</b>	<b>6.0</b>	--	--	--	--	--	--	--	<b>Mar-21</b>
<i>MSCI Emerging Markets</i>				0.8	3.9	36.0	6.4	15.2	4.4	--	<i>Mar-21</i>
Axiom Emerging Markets Trust Class 2	18,900,662	2.9		--	--	--	--	--	--	--	Mar-21
<i>MSCI Emerging Markets</i>				0.8	3.9	36.0	6.4	15.2	4.4	--	<i>Mar-21</i>
<b>Total Fixed Income</b>	<b>164,224,045</b>	<b>25.3</b>	<b>27.0</b>	<b>-1.1</b>	<b>-1.5</b>	<b>5.4</b>	<b>5.8</b>	<b>5.8</b>	<b>4.9</b>	<b>6.6</b>	<b>Mar-99</b>
Garcia Hamilton Fixed Income Aggregate	45,809,134	7.1	8.0	-1.4	-2.2	2.3	--	--	--	4.8	Apr-18
<i>BBgBarc US Aggregate TR</i>				-1.4	-2.2	1.4	5.3	3.6	3.6	5.2	<i>Apr-18</i>
Lord Abbett Core Fixed Income	26,203,861	4.0	4.0	-1.2	-1.5	2.7	--	--	--	5.5	Apr-18
<i>BBgBarc US Aggregate TR</i>				-1.4	-2.2	1.4	5.3	3.6	3.6	5.2	<i>Apr-18</i>
Rhumbline TIPS	31,383,607	4.8	5.0	-1.6	-1.3	5.5	6.1	--	--	4.1	Jun-16
<i>BBgBarc US TIPS TR</i>				-1.6	-1.3	5.8	6.1	4.3	3.6	4.2	<i>Jun-16</i>
Loomis Sayles Multisector Full Discretion Trust	48,910,023	7.5	8.0	-0.8	-1.7	8.9	6.9	8.0	5.9	7.9	Mar-99
<i>BBgBarc US Aggregate TR</i>				-1.4	-2.2	1.4	5.3	3.6	3.6	4.8	<i>Mar-99</i>
<i>BBgBarc US High Yield TR</i>				0.4	0.7	9.4	6.6	9.0	6.5	6.9	<i>Mar-99</i>
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	11,861,921	1.8	2.0	0.6	1.4	6.4	--	--	--	4.7	Aug-19
<i>Credit Suisse Leveraged Loan</i>				0.7	1.9	5.7	4.2	5.9	4.4	4.2	<i>Aug-19</i>
Invesco Mortgage Recovery Loans Feeder Fund	55,499	0.0		0.0	0.0	-0.3	4.9	0.7	6.7	11.8	Apr-10
<i>BBgBarc US Aggregate TR</i>				-1.4	-2.2	1.4	5.3	3.6	3.6	3.7	<i>Apr-10</i>
<b>Total Hedge Fund</b>	<b>39,173,078</b>	<b>6.0</b>	<b>6.0</b>	<b>2.5</b>	<b>2.4</b>	<b>10.7</b>	<b>5.0</b>	<b>5.4</b>	<b>3.8</b>	<b>3.6</b>	<b>Oct-06</b>
PRIM Portfolio Completion Strategies	14,654,357	2.3		2.8	4.5	7.0	3.8	5.4	4.3	4.0	Oct-06
Corbin Pinehurst Partners	12,198,727	1.9		2.8	1.9	17.4	--	--	--	9.7	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				3.1	2.2	14.8	5.4	5.8	3.4	8.2	<i>Nov-18</i>
UBS Neutral Alpha Strategies	11,568,283	1.8		1.9	0.5	10.0	--	--	--	6.9	Nov-18
<i>HFRI Fund of Funds Composite Index</i>				3.1	2.2	14.8	5.4	5.8	3.4	8.2	<i>Nov-18</i>
Entrust Peru Wind Down	751,711	0.1		-0.1	-0.3	-0.1	-4.0	--	--	-4.0	Dec-17
<i>HFRI Fund of Funds Composite Index</i>				3.1	2.2	14.8	5.4	5.8	3.4	5.5	<i>Dec-17</i>
<b>Other</b>	<b>5,412,204</b>	<b>0.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.3</b>	<b>1.6</b>	<b>1.3</b>	<b>0.7</b>	<b>0.7</b>	<b>Dec-10</b>
Cash Account	5,412,204	0.8		0.0	0.0	0.3	1.6	1.3	0.7	1.8	Feb-00
<i>91 Day T-Bills</i>				0.0	0.0	0.2	1.4	1.1	0.6	1.6	<i>Feb-00</i>

Axiom Emerging Markets Trust Class 2 funded as of 02/02/2021.

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.

Axiom Emerging Markets Trust Class 2, Rhumbline TIPS, Corbin Pinehurst Partners, and UBS Neutral Alpha Strategies are preliminary as of 02/2021 and are subject to change when finalized.



## MWRA Employees' Retirement System

# TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
<b>Total Real Estate</b>	<b>49,848,455</b>	<b>7.7</b>	<b>10.0</b>	<b>0.0</b>	<b>0.0</b>	<b>2.5</b>	<b>6.2</b>	<b>7.2</b>	<b>10.2</b>	<b>7.6</b>	<b>Apr-99</b>
<i>NCREIF Property Index</i>				0.0	0.0	1.6	4.9	5.9	9.0	8.4	Apr-99
Morgan Stanley Prime Property (\$2.8m commitment in '95)	20,148,886	3.1		0.0	0.0	1.3	5.0	6.6	10.6	8.3	Sep-95
TA Realty Core Property Fund, LP (\$15m commitment in '19)	20,373,400	3.1		0.0	0.0	5.5	--	--	--	5.6	Jun-19
Invesco Mortgage Recovery II (\$3M commitment in '15)	1,151,262	0.2		0.0	0.0	-6.8	7.7	9.4	--	8.8	Oct-15
Landmark VI (\$2m commitment in '11)	91,255	0.0		0.0	0.0	-11.4	-11.9	-7.2	--	3.4	Jul-11
Landmark VIII (\$4m commitment in '17)	1,436,482	0.2		0.0	0.0	-4.0	1.3	--	--	12.7	Nov-17
Courtland/Mesirov MFire (\$2m commitment in '11)	628,063	0.1		0.0	0.0	-6.9	-2.9	2.2	--	2.3	May-12
Cerberus (\$1.5m commitment in '12)	547,738	0.1		0.0	0.0	11.0	10.6	7.9	--	12.3	May-13
TA Realty Fund X LP (\$3.5m commitment in '12)	368,765	0.1		0.0	0.0	-8.3	7.0	7.3	--	8.7	May-13
TerraCap Partners III, LP (\$2.6m commitment in '15)	1,725,435	0.3		0.0	0.0	4.1	4.4	8.1	--	10.5	Jul-15
TerraCap Partners IV, LP (\$4m commitment in '17)	3,377,170	0.5		0.0	0.0	0.9	8.6	--	--	8.4	Nov-17
<b>Total Private Equity</b>	<b>55,866,224</b>	<b>8.6</b>	<b>10.0</b>	<b>0.0</b>	<b>0.0</b>	<b>7.1</b>	<b>8.2</b>	<b>6.9</b>	<b>12.2</b>	<b>9.1</b>	<b>Apr-99</b>
<i>CJA US All PE</i>				0.0	0.0	9.3	11.2	12.8	12.7	12.2	Apr-99
<i>NASDAQ W/O Income</i>				0.9	2.4	54.0	22.0	23.7	16.8	8.0	Apr-99
PRIM Vintage Year 2008 (\$3m commitment in '08)	1,017,706	0.2		0.0	-0.1	8.3	11.4	16.2	18.5	8.5	Jun-08
PRIM Vintage Year 2009 (\$1m commitment in '09)	154,830	0.0		-0.1	-0.1	57.5	36.3	26.6	21.6	12.1	Nov-09
PRIM Vintage Year 2010 (\$1m commitment in '10)	547,737	0.1		-0.1	0.0	39.9	17.9	18.4	13.5	9.9	Jun-10
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	918,103	0.1		-0.2	-0.4	14.2	15.2	17.9	--	4.3	May-11
PRIM Vintage Year 2012 (\$1m commitment in '12)	695,616	0.1		-0.2	-0.4	41.3	19.7	20.2	--	-11.9	Jun-12
PRIM Vintage Year 2014 (\$2m commitment in '14)	1,929,159	0.3		-0.1	-0.2	22.7	24.3	20.8	--	3.9	Jun-14
PRIM Vintage Year 2017 (\$2m commitment in '17)	1,438,705	0.2		-0.1	0.4	19.7	11.5	--	--	9.8	May-17
PRIM Vintage Year 2020 (\$5m commitment in '20)	400,245	0.1		-0.5	-1.4	7.7	--	--	--	7.7	Mar-20
PRIM Vintage Year 2021 (\$5m commitment in '21)	27,505	0.0		0.0	0.0	--	--	--	--	0.0	Dec-20
Alcentra European DLF (\$5m commitment in '14)	921,311	0.1		0.0	0.0	-3.0	-0.3	2.5	--	4.1	Jan-15
Ascent Fund IV (\$2m commitment in '04)	8,146	0.0		0.0	0.0	-1.1	-52.5	-44.8	-32.9	-21.1	Jul-04
Ascent Fund IV-B (\$1m commitment in '16)	149,795	0.0		0.0	0.0	-28.9	-21.6	--	--	-13.1	Jul-16
Ascent Fund V (\$2m commitment in '08)	1,624,903	0.3		0.0	0.0	-10.5	-5.4	0.4	5.5	4.0	Oct-08
Ascent VI (\$3m commitment in '15)	2,846,317	0.4		0.0	0.0	-7.3	0.1	2.0	--	0.2	Dec-15
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	6,316,917	1.0		0.0	0.0	-0.1	4.2	--	--	3.9	Dec-17
Invesco Fund IV (\$3m commitment in '03)	1,381	0.0		0.0	0.0	-14.9	-19.9	-10.1	1.1	--	Feb-04

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.



## MWRA Employees' Retirement System

# TOTAL FUND PERFORMANCE DETAIL (NET)

	Market Value (\$)	% of Portfolio	Policy %	1 Mo (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Inception (%)	Inception Date
Invesco Fund VI (\$5m commitment in '13)	6,853,465	1.1		0.0	0.0	22.2	13.8	13.2	--	14.1	Jul-13
Kayne Energy Fund VII (\$5m commitment in '15)	1,278,252	0.2		0.0	0.0	-72.4	-42.5	-20.2	--	-19.6	Jan-16
Foundry 2007 (\$3m commitment in '07)	320,973	0.0		0.0	0.0	37.6	-8.6	-16.3	9.7	18.5	Dec-07
Foundry 2010 (\$3m commitment in '10)	3,949,779	0.6		0.0	0.0	27.8	12.7	8.9	10.0	10.0	Jan-11
Foundry 2010 Annex (\$0.4m commitment in '15)	456,811	0.1		0.0	0.0	135.0	57.4	36.2	--	30.9	Sep-15
Pinebridge PEP V (\$6m commitment in '07)	743,228	0.1		0.0	0.0	12.7	0.4	1.8	8.7	--	Mar-08
Landmark XV (\$3m commitment in '13)	1,298,784	0.2		0.0	0.0	-0.9	7.3	9.4	--	11.5	Nov-13
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	6,259,972	1.0		0.0	0.0	9.7	37.5	--	--	30.7	Jan-17
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	4,260,351	0.7		0.0	0.0	27.7	22.2	--	--	17.8	Feb-17
Park Square Credit Opportunities III (\$3m commitment in '17)	2,595,507	0.4		0.0	0.0	5.7	5.9	--	--	5.7	Feb-18
Ironsides Constitution Opportunities (\$3m commitment in '18)	2,356,903	0.4		0.0	0.0	5.0	--	--	--	7.3	Sep-18
HarbourVest Dover Street X (\$9m commitment in '20)	2,316,154	0.4		0.0	0.0	--	--	--	--	83.4	Jun-20
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	2,098,715	0.3		0.0	0.0	--	--	--	--	29.0	Jul-20
JFL Equity Investors V, L.P. (\$8m commitment in '20)	2,078,955	0.3		0.0	0.0	--	--	--	--	-7.9	Sep-20
<i>Private Equity Benchmark (1 Qtr. Lag)</i>				<i>0.0</i>	<i>0.0</i>	<i>13.4</i>	<i>13.1</i>	<i>13.0</i>	<i>13.1</i>	<i>21.5</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.





## MWRA Employees' Retirement System

# ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 2/28/2021	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
PRIT Core Fund	0.49% of Assets	\$4,627,034	0.7%	\$22,672	0.49%
Rhumbline Advisors S&P 500 Index Fund	0.05% of Assets	\$61,256,554	9.5%	\$30,628	0.05%
Coho Relative Value Equity	0.50% of First 75.0 Mil, 0.40% of Next 75.0 Mil, 0.35% Thereafter	\$37,958,907	5.9%	\$189,795	0.50%
Polen Focused Growth	0.65% of Assets	\$39,059,435	6.0%	\$253,886	0.65%
Boston Partners Small Cap Value	1.00% of Assets	\$24,633,807	3.8%	\$246,338	1.00%
Loomis Sayles Small Cap Growth	0.45% of Assets	\$23,586,684	3.6%	\$106,140	0.45%
SEG Baxter Street	1.00% of Assets	\$40,519,748	6.3%	\$405,197	1.00%
Schroder International Alpha Trust Class 1	0.55% of Assets	\$51,670,576	8.0%	\$284,188	0.55%
Baillie Gifford International Growth Fund Class K	0.60% of Assets	\$31,478,125	4.9%	\$188,869	0.60%
Axiom Emerging Markets Trust Class 2	No Fee	\$18,900,662	2.9%	--	--
Garcia Hamilton Fixed Income Aggregate	0.25% of First 25.0 Mil, 0.20% Thereafter	\$45,809,134	7.1%	\$104,118	0.23%
Lord Abbett Core Fixed Income	0.19% of Assets	\$26,203,861	4.0%	\$49,787	0.19%
Rhumbline TIPS	0.05% of First 50.0 Mil, 0.04% Thereafter	\$31,383,607	4.8%	\$15,692	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	\$48,910,023	7.5%	\$206,730	0.42%
Octagon Senior Secured Credit Cayman Fund Ltd. - Class L Acc, Series 1	0.40% of Assets	\$11,861,921	1.8%	\$47,448	0.40%
Invesco Mortgage Recovery Loans Feeder Fund	No Fee	\$55,499	0.0%	--	--
PRIM Portfolio Completion Strategies	No Fee	\$14,654,357	2.3%	--	--
Corbin Pinehurst Partners	0.85% of Assets	\$12,198,727	1.9%	\$103,689	0.85%
UBS Neutral Alpha Strategies	0.90% of Assets	\$11,568,283	1.8%	\$104,115	0.90%
Entrust Peru Wind Down	0.50% of Assets	\$751,711	0.1%	\$3,759	0.50%
Cash Account	No Fee	\$5,412,204	0.8%	--	--
Morgan Stanley Prime Property (\$2.8m commitment in '95)	No Fee	\$20,148,886	3.1%	--	--
TA Realty Core Property Fund, LP (\$15m commitment in '19)	No Fee	\$20,373,400	3.1%	--	--
Invesco Mortgage Recovery II (\$3M commitment in '15)	No Fee	\$1,151,262	0.2%	--	--
Landmark VI (\$2m commitment in '11)	No Fee	\$91,255	0.0%	--	--



## MWRA Employees' Retirement System

# ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 2/23/2021	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Landmark VIII (\$4m commitment in '17)	No Fee	\$1,436,482	0.2%	--	--
Courtland/Mesirow MFire (\$2m commitment in '11)	No Fee	\$628,063	0.1%	--	--
Cerberus (\$1.5m commitment in '12)	No Fee	\$547,738	0.1%	--	--
TA Realty Fund X LP (\$3.5m commitment in '12)	No Fee	\$368,765	0.1%	--	--
TerraCap Partners III, LP (\$2.6m commitment in '15)	No Fee	\$1,725,435	0.3%	--	--
TerraCap Partners IV, LP (\$4m commitment in '17)	No Fee	\$3,377,170	0.5%	--	--
PRIM Vintage Year 2008 (\$3m commitment in '08)	No Fee	\$1,017,706	0.2%	--	--
PRIM Vintage Year 2009 (\$1m commitment in '09)	No Fee	\$154,830	0.0%	--	--
PRIM Vintage Year 2010 (\$1m commitment in '10)	No Fee	\$547,737	0.1%	--	--
PRIM Vintage Year 2011 (\$1.5m commitment in '11)	No Fee	\$918,103	0.1%	--	--
PRIM Vintage Year 2012 (\$1m commitment in '12)	No Fee	\$695,616	0.1%	--	--
PRIM Vintage Year 2014 (\$2m commitment in '14)	No Fee	\$1,929,159	0.3%	--	--
PRIM Vintage Year 2017 (\$2m commitment in '17)	No Fee	\$1,438,705	0.2%	--	--
PRIM Vintage Year 2020 (\$5m commitment in '20)	No Fee	\$400,245	0.1%	--	--
PRIM Vintage Year 2021 (\$5m commitment in '21)	No Fee	\$27,505	0.0%	--	--
Alcentra European DLF (\$5m commitment in '14)	No Fee	\$921,311	0.1%	--	--
Ascent Fund IV (\$2m commitment in '04)	No Fee	\$8,146	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	0.4%	--	--
CVI Credit Value Fund IV A LP (\$6m commitment in '17)	No Fee	\$6,316,917	1.0%	--	--
Invesco Partnership Fund IV (\$3m commitment in '03)	No Fee	\$1,381	0.0%	--	--
Invesco Fund VI (\$5m commitment in '13)	No Fee	\$6,853,465	1.1%	--	--
Kayne Energy Fund VII (\$5m commitment in '15)	No Fee	\$1,278,252	0.2%	--	--
Foundry 2007 (\$3m commitment in '07)	No Fee	\$320,973	0.0%	--	--
Foundry 2010 (\$3m commitment in '10)	No Fee	\$3,949,779	0.6%	--	--
Foundry 2010 Annex (\$0.4m commitment in '15)	No Fee	\$456,811	0.1%	--	--
Pinebridge (AIG) PEP V Asia (\$6m commitment in '07)	No Fee	\$59,005	0.0%	--	--
Pinebridge (AIG) PEP V Co-Investment (\$6m commitment in '07)	No Fee	\$61,898	0.0%	--	--
Pinebridge (AIG) PEP V Europe (\$6m commitment in '07)	No Fee	\$27,626	0.0%	--	--



## MWRA Employees' Retirement System

# ESTIMATED FEE SCHEDULE

Account	Fee Schedule	Market Value As of 2/28/2021	% of Portfolio	Estimated Annual Fee (\$)	Estimated Annual Fee (%)
Pinebridge (AIG) PEP V Large Market US Buyout (\$6m commitment in '07)	No Fee	\$127,137	0.0%	--	--
Pinebridge (AIG) PEP V Preferred Participation Fund (\$6m commitment in '07)	No Fee	\$239,501	0.0%	--	--
Pinebridge (AIG) PEP V Secondary (\$6m commitment in '07)	No Fee	\$34,233	0.0%	--	--
Pinebridge (AIG) PEP V Small-Mid Market US Buyout (\$6m commitment in '07)	No Fee	\$96,198	0.0%	--	--
Pinebridge (AIG) PEP V US Venture (\$6m commitment in '07)	No Fee	\$97,630	0.0%	--	--
Landmark XV (\$3m commitment in '13)	No Fee	\$1,298,784	0.2%	--	--
JFL Equity Investors IV, L.P. (\$6m commitment in '16)	No Fee	\$6,259,972	1.0%	--	--
Private Advisors Small Co. Coinvestment Fund, LP (\$4m commitment in '17)	No Fee	\$4,260,351	0.7%	--	--
Park Square Credit Opportunities III (\$3m commitment in '17)	No Fee	\$2,595,507	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	\$2,316,154	0.4%	--	--
Hamilton Lane Secondary Fund V LP (\$9m commitment in '20)	No Fee	\$2,098,715	0.3%	--	--
JFL Equity Investors V, L.P. (\$8m commitment in '20)	No Fee	\$2,078,955	0.3%	--	--
<b>Investment Management Fee</b>		<b>\$648,215,540</b>	<b>100.0%</b>	<b>\$2,363,052</b>	<b>0.36%</b>

**Note:**

Estimate fee for privates are ~\$1,301,900 annually, which brings the total expense ratio for privates to ~20 bps. This brings the total estimated expense ratio for MWRA to ~57 bps.



## 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 7.0% for the current month.
- 4 - Preliminary Total Composite gross of fee since inception return is 8.6% 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% CJA 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.



# DISCLAIMERS & DISCLOSURES

- Past performance is no guarantee of future results.
- Returns for pooled funds, e.g. mutual funds and collective investment trusts, are collected from third parties; they are not generally calculated by NEPC. Returns for separate accounts, with some exceptions, are calculated by NEPC. Returns are reported net of manager fees unless otherwise noted.
- A “since inception” return, if reported, begins with the first full month after funding, although actual inception dates (e.g. the middle of a month) and the timing of cash flows are taken into account in Composite return calculations.
- NEPC’s preferred data source is the plan’s custodian bank or record-keeper. If data cannot be obtained from one of the preferred data sources, data provided by investment managers may be used. Information on market indices and security characteristics is received from additional providers. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within. In addition, some index returns displayed in this report or used in calculation of a policy index, allocation index or other custom benchmark may be preliminary and subject to change.
- All investments carry some level of risk. Diversification and other asset allocation techniques are not guaranteed to ensure profit or protect against losses.
- The opinions presented herein represent the good faith views of NEPC as of the date of this presentation and are subject to change at any time. Neither fund performance nor universe rankings contained in this report should be considered a recommendation by NEPC.
- This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.



## Asset Allocation Rebalance Summary

March 19, 2021

	Market Value	Weight in Fund	Target Weight	Recommendation	New Market Value	New Weight
<b>Composite</b>	<b>\$654,845,844</b>	<b>100.0%</b>	<b>100.0%</b>	<b>\$0</b>	<b>\$654,845,844</b>	<b>100.0%</b>
<b>Total Balanced</b>	<b>\$4,627,034</b>	<b>0.7%</b>	<b>0.0%</b>	<b>\$0</b>	<b>\$4,627,034</b>	<b>0.7%</b>
PRIT Core Fund	\$4,627,034	0.7%	0.0%	\$0	\$4,627,034	0.7%
<b>Total Domestic Equity</b>	<b>\$192,231,785</b>	<b>29.4%</b>	<b>31.0%</b>	<b>\$8,000,000</b>	<b>\$200,231,785</b>	<b>30.6%</b>
Rhumblin Advisors S&P 500 Index Fund	\$62,971,737	9.6%	10.0%	\$0	\$62,971,737	9.6%
Coho Relative Value	\$40,410,896	6.2%	7.0%	\$3,000,000	\$43,410,896	6.6%
Polen Focused Growth	\$38,863,041	5.9%	7.0%	\$5,000,000	\$43,863,041	6.7%
Robeco Boston Partners Small Cap Value	\$26,699,719	4.1%	3.5%	-\$1,500,000	\$25,199,719	3.8%
Loomis Sayles Small Cap Growth	\$23,286,392	3.6%	3.5%	\$1,500,000	\$24,786,392	3.8%
<b>Total International Equity</b>	<b>\$142,569,111</b>	<b>21.8%</b>	<b>19.0%</b>	<b>-\$8,000,000</b>	<b>\$134,569,111</b>	<b>20.5%</b>
SEG - Baxter Street Fund	\$40,519,748	6.2%	5.0%	-\$4,000,000	\$36,519,748	5.6%
Schroders International Alpha	\$51,670,576	7.9%	4.0%	-\$14,000,000	\$37,670,576	5.8%
Baillie Gifford	\$31,478,125	4.8%	3.0%	-\$10,000,000	\$21,478,125	3.3%
Axiom Emerging Markets	\$18,900,662	2.9%	3.5%	\$0	\$18,900,662	2.9%
ABS Emerging Markets	\$0	0.0%	3.5%	\$20,000,000	\$20,000,000	3.1%
<b>Total Equity</b>	<b>\$334,800,896</b>	<b>51.1%</b>	<b>50.0%</b>	<b>\$0</b>	<b>\$334,800,896</b>	<b>51.1%</b>
<b>Total Fixed Income</b>	<b>\$162,759,982</b>	<b>24.9%</b>	<b>24.0%</b>	<b>-\$2,000,000</b>	<b>\$160,759,982</b>	<b>24.5%</b>
Garcia Hamilton	\$45,310,709	6.9%	6.0%	\$0	\$45,310,709	6.9%
Lord Abbett	\$25,829,146	3.9%	4.0%	\$0	\$25,829,146	3.9%
Loomis Sayles Multi Sector Bonds	\$48,499,179	7.4%	8.0%	\$0	\$48,499,179	7.4%
Rhumblin TIPS	\$31,203,528	4.8%	4.0%	-\$2,000,000	\$29,203,528	4.5%
Octagon Senior Secured Loans	\$11,861,921	1.8%	2.0%	\$0	\$11,861,921	1.8%
Invesco Mortgage Recovery	\$55,499	0.0%	0.0%	\$0	\$55,499	0.0%
<b>Total Hedge Fund</b>	<b>\$39,173,078</b>	<b>6.0%</b>	<b>6.0%</b>	<b>\$0</b>	<b>\$39,173,078</b>	<b>6.0%</b>
PRIM Absolute Return Fund	\$14,654,357	2.2%		\$0	\$14,654,357	2.2%
Corbin Pinehurst Partners	\$12,198,727	1.9%		\$0	\$12,198,727	1.9%
UBS Neutral Alpha Strategies	\$11,568,283	1.8%		\$0	\$11,568,283	1.8%
Entrust Peru Winddown	\$751,711	0.1%		\$0	\$751,711	0.1%
<b>Total Real Estate</b>	<b>\$49,848,455</b>	<b>7.6%</b>	<b>10.0%</b>	<b>\$0</b>	<b>\$49,848,455</b>	<b>7.6%</b>
TA Realty Core	\$20,373,400	3.1%		\$0	\$20,373,400	3.1%
Morgan Stanley PPF	\$20,147,886	3.1%		\$0	\$20,147,886	3.1%
<b>Total Private Equity</b>	<b>\$55,866,224</b>	<b>8.5%</b>	<b>10.0%</b>	<b>\$0</b>	<b>\$55,866,224</b>	<b>8.5%</b>
<b>Cash</b>	<b>\$7,770,175</b>	<b>1.2%</b>	<b>0.0%</b>	<b>\$2,000,000</b>	<b>\$9,770,175</b>	<b>1.5%</b>
Peoples United Cash	\$7,770,175	1.2%	0.0%	\$2,000,000	\$9,770,175	1.5%

# **PRIVATE MARKETS STRATEGIC REVIEW AND PACING PLAN**

## **MWRA RETIREMENT SYSTEM**

**March 25, 2021**

**Sebastian Grzejka, CAIA, Principal**

**Kiley Fischer, Analyst**



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

# PRIVATE EQUITY THOUGHTS & ACTIONS

## Private Markets Thoughts

- Despite the rebound in the public markets, many public and private companies are still experiencing significantly impacted fundamentals
- The longer business disruption continues, private companies will be more likely to need new infusions of private capital to sustain operations or capitalize on opportunities
- Private investment valuations remain depressed for companies in heavily impacted industries. More resilient companies, particularly in tech sectors, have seen valuation increases
- Deal activity is rebounding from a slower start to the year, but 2020 totals for both capital calls and distributions will decrease markedly from 2019 levels
- While valuation declines will negatively impact current holdings, new capital deployed in recession-era vintages have historically generated higher alpha and illiquidity premia
- New fundraises for high quality managers remain very efficient

## Private Markets Actions

- Maintain new commitments to capture higher illiquid returns; continue to back high performing managers but look for opportunities to access other top tier managers
- If you have to reduce your pacing, decrease commitment size and don't drop high quality managers and risk losing access to their future funds
- Consider severity of existing portfolio issues before committing to any manager's next fund
- Both private equity and private credit look more attractive relative to their historical levels; seek exposure to both but don't sacrifice longer term appreciation in favor of shorter term dislocation opportunities
- Seek managers with demonstrated industry expertise or other value-add capabilities to capture more consistent and reliable returns
- Build growth exposure in regions that have better managed the pandemic, as those economies have experienced less interruption



# VIEW POINT SUMMARY

## Private Equity

US Early Stage Venture	Europe Early Stage Venture	Asia Pacific Early Stage Venture	US Large/Mega Buyout	Europe Large/Mega Buyout	Asia Pacific Buyout
US Late Stage Venture	Europe Late Stage Venture	Asia Pacific Late Stage Venture	US Small/Mid Buyout	Europe Small/Mid Buyout	Secondaries
US Growth Equity	Europe Growth Equity	Asia Pacific Growth Equity	US Special Situations	Europe Special Situations	Co-Investment Funds

## Private Credit

Distressed Debt	Opportunistic Credit	US Direct Lending	European Direct Lending	Niche Lending	Mezzanine
-----------------	----------------------	-------------------	-------------------------	---------------	-----------

Key: **Green: Positive** **Front: 2021 View Point**  
**Gray: Neutral** **Back: 2020 View Point**  
**Red: Negative**



# STRATEGY IMPLEMENTATION: PRIVATE EQUITY

Strategy		Outlook	Commentary
North American Venture and Growth Equity	Early Stage	Positive	Target managers with broad and relevant networks and expertise. Due to the lack of scalability at this stage, focus on appropriately sized funds (<\$500 million).
	Late Stage	Neutral	Target managers that bring value-add beyond just that of a capital provider. Additionally focus on firms that have shown capability of accessing competitive deals. Seek long term growth by investing in transformative innovations and technologies.
	Growth Equity	Positive	Seek managers that can consistently execute a strategy of scaling and professionalizing previously bootstrapped companies. Alternatively, target managers that are well equipped to fuel continued growth in VC-backed companies.
European Venture and Growth Equity	Early Stage	Positive	Target managers with broad and relevant networks and expertise. Due to the lack of scalability at this stage, focus on appropriately sized funds (<€400 million).
	Late Stage	Neutral	Target managers with strong networks, ample deal flow and demonstrated value-add, given that these managers may be competing with US name brands for deals.
	Growth Equity	Positive	Seek managers that can consistently execute a strategy of scaling and professionalizing previously bootstrapped companies. Alternatively, target managers that are well equipped to fuel continued growth in VC-backed companies.
Asia Pacific Venture	Early Stage	Positive	In Asia, target managers with broad and relevant networks and expertise. Due to the lack of scalability at this stage, focus on appropriately sized funds (<\$500 million).
	Late Stage	Neutral	Target managers that have a focused strategy whose value-add goes beyond that of a capital provider. Local managers focused outside the competitive Tier I and II cities will likely have local advantage. In the latest stages global players will have an ability to provided geographic diversification along with a global scale perspective.



# STRATEGY IMPLEMENTATION: PRIVATE EQUITY

Strategy		Outlook	Commentary
North American Buyout and Special Situations	Mega & Large	Neutral	This end of the market is the most efficient and correlated with public markets; look for sector specialists and groups with a proven edge to improve operations and increase profitability.
	Mid & Small	Positive	Target managers with a proven ability to scale undermanaged businesses to drive EBITDA growth and multiple expansion at exit. With higher manager dispersion in this part of the market, look for experienced teams with a demonstrable edge in sourcing.
	Special Situations	Positive	While this area has the greatest opportunity for inefficiencies, choosing managers with good asset selection and the ability to turn around underperforming businesses is paramount.
European Buyout and Special Situations	Mega & Large	Neutral	In these relatively efficient markets, look for managers with some competitive advantage/angle in their deals; sector specialists and managers with the ability to deal with large complex deals.
	Mid & Small	Positive	Seek managers that can source smaller founder-owned companies, or local GPs that can take local/regional champions and turn them into Pan-European leaders.
	Special Situations	Positive	Evaluate opportunistic special situations managers with flexible and nimble approaches able to capitalize on market, industry and/or specific company volatility; outperformers skew to smaller fund sizes.
Asia Pacific Buyout and Growth	Buyout	Positive	Buyout capital is a good source of transition capital for family-owned businesses and industries undergoing rapid structural changes. Opportunities differ by country. Invest with managers with strong sourcing channels and ability to drive value creation within their portfolios.
	Growth	Positive	China should be central to growth investing Asia-Pacific given the size of the country and the consumption spending of its rising middle class. Invest with groups that have strong local reputations and networks with local entrepreneurs.



# STRATEGY IMPLEMENTATION: PRIVATE EQUITY

Strategy		Outlook	Commentary
Multi-Managers	Secondaries	Positive	Secondary pricing and volume are rebounding from mid-2020 pandemic recession lows. Invest in GP-led secondaries as stand-alone strategy or as alpha-driving component of a secondary strategy that also invests in traditional LP interests. Venture-focused secondary funds can provide better entry valuations to late stage venture capital than primary commitments. Be aware of how fund managers plan to use leverage to assess how it could impact investment risks.
	Primary FOFs	Positive	Use specialists to gain exposure to difficult to access segments and/or geographies; be aware of how co-investments and secondaries are being used within a primary fund of fund before committing. Assess how any existing investments have been impacted by the pandemic.
	Co-Investment Funds	Positive	Seek managers with demonstrated access to deal flow from high quality GPs and have a differentiated viewpoint on how they evaluate opportunities.

Focus areas to consider for 2021 commitments

# STRATEGY IMPLEMENTATION: PRIVATE CREDIT

Strategy	Outlook	Commentary
Direct Lending - US	Neutral	While the market remains competitive, strategies may serve as a source of current yield. Overall spreads have increased and total leverage has decreased. Seek managers with historical discipline, transparency and minimal issues within current portfolios.
Direct Lending - Europe	Neutral	In Europe, seek Tier 1 managers that can navigate multiple markets including differences in national government support programs. Focus on fees and more liquid vehicle structures.
Niche Lending	Positive	Sector/industry specialization or areas which require additional expertise; overlooked and passed over by traditional lenders; thematic managers that be flexible: directly originate as well as exploit secondary opportunities
Mezzanine	Neutral	There are interesting opportunities on the non-sponsored side where managers can drive deal structures and terms European subordinated debt differs from the US – loans tend to be secured; analogous to second lien but with equity upside
Distressed Debt	Neutral	Consider flexible strategies that can allocate capital opportunistically between geographies and asset classes. Favor distressed-for-control/influence strategies that can succeed in benign and highly distressed markets, as broad opportunities can be additive to overall returns, but are cyclical and can be short-lived
Opportunistic Credit	Positive	Find managers who can provide flexible capital solutions that can invest across various market conditions Opportunistic strategies can enhance returns in a low-rate environment compared to traditional fixed-income strategies

# **PRIVATE MARKETS PACING PLAN**

NEPC, LLC

---

# NEPC RECOMMENDATION

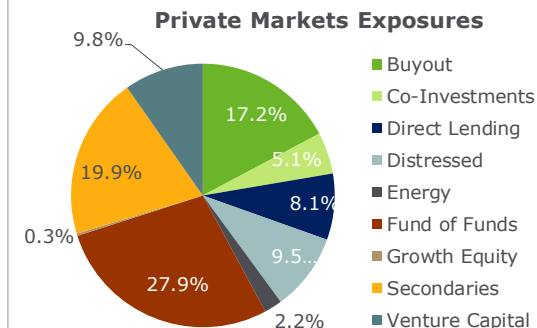
- **NEPC provides a review of MWRA's private markets allocations to determine the commitment budget for the upcoming year**
  - We consider: existing manager commitments and anticipated calls/distributions, adjustments to the target allocation and the forecasted net growth rate
  - An annual review provides an opportunity to make adjustments to any of the above factors and assess the program carefully so as to not over-allocate to illiquid investments.
- **The strategy is to maintain an active commitment pace in each vintage year going forward, being mindful of MWRA's liquidity needs**
  - Fund and manager recommendations are made in the context of the existing portfolio along with NEPC's market views
  - Our goal is to develop a program that will invest in various strategies and achieve returns in excess of public market returns
  - Currently, the MWRA has a 10% target allocation to private equity
- **Based on our review, MWRA should commit approximately \$20 million to private markets strategies in 2021**
  - The System has already committed \$5 million to PRIM AIVY 2021
  - We recommend considering strategies in Special Situations, Growth Equity and Co-Investments for the remaining commitment amount
  - As a reminder, the System committed to Secondaries (Hamilton Lane and Harbourvest) and Buyouts (JF Lehman) for 2019/2020 commitments

# CURRENT STRATEGY AND VINTAGE YEAR EXPOSURES

(\$ in millions)

## Private Markets NAVs and Exposures

Investment Strategy	Current Valuation (NAV)	Capital to be Funded	Total Current Exposure	% of Total Exposure
Buyout	\$9.2	\$8.1	\$17.3	17.2%
Co-Investments	\$4.49	\$0.64	\$5.13	5%
Direct Lending	\$3.7	\$4.4	\$8.1	8.1%
Distressed	\$8.4	\$1.1	\$9.5	9.5%
Energy	\$1.3	\$0.9	\$2.2	2.2%
Fund of Funds	\$14.3	\$13.7	\$28.0	27.9%
Growth Equity	\$0.1	\$0.2	\$0.3	0.3%
Secondaries	\$4.2	\$15.8	\$20.0	19.9%
Venture Capital	\$9.3	\$0.5	\$9.8	9.8%
<b>Total</b>	<b>\$55.1</b>	<b>\$45.2</b>	<b>\$100.2</b>	<b>100.0%</b>



## Private Markets Investments by Vintage Year

Vintage Year	Commitment	Paid In Capital	Capital to be Funded	Cumulative Distributed	Current Valuation (NAV)	Total Value	Net Benefit	Call Ratio	DPI Ratio	TVPI Ratio
2004	\$5.0	\$4.3	\$0.0	\$5.1	\$0.0	\$5.2	\$0.9	86%	1.20x	1.21x
2007	\$8.9	\$8.0	\$0.2	\$21.3	\$1.0	\$22.3	\$14.3	89%	2.68x	2.80x
2008	\$5.0	\$3.8	\$0.0	\$4.6	\$2.6	\$7.2	\$3.4	77%	1.21x	1.88x
2009	\$1.0	\$0.2	\$0.0	\$0.5	\$0.2	\$0.7	\$0.4	24%	1.90x	2.72x
2010	\$4.0	\$3.5	\$0.0	\$2.6	\$4.6	\$7.2	\$3.7	87%	0.74x	2.07x
2011	\$1.5	\$1.0	\$0.5	\$1.3	\$0.9	\$2.2	\$1.2	65%	1.30x	2.26x
2012	\$1.0	\$0.5	\$0.5	\$0.4	\$0.7	\$1.2	\$0.6	52%	0.81x	2.24x
2013	\$8.0	\$6.2	\$1.0	\$2.7	\$8.8	\$11.5	\$5.3	77%	0.44x	1.85x
2014	\$10.0	\$5.0	\$5.0	\$1.9	\$5.8	\$7.7	\$2.6	50%	0.38x	1.53x
2015	\$5.3	\$4.4	\$0.9	\$1.3	\$1.7	\$2.9	(\$1.4)	83%	0.29x	0.68x
2016	\$11.0	\$9.5	\$1.5	\$4.6	\$11.7	\$16.3	\$6.8	86%	0.48x	1.71x
2017	\$14.0	\$11.3	\$2.7	\$0.0	\$12.3	\$12.3	\$1.0	80%	0.00x	1.09x
2020	\$32.0	\$4.2	\$27.8	\$0.0	\$4.8	\$4.8	\$0.6	13%	0.00x	1.14x
2021	\$5.0	\$0.0	\$5.0	\$0.0	\$0.0	\$0.0	\$0.0	0%	NA	NA
<b>Total Private Markets</b>	<b>\$111.7</b>	<b>\$61.8</b>	<b>\$45.2</b>	<b>\$46.3</b>	<b>\$55.1</b>	<b>\$101.4</b>	<b>\$39.6</b>	<b>55%</b>	<b>0.75x</b>	<b>1.64x</b>





# PACING MODEL INPUTS AND ASSUMPTIONS

(\$ in millions)

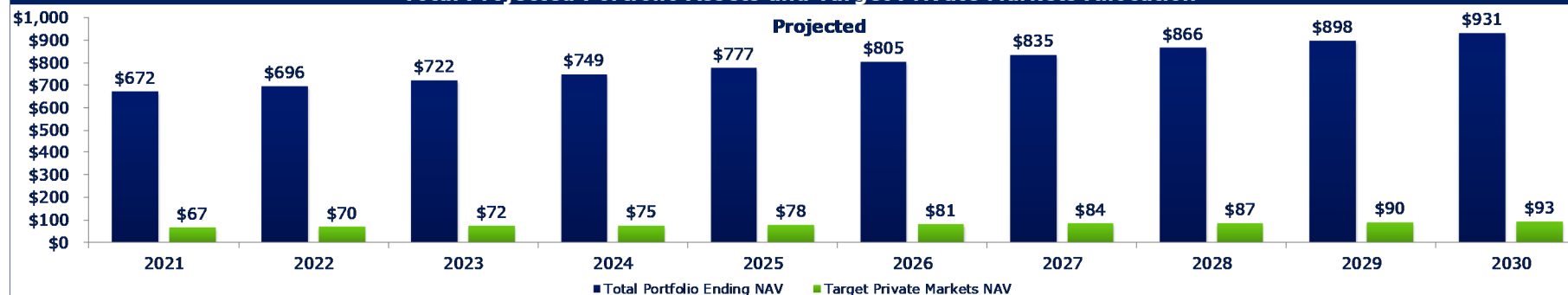
## General Portfolio Assumptions

Total Portfolio Assets	\$647.6	Portfolio Return Assumptions	2021	2022	2023
Total Private Markets Assets	\$55.1	Net Growth Rate %	3.70%	3.70%	3.70%
Private Markets Capital to be Funded	\$40.2				
Total Private Markets Exposure	\$95.2				
Total Private Markets Assets / Total Portfolio Assets	8.5%				
Total Private Markets Exposure / Total Portfolio Assets	14.7%	Portfolio Data as of:			12/31/2020
Target Private Markets Allocation % (Current Target)	10.0%	Private Markets Data as of:			9/30/2020

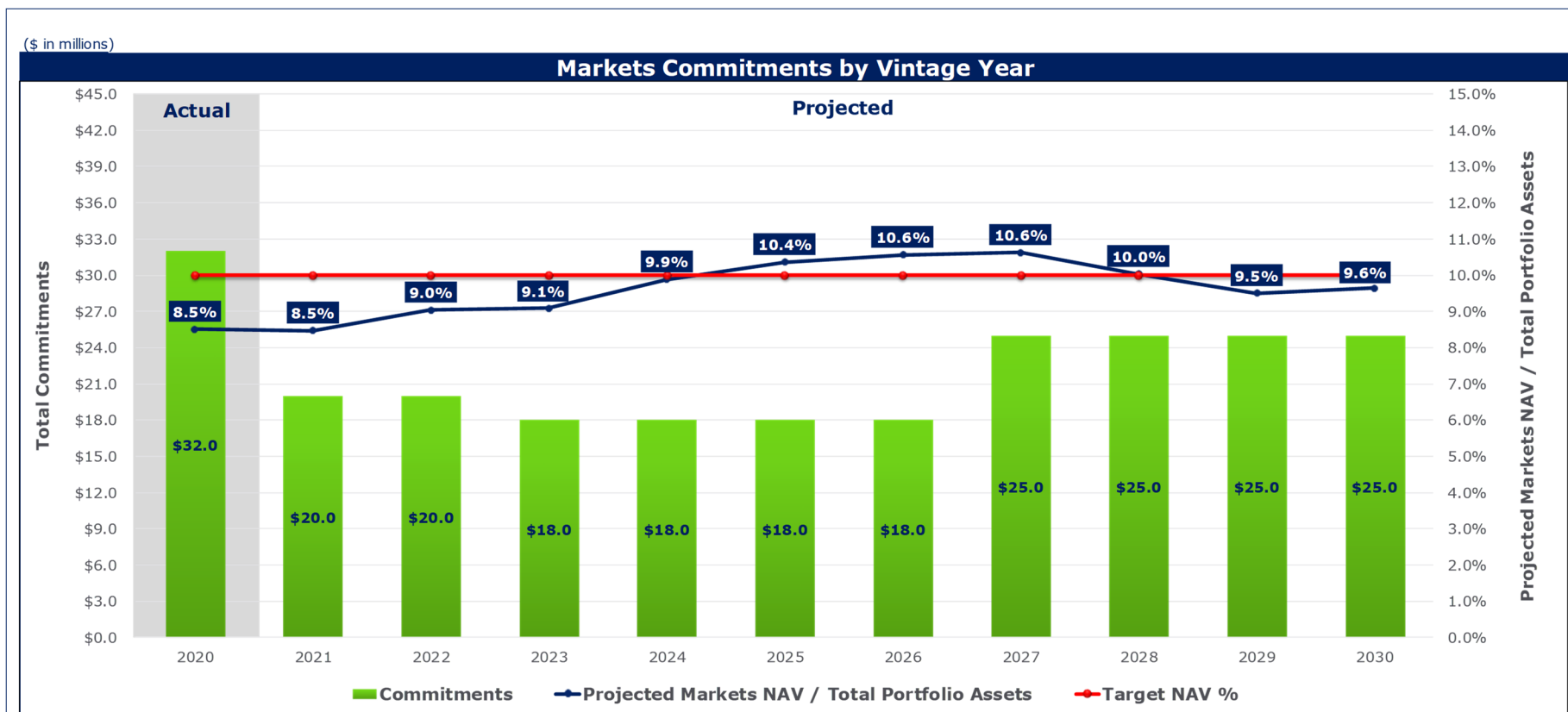
## Total Projected Portfolio Assets

	Projected									
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Portfolio Net Growth Rate	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%
Total Portfolio Beginning NAV	\$647.6	\$671.6	\$696.4	\$722.2	\$748.9	\$776.6	\$805.4	\$835.2	\$866.1	\$898.1
Yearly Net Growth	\$24.0	\$24.8	\$25.8	\$26.7	\$27.7	\$28.7	\$29.8	\$30.9	\$32.0	\$33.2
Total Portfolio Ending NAV	\$671.6	\$696.4	\$722.2	\$748.9	\$776.6	\$805.4	\$835.2	\$866.1	\$898.1	\$931.3
Target Private Markets Allocation	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Target Private Markets NAV	\$67.2	\$69.6	\$72.2	\$74.9	\$77.7	\$80.5	\$83.5	\$86.6	\$89.8	\$93.1

## Total Projected Portfolio Assets and Target Private Markets Allocation



# COMMITMENTS & ALLOCATION PROJECTIONS



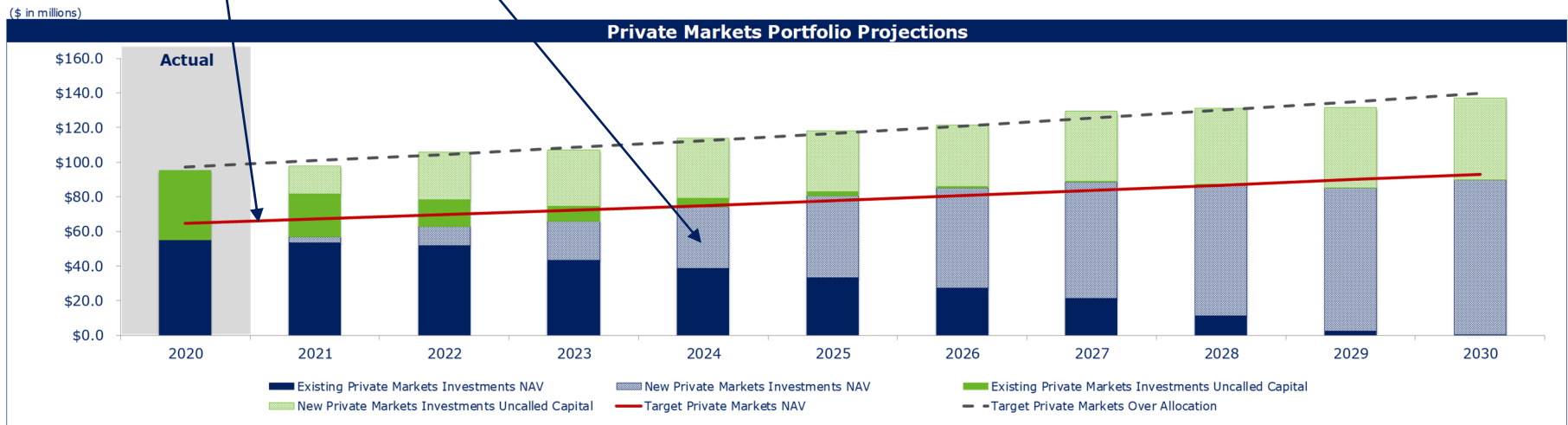
### Private Markets Commitments by Vintage Year

Year	Actual	More Certain			Less Certain						
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Total Commitments</b>	\$32.0	\$20.0	\$20.0	\$18.0	\$18.0	\$18.0	\$18.0	\$25.0	\$25.0	\$25.0	\$25.0
<b>Target Markets Allocation (%)</b>	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
<b>Projected Markets NAV / Total Portfolio Assets</b>	8.5%	8.5%	9.0%	9.1%	9.9%	10.4%	10.6%	10.6%	10.0%	9.5%	9.6%



# ASSET PROJECTIONS

- **Red line** is the **10.0%** target private markets allocation based on projected plan total NAV; **Black dashed line** is the 1.5x recommended over-commitment pace. Goal is to keep the private markets Net Asset Value (NAV) (**blue bar**) plus uncalled capital commitments (**green bar**), between red line and black dashed line while aligning the blue bar with the target red line.



Year	Projected											
	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
Private Markets NAV	\$55.1	\$56.9	\$63.0	\$65.6	\$74.0	\$80.5	\$85.1	\$88.7	\$86.9	\$85.3	\$89.8	
Uncalled Capital Commitments	\$40.2	\$41.1	\$43.0	\$41.6	\$39.7	\$37.7	\$36.2	\$40.8	\$44.1	\$46.1	\$47.3	
Private Markets NAV + Uncalled Capital Commitments	\$95.2	\$98.0	\$105.9	\$107.2	\$113.8	\$118.2	\$121.2	\$129.5	\$131.0	\$131.4	\$137.1	
Target Private Markets NAV	\$64.8	\$67.2	\$69.6	\$72.2	\$74.9	\$77.7	\$80.5	\$83.5	\$86.6	\$89.8	\$93.1	
Over-Commitment Pace	1.5x	1.5x	1.5x	1.5x	1.5x	1.5x	1.5x	1.5x	1.5x	1.5x	1.5x	
Target Private Markets Over Allocation	\$97.1	\$100.7	\$104.5	\$108.3	\$112.3	\$116.5	\$120.8	\$125.3	\$129.9	\$134.7	\$139.7	
Private Markets Percent of Total Portfolio Assets												
Private Markets NAV	8.5%	8.5%	9.0%	9.1%	9.9%	10.4%	10.6%	10.6%	10.0%	9.5%	9.6%	
Private Markets Uncalled Capital Commitments	6.2%	6.1%	6.2%	5.8%	5.3%	4.9%	4.5%	4.9%	5.1%	5.1%	5.1%	
NAV + Uncalled Capital Commitments	14.7%	14.6%	15.2%	14.8%	15.2%	15.2%	15.0%	15.5%	15.1%	14.6%	14.7%	
Target Private Markets Allocation	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	



# EXISTING COMMITMENTS

## Existing Private Markets Investments

### Buyout

Fund Name	Vintage Year	Committed	Paid In Capital	Capital To Be Funded	Cumulative Distributions	Current Valuation (NAV)	Total Value	Net Benefit	DPI Ratio	TVPI Ratio
Pinebridge (AIG) PEP V Asia	2007	\$0.5	\$0.4	\$0.0	\$0.4	\$0.1	\$0.5	\$0.1	1.00x	1.14x
Pinebridge (AIG) PEP V Europe	2007	\$1.2	\$1.1	\$0.0	\$1.3	\$0.0	\$1.3	\$0.2	1.19x	1.22x
Pinebridge (AIG) PEP V Large Market US Buyout	2007	\$0.7	\$0.6	\$0.0	\$0.9	\$0.1	\$1.0	\$0.4	1.47x	1.68x
Pinebridge (AIG) PEP V Preferred Participation Func	2007	\$0.5	\$0.5	\$0.0	\$0.8	\$0.2	\$1.0	\$0.5	1.56x	2.04x
JFL Equity Investors IV, L.P.	2016	\$6.0	\$5.2	\$0.8	\$2.9	\$7.1	\$10.0	\$4.9	0.57x	1.94x
JFL Equity Investors V, L.P.	2020	\$9.0	\$1.8	\$7.2	\$0.0	\$1.6	\$1.6	(\$0.1)	0.00x	0.92x
<b>Total Buyout</b>		<b>\$18.0</b>	<b>\$9.5</b>	<b>\$8.1</b>	<b>\$6.3</b>	<b>\$9.2</b>	<b>\$15.5</b>	<b>\$5.9</b>	<b>0.66x</b>	<b>1.62x</b>

### Co-Investments

Fund Name	Vintage Year	Committed	Paid In Capital	Capital To Be Funded	Cumulative Distributions	Current Valuation (NAV)	Total Value	Net Benefit	DPI Ratio	TVPI Ratio
Pinebridge (AIG) PEP V Co-Investment	2007	\$0.9	\$0.9	\$0.0	\$0.9	\$0.1	\$0.9	\$0.1	1.01x	1.08x
Private Advisors Small Co. Coinvestment Fund, LP	2016	\$4.0	\$3.4	\$0.6	\$0.9	\$4.4	\$5.3	\$1.9	0.26x	1.57x
<b>Total Co-Investments</b>		<b>\$4.9</b>	<b>\$4.3</b>	<b>\$0.6</b>	<b>\$1.8</b>	<b>\$4.5</b>	<b>\$6.3</b>	<b>\$2.0</b>	<b>0.42x</b>	<b>1.47x</b>

### Direct Lending

Fund Name	Vintage Year	Committed	Paid In Capital	Capital To Be Funded	Cumulative Distributions	Current Valuation (NAV)	Total Value	Net Benefit	DPI Ratio	TVPI Ratio
Alcentra European DLF	2014	\$5.0	\$1.3	\$3.7	\$1.3	\$1.1	\$2.4	\$1.2	1.06x	1.94x
Park Square Credit Opportunities III	2017	\$3.0	\$2.3	\$0.7	\$0.0	\$2.6	\$2.6	\$0.3	0.00x	1.12x
<b>Total Direct Lending</b>		<b>\$8.0</b>	<b>\$3.6</b>	<b>\$4.4</b>	<b>\$1.3</b>	<b>\$3.7</b>	<b>\$5.1</b>	<b>\$1.5</b>	<b>0.37x</b>	<b>1.41x</b>

### Distressed

Fund Name	Vintage Year	Committed	Paid In Capital	Capital To Be Funded	Cumulative Distributions	Current Valuation (NAV)	Total Value	Net Benefit	DPI Ratio	TVPI Ratio
CVI Credit Value Fund IV A LP	2017	\$6.0	\$5.8	\$0.2	\$0.0	\$6.0	\$6.0	\$0.2	0.00x	1.03x
Ironsides Constitution Opportunities	2017	\$3.0	\$2.1	\$0.9	\$0.0	\$2.5	\$2.5	\$0.4	0.01x	1.17x
<b>Total Distressed</b>		<b>\$9.0</b>	<b>\$7.9</b>	<b>\$1.1</b>	<b>\$0.0</b>	<b>\$8.4</b>	<b>\$8.5</b>	<b>\$0.5</b>	<b>0.00x</b>	<b>1.07x</b>



# EXISTING COMMITMENTS

## Energy

Fund Name	Vintage Year	Committed	Paid In Capital	Capital To Be Funded	Cumulative Distributions	Current Valuation (NAV)	Total Value	Net Benefit	DPI Ratio	TVPI Ratio
Kayne Energy Fund VII	2015	\$5.0	\$4.1	\$0.9	\$1.0	\$1.3	\$2.3	(\$1.8)	0.24x	0.56x
<b>Total Energy</b>		<b>\$5.0</b>	<b>\$4.1</b>	<b>\$0.9</b>	<b>\$1.0</b>	<b>\$1.3</b>	<b>\$2.3</b>	<b>(\$1.8)</b>	<b>0.24x</b>	<b>0.56x</b>

## Fund of Funds

Fund Name	Vintage Year	Committed	Paid In Capital	Capital To Be Funded	Cumulative Distributions	Current Valuation (NAV)	Total Value	Net Benefit	DPI Ratio	TVPI Ratio
Invesco Partnership Fund IV	2004	\$3.0	\$2.3	\$0.0	\$4.8	\$0.0	\$4.8	\$2.6	2.12x	2.12x
PRIM Vintage Year 2008	2008	\$3.0	\$1.9	\$0.0	\$3.3	\$1.0	\$4.3	\$2.4	1.76x	2.27x
PRIM Vintage Year 2009	2009	\$1.0	\$0.2	\$0.0	\$0.5	\$0.2	\$0.7	\$0.4	1.90x	2.72x
PRIM Vintage Year 2010	2010	\$1.0	\$0.5	\$0.0	\$0.8	\$0.5	\$1.4	\$0.8	1.50x	2.50x
PRIM Vintage Year 2011	2011	\$1.5	\$1.0	\$0.5	\$1.3	\$0.9	\$2.2	\$1.2	1.30x	2.26x
PRIM Vintage Year 2012	2012	\$1.0	\$0.5	\$0.5	\$0.4	\$0.7	\$1.2	\$0.6	0.81x	2.24x
Invesco Fund VI	2013	\$5.0	\$4.0	\$1.0	\$1.1	\$7.6	\$8.7	\$4.7	0.28x	2.19x
PRIM Vintage Year 2014	2014	\$2.0	\$1.2	\$0.8	\$0.6	\$1.9	\$2.5	\$1.3	0.49x	2.11x
PRIM Vintage Year 2017	2017	\$2.0	\$1.0	\$1.0	\$0.0	\$1.2	\$1.2	\$0.2	0.01x	1.21x
PRIM Vintage Year 2020	2020	\$5.0	\$0.2	\$4.8	\$0.0	\$0.2	\$0.2	\$0.0	0.00x	1.02x
PRIM Vintage Year 2021	2021	\$5.0	\$0.0	\$5.0	\$0.0	\$0.0	\$0.0	\$0.0	NA	NA
<b>Total Fund of Funds</b>		<b>\$29.5</b>	<b>\$12.8</b>	<b>\$13.7</b>	<b>\$12.8</b>	<b>\$14.3</b>	<b>\$27.1</b>	<b>\$14.3</b>	<b>1.00x</b>	<b>2.12x</b>

## Growth Equity

Fund Name	Vintage Year	Committed	Paid In Capital	Capital To Be Funded	Cumulative Distributions	Current Valuation (NAV)	Total Value	Net Benefit	DPI Ratio	TVPI Ratio
Pinebridge (AIG) PEP V Small-Mid Market US Buyou	2007	\$0.9	\$0.7	\$0.2	\$1.2	\$0.1	\$1.3	\$0.6	1.75x	1.89x
<b>Total Growth Equity</b>		<b>\$0.9</b>	<b>\$0.7</b>	<b>\$0.2</b>	<b>\$1.2</b>	<b>\$0.1</b>	<b>\$1.3</b>	<b>\$0.6</b>	<b>1.75x</b>	<b>1.89x</b>

## Secondaries

Fund Name	Vintage Year	Committed	Capital	Funded	Distributions	Valuation	Total Value	Net Benefit	DPI Ratio	TVPI Ratio
Pinebridge (AIG) PEP V Secondary	2007	\$0.6	\$0.4	\$0.0	\$0.6	\$0.0	\$0.6	\$0.2	1.37x	1.46x
Landmark XV	2013	\$3.0	\$2.2	\$0.0	\$1.6	\$1.2	\$2.8	\$0.6	0.72x	1.25x
Hamilton Lane Secondary Fund V LP	2020	\$9.0	\$1.4	\$7.7	\$0.0	\$1.6	\$1.6	\$0.2	0.00x	1.18x
HarbourVest Dover Street X	2020	\$9.0	\$0.9	\$8.1	\$0.0	\$1.4	\$1.4	\$0.5	0.00x	1.56x
<b>Total Secondaries</b>		<b>\$21.6</b>	<b>\$4.9</b>	<b>\$9.8</b>	<b>\$2.2</b>	<b>\$4.2</b>	<b>\$6.4</b>	<b>(\$4.5)</b>	<b>0.44x</b>	<b>1.30x</b>

## Venture Capital

Fund Name	Vintage Year	Committed	Capital	Funded	Distributions	Valuation	Total Value	Net Benefit	DPI Ratio	TVPI Ratio
Ascent Fund IV	2004	\$2.00	\$2.00	\$0.00	\$0.31	\$0.03	\$0.34	(\$1.66)	0.16x	0.17x
Foundry 2007	2007	\$3.00	\$2.96	\$0.00	\$14.51	\$0.21	\$14.71	\$11.76	4.91x	4.98x
Pinebridge (AIG) PEP V US Venture	2007	\$0.48	\$0.41	\$0.00	\$0.79	\$0.10	\$0.89	\$0.48	1.93x	2.17x
Ascent Fund V	2008	\$2.00	\$1.94	\$0.00	\$1.30	\$1.62	\$2.92	\$0.98	0.67x	1.51x
Foundry 2010	2010	\$3.00	\$2.93	\$0.00	\$1.75	\$4.09	\$5.84	\$2.90	0.60x	1.99x
Ascent VI	2014	\$3.00	\$2.58	\$0.42	\$0.00	\$2.73	\$2.73	\$0.15	0.00x	1.06x
Foundry 2010 Annex	2015	\$0.27	\$0.27	\$0.00	\$0.27	\$0.39	\$0.66	\$0.39	1.01x	2.47x
Ascent Fund IV-B	2016	\$1.00	\$0.97	\$0.03	\$0.79	\$0.16	\$0.94	(\$0.03)	0.81x	0.97x
<b>Total Venture Capital</b>		<b>\$14.75</b>	<b>\$14.05</b>	<b>\$0.45</b>	<b>\$19.71</b>	<b>\$9.32</b>	<b>\$29.03</b>	<b>\$14.98</b>	<b>1.40x</b>	<b>2.07x</b>



# PRIVATE MARKETS APPENDIX

NEPC, LLC

---

## PACING PLAN DISCLAIMERS

- **NEPC's private markets pacing analysis projects a potential level of future assets and cash flows for a single scenario based on a series of assumptions. This analysis is intended to help estimate future exposure levels. It is not a guarantee of future cash flows, appreciation or returns.**
- **The timing and amounts of projected future cash flows and market values of investments could vary significantly from the amounts projected in this pacing analysis due to manager-specific and industry-wide macroeconomic factors.**
- **Estimates of projected cash flows and market values for existing private markets commitments were made at the Fund level and do not incorporate any underlying portfolio company projections or analysis.**
- **The opinions presented herein represent the good faith views of NEPC as of the date of this report and are subject to change at any time.**
- **Data used to prepare this report was obtained directly from the investment managers and other third parties. While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.**
- **This report may contain confidential or proprietary information and is intended only for the designated recipient(s). If you are not a designated recipient, you may not copy or distribute this document.**



# ALTERNATIVE INVESTMENT DISCLOSURES

**It is important that investors understand the following characteristics of non-traditional investment strategies including hedge funds and private equity:**

- 1. Performance can be volatile and investors could lose all or a substantial portion of their investment**
- 2. Leverage and other speculative practices may increase the risk of loss**
- 3. Past performance may be revised due to the revaluation of investments**
- 4. These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms**
- 5. A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value**
- 6. These funds are not subject to the same regulatory requirements as registered investment vehicles**
- 7. Managers may not be required to provide periodic pricing or valuation information to investors**
- 8. These funds may have complex tax structures and delays in distributing important tax information**
- 9. These funds often charge high fees**
- 10. Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy**





## McManus, Julie

---

**From:** Grzejka, Sebastian <SGrzejka@nepc.com>  
**Sent:** Friday, March 19, 2021 10:31 AM  
**To:** Russo, Carolyn  
**Cc:** McManus, Julie  
**Subject:** [EXTERNAL] RE: Axiom EME strategy - new PM hire

**[EXTERNAL]: This is an external email. Do not click on links or attachments if sender is unknown or if the email is unexpected.**

Yes please.

---

**From:** Russo, Carolyn  
**Sent:** Friday, March 19, 2021 10:29 AM  
**To:** Grzejka, Sebastian  
**Cc:** McManus, Julie  
**Subject:** RE: Axiom EME strategy - new PM hire

### MESSAGE FROM EXTERNAL SENDER

---

Ok, so add it to NEPC Updates on the agenda for Thursday?

---

**From:** Grzejka, Sebastian <[SGrzejka@nepc.com](mailto:SGrzejka@nepc.com)>  
**Sent:** Friday, March 19, 2021 9:57 AM  
**To:** Russo, Carolyn <[Carolyn.Russo@mwra.com](mailto:Carolyn.Russo@mwra.com)>  
**Cc:** McManus, Julie <[Julie.McManus@mwra.com](mailto:Julie.McManus@mwra.com)>; Fischer, Kiley <[KFischer@nepc.com](mailto:KFischer@nepc.com)>  
**Subject:** [EXTERNAL] Axiom EME strategy - new PM hire

**[EXTERNAL]: This is an external email. Do not click on links or attachments if sender is unknown or if the email is unexpected.**

Good Morning Carolyn and Julie,

Below you will find an announcement about an addition to the Axiom team. Axiom informed us that they have hired Young Kim as a co-PM on the emerging markets strategy. As you recall, we had discussed that one of the PMs, Chris Lively took leave for medical reasons. He will step down permanently from the PM role and serve as an advisor to the team. We are not recommending any action at the moment, however, our Due Diligence Committee will review this on Monday. I will let you know if anything regarding this recommendation changes post that meeting. Please let me know if you have any questions.

Sebastian

From NEPC Research:

Axiom has informed us that lead PM Chris Lively will permanently step down from his PM responsibilities given the seriousness of his health condition. He will remain a partner of the firm, and mentor-advisor to the EME team. Axiom

announced the hire of Young Kim who will be joining as partner and a co-lead portfolio manager alongside Jose Morales, Andrew Jacobson CIO and co-PM Don Elefson on the Emerging Markets Equity strategy. Mr. Kim joined Axiom from Columbia Threadneedle and will be relocating from Portland, Oregon since Axiom believes in having all team members in one place. Mr. Kim was a co-PM on the Emerging Markets Equity strategy at Columbia Threadneedle. Mr. Kim already started with the team on March 8<sup>th</sup> and Mr. Lively's official last date is March 31<sup>st</sup> so they will overlap for the rest of the month. We are comfortable with this new hire and transition plan. We believe the team remains well resourced with high caliber talent, and recommend a No Action status.

**Young Kim – Portfolio Manager** – Young serves as Co-Lead Portfolio Manager on Axiom's Emerging Markets Equity Strategy. Prior to joining Axiom, Young spent a decade at Columbia Threadneedle, where he was Senior Portfolio Manager on the \$7B+ AUM, 5-star Morningstar Global Columbia Emerging Markets Fund (UMEMX), as well as Lead Manager on their Emerging Markets ESG Equities fund. Prior to Columbia Threadneedle, Young worked in Singapore for Marathon Asset Management as well as for a venture capital firm focused on investing in technology enabled emerging Asian enterprises. Earlier in his career Young was an engineer at software start-ups. Young holds an M.B.A. from Harvard Business School as well as an M.S. and B.S. in Electrical Engineering and Computer Science from MIT. He is a Board Officer of the Harvard Business School Association of Oregon and is a Board Member/President Emeritus of The International School in Portland, Oregon. Young is fluent in Korean and conversant in Japanese.

---

This e-mail and any attachments may contain private, confidential or privileged material for the sole use of the intended recipient. If you are not the intended recipient, you may not review, copy or distribute this message. If you received this message in error, please notify the sender by reply e-mail and delete this message and any attachments. Thank you.

## McManus, Julie

---

**From:** Russo, Carolyn  
**Sent:** Friday, March 19, 2021 9:40 AM  
**To:** McManus, Julie  
**Cc:** Grzejka, Sebastian  
**Subject:** FW: Baillie Gifford Partnership Update

Julie:  
Please add this to the agenda under NEPC. Thank you.  
Carolyn

---

**From:** Kelly Cameron  
**Sent:** Friday, March 19, 2021 9:23 AM  
**To:** Russo, Carolyn  
**Cc:** Michael Stirling-Aird  
**Subject:** [EXTERNAL] Baillie Gifford Partnership Update

[EXTERNAL]: This is an external email. Do not click on links or attachments if sender is unknown or if the email is unexpected.

Dear Carolyn, I hope all is well with you.

I am emailing to let you know about a future partnership change. James Anderson will step down as a partner of Baillie Gifford in just over a year's time, on 30 April 2022, after 39 years at the firm.

A strong advantage of being a partnership is the space and visibility to plan for the future, as partners signal their intended retirement plans well ahead of time. While we are giving our clients a full year's notice of James' retirement, we have been able to plan several years in advance to ensure a very smooth succession. James handed over the chair of the International Growth PCG in 2019. Tom Coutts, previously the deputy, took on the lead role, with Lawrence Burns becoming deputy chair. Tom will lead an experienced investment team, including 4 partners in the firm.

During his final year, James will continue as a PCG member, taking part in decision making and writing stock research as before, though he will in addition be taking on one external non-executive position accounting for one day a week of his time.

While there is still more than a year before James retires, we understand if you have questions and will be happy to answer them in the coming weeks and months.

Wishing you a wonderful weekend when it comes.

Best,

Kelly

---

Kelly Cameron – Clients Department

**Baillie Gifford & Co.**

Calton Square, 1 Greenside Row, Edinburgh, EH1 3AN

Tel: +44 (0) 131 275 2735, +44 (0) 7583085327

Email: [kelly.cameron@bailliegifford.com](mailto:kelly.cameron@bailliegifford.com)



This message is issued by a member of the Baillie Gifford & Co group of companies. Baillie Gifford & Co (authorised and regulated by the Financial Conduct Authority, Finances Services Register Number 142597 and representative member of UK VAT Group Registration Number 333 4026 38), Calton Square, 1 Greenside Row, Edinburgh, EH1 3AN, Scotland are investment managers authorised and regulated by the Financial Conduct Authority. The investment trusts managed by the Baillie Gifford group are listed on the London Stock Exchange and are not authorised or regulated by the Financial Conduct Authority. Baillie Gifford & Co has a number of subsidiary undertakings incorporated under the UK Companies Acts: Baillie Gifford Overseas Limited, Registered Number SC084807; Baillie Gifford & Co Limited, Registered Number SC069524; Baillie Gifford Savings Management Limited (in liquidation), Registered Number SC135636, Baillie Gifford Services Limited, Registered Number SC593878, Mitsubishi UFJ Baillie Gifford Asset Management Limited, Registered Number SC122044 all registered in Scotland and having their registered office at the above Calton Square address, and Baillie Gifford Life Limited (in liquidation), Registered Number SC182496 registered in Scotland and having its registered office at Atria One, 144 Morrison Street, Edinburgh, EH3 8EX. Further details of these, and our non-UK subsidiaries, Baillie Gifford International LLC, Baillie Gifford Funds Services LLC, Baillie Gifford Investment Management (Europe) Limited, Baillie Gifford Investment Management (Shanghai) Limited 柏基投资管理(上海)有限公司, Baillie Gifford Overseas Investment Fund Management (Shanghai) Limited, Baillie Gifford IT Services (Poland) sp. z o.o. and Baillie Gifford Asia (Hong Kong) Limited 柏基亞洲(香港)有限公司, are provided at <http://www.bailliegifford.com>. Baillie Gifford & Co may monitor outgoing and incoming emails and email attachments including their content. Please read important legal and regulatory notifications at [www.bailliegifford.com/email-disclaimer](http://www.bailliegifford.com/email-disclaimer). This email and any files transmitted with it are strictly confidential. It is intended solely for the intended recipient. If you are not the intended recipient you must not copy, disclose or take or omit to take any action in reliance on it. All liability for any loss or damage caused by any virus transmitted with this email is excluded to the fullest extent permitted by law.